9.3 Module Overview

Building and Communicating Knowledge through Research: The Inquiry and Writing Processes

Texts	**Unit 1:** Grandin, Temple, and Catherine Johnson. *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior* **Unit 2:** Student research sources will vary Students choose texts for research based on their individual research question/problem. Model Research Sources: • "The Brains of the Animal Kingdom" *The Wall Street Journal* • "Minds of Their Own: Animals Are Smarter Than You Think" *National Geographic* • "Think You're Smarter Than Animals? Maybe Not" *The New York Times* • "Monkeys Can Perform Mental Addition" *ScienceDaily* • "Animal Intelligence: How We Discover How Smart Animals Really Are" *Encyclopedia Britannica Blog* **Unit 3:** *Student research sources will vary** *By Unit 3, students have chosen texts for research based on their individual research question/problem.
Number of Days in Module	35 (including Module Performance Assessment)

Introduction

In Module 9.3, students engage in an inquiry-based, iterative process for research. Building on work with evidence-based analysis in Modules 9.1 and 9.2, students explore topics of interest, gather research, and generate an evidence-based perspective to ultimately write an informative/explanatory research paper that synthesizes and articulates their findings. Students use textual analysis to surface potential topics for research, and develop and strengthen their writing by revising and editing.

In Unit 9.3.1, students closely read a nonfiction text, focusing on the development and emergence of a central idea. Additionally, the text serves as a springboard to research, with students surfacing and tracking potential research topics as they emerge from the text.

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In Unit 9.3.2, students continue the research process begun in Unit 1. Students begin to learn and deeply engage in this iterative, non-linear process by pursuing areas of interest and deepening their understanding using guiding inquiry questions. Students use this inquiry-based process to gather, assess, read, and analyze sources. In the latter half of the unit, students then take those sources and begin to organize and synthesize research findings to make claims about a specific research question or problem.

In Unit 9.3.3, students engage in the writing process with the goal of synthesizing and articulating their evidence-based research perspective in writing. The end product of this unit is a final draft of an informative/explanatory research paper that articulates the conclusions gleaned from research throughout Module 9.3. The writing cycle — in which students self-edit, peer review and continually revise their work — serves as the primary framework for this unit.

Literacy Skills & Habits

- Read closely for textual details
- Annotate texts to support comprehension and analysis
- Engage in productive evidence-based conversations about text
- Conduct independent searches and assess sources for credibility, relevance, and accessibility
- Develop, refine, and select inquiry questions for independent research
- Collect and organize evidence from research to support analysis in writing
- Generate an evidence-based perspective from research
- Revise writing
- Utilize rubrics for self-assessment and peer review of writing
- Use technology to publish and enhance research findings

English Language Arts Outcomes

Yearlong Target Standards

These standards embody the pedagogical shifts required by the Common Core Standards and will be a strong focus in every ELA module and unit in grades 9–12.

CCS Standards: Reading – Literature	
RL.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

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RL.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone.
RL.9-10.10	By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, and literary nonfiction, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.
CCS Standards: Reading – Informational Text	
RI.9-10.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone.
RI.9-10.10	By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, and literary nonfiction, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.
CCS Standards: Writing	
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. a. Apply grades 9–10 Reading standards to literature b. Apply grades 9–10 Reading standards to literary nonfiction
W.9-10.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of purposes, tasks, and audiences.
CCS Standards: Speaking & Listening	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCS Standards: Language	
L.9-10.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. b. Identify and correctly use patterns of word changes that indicate different meanings

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	or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy). c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Module-Specific Standards

These standards will be the specific focus of instruction and assessment, based on the texts studied and proficiencies developed in this module.

CCS Standards: Reading – Literature	
None.	
CCS Standards: Reading – Informational Text	
RI.9-10.1a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
RI.9-10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
RI.9-10.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

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CCS Standards: Writing	
W.9-10.2.a-f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3.)
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

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W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
CCS Standards: Speaking & Listening	
None.	
CCS Standards: Language	
L.9-10.2.a-c	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.
L.9-10.3.a	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.

Addressed Standards

These standards will be addressed at the unit or module level, and may be considered in assessment, but will not be the focus of extended instruction in this module.

CCS Standards: Reading – Literature	
None.	
CCS Standards: Reading – Informational Text	
RI. 9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

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CCS Standards: Writing	
W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
CCS Standards: Speaking & Listening	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
CCS Standards: Language	
L.9-10.4.a,c,d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.9-10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Module Performance Assessment

In this five-lesson performance assessment, students use a class blog to publish and enhance their research from the module. Each student publish one post to this blog. Students will not simply reproduce, but enrich and enhance their research paper through the use of technology (hyperlinks, images, graphics, animation, charts, graphs, video, and audio clips, etc.).

Prompt
Over the course of this module, you have analyzed information presented in both print and multimedia formats. You have deepened your understanding of a topic through research, and have presented your

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analysis in a formal research paper. Now you will work to enhance that analysis, and subsequently publish it online in a class blog. You should organize the information by making effective use of the available multimedia components (hyperlinks, images, graphics, animation, charts, graphs, video and audio clips, etc.), so that readers can follow the line of reasoning.

- Publish a version of your research paper on the class blog, using various multimedia components to enhance the reader's understanding of your findings. Take advantage of technology's capacity to link to other information and display it flexibly and dynamically.

Though this performance assessment assumes a class blog, other forms of self-publication are equally as valid. Depending on the resources available, consider having students create a multimedia document within Microsoft Word; a voiceover presentation using VoiceThread; a multimedia PDF; or a multimedia document in Google Drive.

Process

The module performance assessment will require students to revise and edit their research paper based on teacher feedback; review the claims they made in their research paper; reassess sources connected to claims for usable multimedia (e.g., video, pictures, graphs) to support claim(s); search for other multimedia to support claim(s); and/or create their own multimedia publication components (e.g., graphs, pictures, voiceover recordings). Students synthesize all of these multimedia components into a final published blog post. The final product should not simply reproduce their research paper visually; it should update and enhance their analysis, leveraging the flexibility of digital media to offer a dynamic lens through which to understand their research.

Lesson 1

Students review their research papers based on teacher feedback and make any necessary revisions. Additionally, students may begin to identify evidence and claims made prior to this lesson that can be enhanced by technology.

Lesson 2

Students identify evidence and claims made in their research that can be enhanced by technology. Students evaluate, gather, and/or create relevant multimedia based on the evidence and claims they identified in their research paper. Rather than make new claims, students should use technology to present their evidence in a new and relevant way.

Lesson 3

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Students begin work on their blog post, incorporating all relevant multimedia found in research sources, and developing additional multimedia, where relevant, to enhance their research findings. ⓘ Students may require the majority of this lesson to be devoted to learning how to create blog posts (e.g., how to log in, format text, insert hyperlinks and images, and embed video as needed).
Lesson 4
Students continue to work on developing and refining their blog post, incorporating and creating relevant multimedia where needed. Students focus on organizing material effectively, formatting the title of their post, and tagging with relevant search keywords. Students prepare their blog posts for publication and assessment.
Lesson 5
Students finalize their blog post. Students edit the post and ensure it is "live" and accessible via the internet. Standards assessed: W.9-10.2, W.9-10.5, W.9-10.6

Texts

Unit 1:
Grandin, Temple, and Catherine Johnson. *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior*
Unit 2:
Students choose texts for research based on their individual research question/problem. Model research sources:
Waal, F. "The Brains of the Animal Kingdom." *The Wall Street Journal*, Mar. 22, 2013.
Morell, V. "Minds of Their Own: Animals Are Smarter Than You Think." *National Geographic*, Mar. 2008.
Horowitz, A. and Shae, A. "Think You're Smarter Than Animals? Maybe Not." *The New York Times*, Aug. 20, 2011.
Duke University Medical Center. "Monkeys Can Perform Mental Addition." *ScienceDaily*, Dec. 20, 2007.
Castro, L. and Wasserman, E. "Animal Intelligence: How We Discover How Smart Animals Really Are."

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Encyclopedia Britannica Blog. Encyclopedia Britannica, Oct. 19, 2012.
Unit 3:
Student research sources will vary* *By Unit 3, students will have chosen texts for research based on their individual research question/problem.

9.1 Module-at-a-Glance Calendar

Text	Days in the Unit	Literacy Skills and Habits	Assessed and Addressed CCSS	Assessments
Unit 1:				
Animals in Translation (Temple Grandin and Catherine Johnson)	10	• Read closely for textual details. • Annotate texts to support comprehension and analysis. • Engage in productive evidence-based discussions about text. • Collect and organize evidence from texts to support analysis in writing. • Analyze text and multimedia. • Make claims about the development and refinement of central ideas in a text. • Use vocabulary strategies to define unknown words. • Identify potential topics for research within a	**RI.9-10.1a** **RI.9-10.2** **RI.9-10.3** **RI.9-10.5** **RI.9-10.7** **W.9-10.4** **W.9-10.9** RI.9-10.4 W.9-10.7 W.9-10.8 SL.9-10.1.c L.9-10.4.a, c, d	**End-of-Unit:** Students complete a two-part short writing assessment. **Part 1:** Students synthesize and compose a multi-paragraph response tracing the development and refinement of a central idea from chapter 1 of *Animals in Translation*. **Part 2:** Students articulate in writing two or three areas of investigation and describe how and where each area emerged from *Animals in Translation*.

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		text. • Use questioning to guide research. • Conduct pre-searches to validate sufficiency of information for exploring potential topics.		
Unit 2:				
Student research sources will vary Students choose texts for research based on their individual research question or problem. Model research sources: "The Brains of the Animal Kingdom" (Frans de Waal) "Minds of Their Own: Animals Are Smarter Than You Think" (Virginia Morrell)	12	• Assess sources for credibility, relevance, and accessibility. • Conduct independent searches using research processes including planning for searches, assessing sources, and annotating and recording notes. • Develop, refine, and select inquiry questions for research. • Develop and continually assess a research frame to guide independent searches. • Collect and organize evidence from research to support analysis in writing.	**RI.9-10.1.a** **W.9-10.4** **W.9-10.7** **W.9-10.8** **W.9-10.9** W.9-10.2 RI.9-10.7 SL.9-10.1 L.9-10.4.a, c, d	**End-of-Unit**: Students turn in a completed Research Portfolio including their Research and Vocabulary Journals. **Evidence-Based Perspective**: Additionally, students compose a one-page synthesis of their personal conclusions and perspective derived from their research. Students draw on the research outcomes, as developed in the Organizing Evidence-Based Claims Tools to express their perspective on their respective research question/problem.

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"Think You're Smarter Than Animals? Maybe Not" (Alexandra Horowitz and Ammon Shea) "Monkeys Can Perform Mental Addition" (*ScienceDaily)* "Animal Intelligence: How We Discover How Smart Animals Really Are" (Edward Wasserman and Leyre Castro)		• Make claims about inquiry questions, inquiry paths, and a research question/ problem using specific textual evidence from the research.		
Unit 3:				
*Student texts (research sources) will vary** *By Unit 3, students have chosen texts for research based on their individual research question/ problem.	8	• Collect and organize evidence from research to support analysis in writing. • Analyze, synthesize, and organize evidence-based claims. • Write effective introduction, body, and conclusion paragraphs for an informational/ explanatory research paper. • Use proper citation methods in writing.	**W.9-10.2.a-f** **W.9-10.4** **W.9-10.5** **W.9-10.8** **W.9-10.9** W.9-10.7 W.9-10.9 L.9-10.2.a-c L.9-10.3.a L.9-10.6 SL.9-10.1	**End-of-Unit:** **Part 1:** Students shall be assessed on the final draft of their research paper, and its alignment to the criteria of an informative/explanatory text (W.9-10.2). The final draft should examine and convey complex ideas and clearly incorporate students' evidence-based claims as well as appropriately cite sources. The final draft

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		• Edit for a variety of purposes including using semicolons, colons, and correct spelling. • Use formal style and objective tone in writing. • Write coherently and cohesively.		should accurately organize and demonstrate thoughtful analysis of the evidence gathered through research.

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DEFINITION OF TERMS

USED IN RESEARCHING TO DEEPEN UNDERSTANDING

A DEVELOPING CORE PROFICIENCIES

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Research Question/Problem (Area of Investigation):
A particular theme, question, problem, or more focused sub-topic within the general topic that warrants investigation.

Inquiry Question:
Questions posed by researchers about their research question/problem to be answered through inquiry.

Inquiry Path:
Groups of Inquiry Questions developed to guide investigation. Each Inquiry Path has a name or title that is the theme of the group of questions. It can also be a more general question that summarizes the specific questions within the group.

Research Frame:
A written document comprised of the topic, the research question/problem, the Inquiry Paths and all the Inquiry Questions within each Inquiry Path. It is the tool that will guide the student throughout the research process.

Research Portfolio:
The binder or electronic folder where students physically or electronically store and organize all the material related to their personal research.

Research Plan:
A document presenting the strategic process students follow to guide them through the various stages of inquiry.

Topic:
The topic from which the research question/problem will be derived.

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9.3 Performance Assessment

Introduction

In this Performance Assessment, students revise, enhance, and publish their research paper from Unit 3. Each student publishes their final research paper, enhanced using technology to display information, on an openly accessible web site such as a class or school blog. Students are enriching their research paper with multimedia components (hyperlinks, images, graphics, animation, charts, graphs, video and audio clips, etc.). Detailed instructions for the five lesson tasks are below. This performance task is evaluated using the 9.3 Performance Assessment Checklists.

Prompt
Over the course of this module, you have analyzed information presented in both print and multimedia formats. You have deepened your understanding of a topic through research, and have presented your analysis in a formal research paper. Now you should work to enhance that analysis, and subsequently publish it online in a class blog. You should organize the information by making effective use of the available multimedia components (hyperlinks, images, graphics, animation, charts, graphs, video and audio clips, etc.), such that readers can follow the line of reasoning. **Publish a version of your research paper on the class blog, using various multimedia components to enhance the reader's understanding of your findings. Take advantage of technology's capacity to link to other information and display it flexibly and dynamically.** ⓘ Though this Performance Assessment assumes a class blog, consider using other forms of self-publication based on feasibility and access to internet/technology. Depending on the resources available, consider having students create a multimedia document within Microsoft Word; a voiceover presentation using VoiceThread; a multimedia PDF; or a multimedia document in Google Drive.

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Process

The module Performance Assessment requires students to revise and edit their research paper based on teacher feedback using the Research Paper Rubric and the Informative and Explanatory Writing Checklists; review the claims they made in their research paper; reassess sources connected to claims for usable multimedia (e.g. video, pictures, graphs) to support claim(s); search for other multimedia to support claim(s); and/or create their own multimedia publication components (e.g., graphs, pictures, voiceover recordings). Students synthesize and incorporate all of these multimedia components into their enhanced research product in a format to be determined by the teacher. The final product should not simply reproduce their research paper visually; it should enhance their analysis, leveraging digital media to offer a different lens through which to understand the research.

Lesson 1

Display and distribute the prompt for the Performance Assessment so that students know the goal of their work. Before beginning the prompt, students review their research paper based on teacher feedback and make any necessary edits, using the Research Paper Rubric and the Informative and Explanatory Writing Checklists as guides.

ⓘ Revising the research paper based on End-of-Unit feedback should take an entire lesson. However, if students finish early, they can begin to identify evidence and claims made prior to this lesson that can be enhanced by digital media.

ⓘ **Differentiation Consideration:** Consider providing verbal, one-on-one feedback in addition to written comments.

Lesson 2

Students begin to identify evidence and claims made prior to this lesson that can be enhanced by digital media. Students evaluate, gather, and/or create relevant multimedia based on the evidence and claims they identified in their research paper. Students should not be finding new information or making new claims; rather, they should be evaluating the information they have already gathered in a new and relevant way. For example, a student who devoted time to describing a complex study might consider incorporating a graph to enhance the presentation of the study. Students may also include hyperlinks within the text to relevant outside sources.

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Lesson 3
Students begin to work on their published product, pulling together all the relevant multimedia supplements they have found in their sources and elsewhere, and working to create other multimedia supplements (graphs, etc.) if necessary. ⓘ Assuming many students may not know how to publish a blog post, the majority of this lesson can be devoted to instructing students how to log in, format text, insert hyperlinks and images, and embed video as needed. Learning to use technology strategically involves learning the nuts and bolts of software. Those students who already feel comfortable in this medium are free to begin working on their post.
Lesson 4
Students continue to work on their published product, pulling together all the relevant multimedia supplements they have found in their sources and elsewhere, and working to create other multimedia supplements (graphs, etc.). Students should focus on organizing the information effectively while making use of the available multimedia components (hyperlinks, images, graphics, animation, charts, graphs, video and audio clips, etc.), such that readers can follow their line of reasoning. In this lesson, students should also work to format the title of their post, and tag it with any relevant keywords (e.g., animals, intelligence, Grandin, Duke). Students should make sure to keep their work as an unpublished draft before it is polished and ready for publication and assessment.
Lesson 5
Students finalize their published product/blog post, pulling together all the relevant multimedia supplements they have found in their sources and elsewhere, as well as those they may have created. Students should review and revise the published product/blog post for any formatting errors, typos, or broken links; ensure the post is "live" and accessible via internet; and ensure the keyword tags for their post are relevant. Students should "preview" their post multiple times before publishing it, as the initial published product is assessed and no further edits are permitted. Standards assessed: W.9-10.2, W.9-10.5, W.9-10.6

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9.3 Performance Assessment Standards Assessed

Performance Assessment Standards Assessed
• **CCSS.ELA-Literacy.W.9-10.2** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. o **CCSS.ELA-Literacy.W.9-10.2.a** Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. o **CCSS.ELA-Literacy.W.9-10.2.b** Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. o **CCSS.ELA-Literacy.W.9-10.2.c** Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. o **CCSS.ELA-Literacy.W.9-10.2.d** Use precise language and domain-specific vocabulary to manage the complexity of the topic. o **CCSS.ELA-Literacy.W.9-10.2.e** Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. o **CCSS.ELA-Literacy.W.9-10.2.f** Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
• **CCSS.ELA-Literacy.W.9-10.5** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)
• **CCSS.ELA-Literacy.W.9-10.6** Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

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9.3 Performance Assessment Checklist (Student)

	Did I…	✔
Incorporating Feedback (Research Paper Final Draft*)	Revise, edit, rewrite, or try a new approach, focusing on addressing what is most significant for a specific purpose and audience?	☐
	Attend to any necessary revisions and adjustments to the paper's introduction, organization, development, cohesion, use of precise language and domain-specific vocabulary, maintenance of a formal style and objective tone, and conclusion?	☐
	Incorporate all of the feedback from the evaluation of the End-of-Unit Assessment (final draft of research paper)?	☐
Enhancing & Publishing (Enhanced Published Product*)	Enhance my research paper with information displayed flexibly and dynamically (e.g., use multimedia, hyperlinks, graphics, etc.), taking advantage of technological capacity?	☐
	Publish an enhanced final draft (via posting it on internet)?	☐

*Note there are a variety of standards (e.g., W.9-10.4, W.9-10.7, W.9-10.8, W.9-10.9.a,b) involved in the process of creating and finalizing both products in this Performance Assessment.

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9.3 Performance Assessment Feedback (Teacher)

	Did student…	Notes/Feedback
Incorporating Feedback (Research Paper Final Draft*)	Revise, edit, rewrite, or try a new approach, focusing on addressing what is most significant for a specific purpose and audience?	
	Attend to any necessary revisions and adjustments to the paper's introduction, organization, development, cohesion, use of precise language and domain-specific vocabulary, maintenance of a formal style and objective tone, and conclusion?	
	Incorporate all of the feedback from the evaluation of the End-of-Unit Assessment (final draft of research paper)?	
Enhancing & Publishing (Enhanced Published Product*)	Enhance their research paper with information displayed flexibly and dynamically (e.g., use multimedia, hyperlinks, graphics, etc.), taking advantage of technological capacity?	
	Publish an enhanced final draft (via posting it on internet)?	

*Note there are a variety of standards (e.g., W.9-10.4, W.9-10.7, W.9-10.8, W.9-10.9.a,b) involved in the process of creating and finalizing both products in this Performance Assessment.

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Product Enhancement Tracker

Enhancement Type (multimedia, hyperlinks, graphics, etc.)	Purpose (how the enhancement displays information)	Rationale (how the enhancement helps the audience gain a better or more nuanced understanding of the research findings)

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9.3.1 Unit Overview

Using Seed Texts as Springboards to Research

Text(s)	Grandin, Temple, and Catherine Johnson. *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior*
Number of Lessons in Unit	10

Introduction

In the first unit of Module 9.3, students continue to work on skills, practices, and routines introduced in Module 9.1 and Module 9.2: close reading, annotating text, and evidence-based discussion and writing, especially through text-dependent questioning, focused annotation, and an analysis of film and text. In addition, students begin the inquiry-based research process.

In this unit, students read Chapter 1 of Temple Grandin and Catherine Johnson's, *Animals in Translation*. The text serves two primary functions: first, students analyze how Temple Grandin develops and refines her central ideas as they read; and second, the text is a seed text that students use to uncover and explore potential research topics that emerge from it. Students identify and track these topics, which become springboards to the inquiry-based research process that continues in the following unit. Additionally, students are introduced to posing and refining inquiry questions about their topic for the purpose of guiding their initial research.

There is one formal assessment in this unit. At the end of the unit, students write a multi-paragraph response articulating how a central idea is developed and refined in Chapter 1 of *Animals in Translation* (RI.9-10.2, W.9-10.4). Students also express, in writing, 2–3 areas of investigation and describe how and where each area emerged from the Grandin text (W.9-10.9). These areas of investigation are the foundation for the research process that fully develops in 9.3.2.

Note: This unit suspends Accountable Independent Reading (AIR). Students are held accountable for building a volume of independent reading as they independently read *Animals in Translation* in homework assignments. Additionally, students are expected to read outside sources as they explore potential areas of investigation.

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Literacy Skills & Habits

- Read closely for textual details
- Annotate texts to support comprehension and analysis
- Engage in productive evidence-based discussions about text
- Collect and organize evidence from texts to support analysis in writing
- Analyze text and multi-media
- Make claims about the development and refinement of central ideas in a text
- Use vocabulary strategies to define unknown words
- Identify potential topics for research within a text
- Use questioning to guide research
- Conduct pre-searches to validate sufficiency of information for exploring potential topics

Standards for This Unit

CCS Standards: Reading—Informational	
RI.9-10.1a	**Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.** **a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).**
RI. 9-10.2	**Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.**
RI.9-10.3	**Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.**
RI. 9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court

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	opinion differs from that of a newspaper).
RI.9-10.5	**Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).**
RI.9-10.7	**Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.**

CCS Standards: Writing	
W.9-10.4	**Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)**
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9-10.9	**Draw evidence from literary or informational texts to support analysis, reflection, and research.**
CCS Standards: Speaking & Listening	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-

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	one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.
CCS Standards: Language	
L.9-10.4. a,c,d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Note: Bold text indicates standards that will be assessed in the unit.

Unit Assessments

Ongoing Assessment	
Standards Assessed	RI.9-10.1a, RI.9-10.2, RI.9-10.3, RI.9-10.5, RI.9-10.7
Description of Assessment	Varies by lesson but may include short written responses to text-dependent questions focused on the development and refinement of a central idea, or the development of factual, interpretive and evaluative questions for further exploration of research topics.

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End-of-Unit Assessment	
Standards Assessed	RI.9-10.2, W.9-10.4, W.9-10.9
Description of Assessment	**Part 1:** How does Grandin develop and refine a central idea in the text? In a response of 3–4 paragraphs, identify a central idea from Chapter 1 of *Animals in Translation* and trace its development and refinement in the text. Use at least four details from the text in your response. **Part 2:** Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the Topic Tracking Tool and Exploring a Topic Tool as well as notes from the Grandin text.

Unit-at-a-Glance Calendar

Lesson	Text	Learning Outcomes/Goals
1	*Animals in Translation* Chapter 1 pp. 1-4	In this first lesson of the unit and module, students are introduced to the module's focus: inquiry-based research to deepen understanding. Students will begin reading and analyzing Chapter 1 of *Animals in Translation*, focusing on Grandin's emerging central idea (that her autism poses both difficulties and advantages) through analysis of specific textual details.
2	*Animals in Translation* Chapter 1 pp. 4–8	Students continue to read and analyze Chapter 1 of *Animals in Translation,* focusing on Grandin further develops her claims about autism and understanding animal behavior. Students begin tracking potential research topics that surface in Grandin's text using the Topic Tracking Tool.
3	*Animals in Translation* Chapter 1 pp. 9–14	Students continue to analyze chapter 1 of *Animals in Translation*, focusing on how Grandin unfolds her analysis of behaviorism. Students continue to track potential topics for research. Students are introduced to posing inquiry questions based on research topics to guide their research.
4	*Animals in Translation*	Students continue to read and analyze Chapter 1 of *Animals in*

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	Chapter 1 pp. 14–16	*Translation,* focusing on how Grandin refines and develops her central idea (that autism has made understanding animals easy). Students continue to record, discuss, and track potential research topics. Students generate inquiry questions based on topics they have identified in the text to guide their research.
5	*Animals in Translation* Chapter 1 pp. 16–20	Students continue to read and analyze Chapter 1 of *Animals in Translation* and examine the ways in which Grandin develops her central idea (autism has made understanding animals easy). Students continue to track topics in the text and generate inquiry questions. Students are also introduced to the process of refining inquiry questions to focus or narrow their research.
6	*Animals in Translation* Chapter 1 pp. 20–23	Students finish reading and analyzing Chapter 1 *Animals in Translation*, focusing on how Grandin unfolds an analysis of problems in the cattle industry. Students continue their research by considering larger topics and inquiry questions generated in previous lessons and choosing areas of investigation for further research.
7	*Animals in Translation* Chapter 1, *Temple Grandin* (film)	Students watch an excerpt from the HBO film, *Temple Grandin,* and analyze which details are emphasized in both the film and the text of *Animals in Translation*. Students begin to develop inquiry questions based on their proposed areas of investigation.
8	Texts will vary based on students' areas of investigation and pre-searches	Students engage in a pre-search activity in order to begin gathering sources for further research in future lessons. This activity is designed to develop students' ability to independently find reliable, relevant sources while navigating a wide range of potential research sources. Students refine or rewrite their inquiry questions based on their findings. Students are also introduced to the Vocabulary Journal.
9	*Animals in Translation* Chapter 1	Students engage in several evidence-based discussions to further clarify both their understanding of the Grandin text, as well as their potential areas of investigation. Students then individually develop an evidence-based claim about the development and refinement of a central idea in Chapter 1 of *Animals in Translation*.

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10	*Animals in Translation* Chapter 1	For the End-of-Unit Assessment, students complete a two-part writing assignment. First, students compose a multi-paragraph response tracing the development and refinement of a central idea from chapter 1 of *Animals in Translation*. Second, students articulate in writing how and where two or three areas of investigation emerged from *Animals in Translation*.

Preparation, Materials, and Resources

Preparation

- Read and annotate Chapter 1 of *Animals in Translation*
- Review the Short Response Rubric
- Review all unit standards and post in classroom
- Review relevant excerpts from the film *Temple Grandin*
- Consider creating a word wall of the vocabulary provided in all lessons

Materials/Resources

- Chart paper
- Copies of the text *Animals in Translation* Chapter 1
- *Temple Grandin* film excerpts
- Writing utensils including pencils, pens, markers, and highlighters
- Methods for collecting student work: student notebooks, folders, etc.
- Access to technology (if possible): interactive whiteboard, document camera, and LCD projector
- Copies of handouts and tools for each student: see materials list in individual lesson plans
- Copies of the Text Analysis Rubric and Checklist
- Copies of the Short Response Checklist and Rubric

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9.3.1 Lesson 1

Introduction

In this first lesson of the unit and module, students will be introduced to the module's focus: inquiry-based research to deepen understanding. Students will begin reading and analyzing Chapter 1 of Temple Grandin's *Animals in Translation*, pages 1–4 (from "People who aren't autistic always ask me about the moment" to "which is listed as an anxiety disorder in the Diagnostic and Statistical Manual"), in which students will be introduced to Grandin's central idea that her autism poses difficulties and advantages.

In Unit 1, students will begin learning about a specific approach to research that will be developed and completed throughout Units 2 and 3. This module will address research as an iterative, non-linear process, designed to deepen students' understanding of topics of interest. In this unit, students will read and analyze a seed text, *Animals in Translation,* to identify topics that spark inquiry and provide entry points into the research process they will engage in throughout the module. The intent of this unit, and the other units using other seed texts in this Module, is to model how to initiate a process of inquiry-based research using texts that are rich enough to provide multiple areas of investigation. In addition, compared to non-researched based modules, students will be expected to do more reading and re-reading for analysis independently during in-class work and for homework.

In this lesson, students will begin reading and analyzing Chapter 1 of *Animals in Translation*, focusing on Grandin's emerging central idea through analysis of specific textual details. For homework, students will reread and annotate pages 1–4 and preview the following lesson's text excerpt by reading and annotating pages 4–8 (from "Animals saved me." to "animal talents nobody can see based on what I know about autistic talent.") for central idea. Additionally, students will write a response to the following prompt: Using specific textual details, determine one central idea that emerges in pages 1–4.

Standards

Assessed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
Addressed Standard(s)	
RI.9-10.4	Determine the meaning of words and phrases as they are used in a text, including

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	figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the close reading (citing evidence from the text and analyzing key words and phrases) completed in the lesson. • Using specific textual details, determine one central idea that emerges in this lesson's text excerpt (pages 1–4). ⓘ This assessment will be evaluated using the Short Response Rubric.
High Performance Response(s)
A high performance response may include the following: • One central idea that is emerging is that autism makes school and social life difficult but makes understanding animals easier: "Autism made school and social life hard, but it made animals easy." Grandin's autism posed many difficulties for her when she was growing up. Kids teased her and called her names like "Retard," *or* "Tape Recorder" because she spoke repetitively and had difficulty with social and peer interactions. She also endured intense anxiety during her teen years that "never stopped." However, Grandin states that because of her autism she sees "things about animals other people don't." For example, she explains that she has a "special connection to animals" and that she is now able to comprehend the emotionally disturbed horses that resided at her former boarding school because she understands "the way animals think."

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• autism (n.) – Autism Spectrum Disorder (ASD) and autism are both general terms for a group of complex disorders of brain development. These disorders are characterized, in varying degrees, by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviors. • spectrum (n.) – a broad range of varied but related ideas or objects, that the individual features of which tend to overlap so as to form a continuous series or sequence

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Vocabulary to teach (may include direct word work and/or questions)
• epiphany (n.) – a moment of great or sudden revelation

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.2 and RI.9-10.4	
• Text: *Animals in Translation*, Chapter 1, pages 1–4	
Learning Sequence:	
1. Introduction to Unit and Lesson Agenda	1. 15%
2. Homework Accountability	2. 5%
3. Masterful Reading	3. 15%
4. Pages 1–4 Reading and Discussion	4. 50%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Copies of **9.3 Common Core Learning Standards Tool** for each student
- Copies of **Short Response Rubric and Short Response Checklist** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Unit and Lesson Agenda 15%

Share the focus of this unit and module: Engage in an inquiry-based process for research. Inform students that in this module they will explore topics by generating inquiry questions, research different areas of a topic, build on new knowledge, make connections, and finally develop an evidence-based perspective.

Share with students the End-of-Unit Assessments and the Module Performance Assessment. Inform students that their work over the next several weeks should prepare them for these assessments. Briefly introduce the unit and the text: *Animals in Translation* by Temple Grandin and Catherine Johnson. Inform students that this unit will focus on reading and analyzing the first chapter of *Animals in Translation* to consider the development of central ideas through specific textual details. Additionally, students will begin the research process by identifying topics, creating questions, pre-searching topics, and developing areas of investigation using Grandin's text as the initial resource.

- Students listen.

Review the agenda and share the assessed standard for this lesson: RI.9-10.2. Today, students will experience a new text called *Animals in Translation* through a masterful reading of a small excerpt and will begin the process of reading pages 1–4 closely to determine an emerging central idea through specific textual details.

- Students look at the agenda.

Pass out copies of the 9.3 Common Core Learning Standards Tool to each student. Explain that students will continue to work on mastering the skills described in the Common Core State Standards (CCSS) throughout this new module and the rest of the year.

- Students listen and examine their 9.3 Common Core Learning Standards Tool.

ⓘ It may be helpful here to explain to students that they will be returning to the standards at the beginning of each lesson, as they did in Module 9.1 and 9.2. Whenever a new standard is introduced, students will use their 9.3 Common Core Learning Standards Tool to read, paraphrase, and assess their familiarity with and mastery of the new standard.

Share with students that they have reached the mid-point in their 9th grade English Language Arts instruction and it is important to self-assess their familiarity and mastery of the standards. Instruct students to self-assess on standard RI.9-10.2.

- Students self-assess their understanding and mastery of standard RI.9-10.2 using the 9.3 Common Core Learning Standards Tool.

ⓘ Remind students they have worked with standard RI.9-10.2 in Units 9.1.2 and 9.2.3.

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ⓘ It may be useful to have the standards written on the board or displayed in some other way before class begins, for ease of student reference and to encourage students to develop ownership of the standards.

Activity 2: Homework Accountability 5%

Explain to students that Accountable Independent Reading will be suspended during this module. Instead, for Unit 1 homework, students will independently preview *Animals in Translation*, while also beginning to research by independently reading possible sources for a variety of topics surfaced from the Grandin text. Explain to students that in Unit 2, the volume of independent reading will come from students' searches related to their research question/problem (area of investigation). Students will read a variety of academic sources to deepen their understanding of their specific research question/problem (area of investigation).

- Students listen.

Activity 3: Masterful Reading 15%

Distribute copies of Chapter 1 of *Animals in Translation* to each student and instruct students to turn to page 1. Have students listen to a masterful reading of pages 1–4 of *Animals in Translation* (from "People who aren't autistic always ask me about the moment" to "which is listed as an anxiety disorder in the Diagnostic and Statistical Manual." Instruct students to read along in their text.

- Students follow along, reading silently.

ⓘ The purpose of this masterful read is to familiarize students with Grandin's voice and style.

ⓘ It is important to be sensitive to the subject of developmental disorders, as some students in your classroom may know someone who has development disorders or may have developmental disorders themselves. Consider discussing with students how to be respectful when discussing this sensitive topic.

ⓘ **Differentiation Consideration:** Consider having students read pages 1–4 in pairs or small groups if a masterful read with the whole class is unnecessary due to the conversational tone and accessible vocabulary of the text.

Ask students to independently write down initial reactions and questions they have about the text. Give students 3–5 minutes to write down initial reactions and questions.

- Student questions may include the following:
  - Why does autism make "animals easy"?

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- What is autism? Is it an "emotional problem"?
- Why would a school for those with emotional problems have horses to ride?
- What is an autistic savant?
- What is obsessive-compulsive disorder?
- Why does Grandin have so much anxiety?

ⓘ Assure students that any question related to the text is a valid one. If students are struggling with questions, encourage them to think about unknown vocabulary, textual details that seem confusing, or what they still want to know from the text after this initial reading.

Ask students to share out their initial questions. Write these questions on the board or on chart paper. Share with the students that it is okay to have questions as they engage in complex text and that questions like these initiate the research process. Remind them that many of these questions will be answered as the text is read closely and as they read they can keep an eye out for these answers, or what questions remain.

Activity 4: Pages 1–4 Reading and Discussion 50%

Introduce the Quick Write assessment (using specific textual details, determine one central idea that is emerging in this excerpt). Explain to students that this is the lesson assessment and the focus for today's reading.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessment for students to see.

Instruct students to keep this assessment in mind as they analyze the text in the following evidence-based discussion. Remind students to keep track of the text analysis as they engage in the discussion by taking notes and annotating the text.

- Students listen.

Direct students to transition into small groups. Inform student groups that they will be rereading the first four pages of the text closely.

ⓘ **Differentiation Consideration:** Consider forming heterogeneous groupings to support students with reading this complex text.

Provide students with the definitions of autism (Autism Spectrum Disorder (ASD) and autism are both general terms for a group of complex disorders of brain development. These disorders are characterized, in varying degrees, by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviors) and spectrum (a broad range of varied but related ideas or

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objects, the individual features of which tend to overlap so as to form a continuous series or sequence). Explain to students that autism can have a range of characteristics. For example, some people with autism may have severe communication issues, including being nonverbal while other autistic people may have only slightly limited verbal communication issues. Autism has a range of characteristics that affect people differently, and a variety of disorders associated with it. Instruct students to write both definitions on their text.

- Students follow along and write the definitions of *autism* and spectrum on their texts.

Instruct the student groups to reread paragraphs 1 and 2 on page 1 (from "People who aren't autistic always ask me about the moment I realized I could understand the way animals think" to "Autism made school and social life hard, but it made animals easy.").

- Student groups reread paragraphs 1 and 2 on page 1.

Display the following questions for the student groups to discuss:

ⓘ Consider writing the questions on a handout for the student groups.

ⓘ Remind students to take notes or annotate the text as they engage in the evidence-based discussion. This will help support students when they complete the Quick Write at the end of the lesson.

What gives Grandin the ability to "see things about animals other people don't" (p. 1)?

- Grandin attributes her ability to understand animals to her autism: "And it wasn't until I was in my forties that I finally realized I had one big advantage over the feedlot owners who were hiring me to manage their animals: being autistic."

What does Grandin mean when she says she did not have an "epiphany" about knowing that she can understand the way animals think? What do you think the word *epiphany* means from the context provided in this section?

- Grandin means she did not have a "moment" where she "realized" she understands the way animals think. It was a gradual process that took her "a long time to figure out that" she sees "things about animals other people don't."

Instruct student groups to reread pages 1–2 (from "I had no idea I had a special connection to animals when I was little" to "I still cry when people are mean to me.")

Display the following questions for the student groups to discuss:

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ⓘ Consider writing the questions on a handout for the small groups.

What does the example of a "big crisis in [her] life," reveal about Grandin's way of thinking (p. 1)?

- She thinks about things, like animals, differently. She was categorizing animals' identity (dogs) based on size. Then, she made sense of the dachshund being a dog by associating its nose with her golden retriever's nose. She had to categorize the dog in a certain way in order to make sense of it: "Dogs have dog noses."

How might this way of thinking make "school and social life hard" (p. 1)?

- Ideas that are simple for non-autistic children might be difficult for Grandin. She was using a different ideology to categorize dogs: "I used to sort them by size." This thinking might be strange or difficult to understanding if you are a non-autistic person.

How does this excerpt further develop the idea, "Autism made school and social life hard"?

- Student responses should include the following:
  - Grandin discusses how her autism caused her to "store up a lot of phrases in my memory and I used them over and over again in every conversation." This made her sound like a "Tape Recorder" to other students, so they teased her and she reacted with aggressive behavior, like smacking.
  - Eventually she "got kicked out of high school for fighting."
  - She learned how to cry to deal with her aggression: "After I lost privileges enough times I learned just to cry when somebody did something bad to me."

Instruct student groups to reread pages 2–3 (from "Nothing ever happened to the kids who were teasing" to "but I wasn't any horse-whispering autistic savant, either. I just loved the horses").

Display or distribute the following questions for the student groups to discuss:

What does Grandin understand now about the horses at her former boarding school that she "didn't understand" as a fourteen-year-old?

- Student responses should include the following:
  - The horses had serious psychological problems because they had been abused.
  - They acted aggressively because of their emotional problems: "These were badly abused animals; they were very, very messed up" (p. 2).

What might Grandin's explanation of the boarding school horses reveal about her?

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- Student responses may include the following:
  - She can understand and explain animal behavior.
  - She can explain why the horses acted the way they did because she understands the reasons for their actions: "It was flop sweat. Pure fear. She was terrified of being ridden" (p. 3).

Instruct student groups to reread pages 3–4 (from "I was so wrapped up in them that I spent every spare moment" to "and I spent hours washing and polishing it").

Display or distribute the following question for the student groups to discuss:

What does Grandin's care for the horses and the saddle reveal about her?

- Student responses should include the following:
  - Grandin feels good when taking care of or being around animals: "I was so wrapped up in them that I spent every spare moment working the barns" (p. 3).
  - Animals are an area where she feels content: "I bought special saddle soap and leather conditioner from the saddle shop, and I spent hours washing and polishing it" (p. 4).

Instruct student groups to reread page 4 (from "As happy as I was with the horses at school" to "which is listed as an anxiety disorder in the Diagnostic and Statistical Manual").

Display or distribute the following question for the student groups to discuss:

What made Grandin's "high school years" hard? What does this reveal about her autism?

- Grandin writes that she was "hit with a tidal wave of anxiety" when she was in high school that "never stopped." This further reveals the obstacles autism has posed for her, especially in school and in her social life.

ⓘ Consider discussing with students that structures and organizations, rather than people, can pose difficulties to individuals with disabilities. For example, Temple Grandin, who has difficulty with social interaction, doesn't fare well in certain settings like the traditional school she attended early on.

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Activity 5: Quick Write 10%

Introduce the Quick Write assessment by reminding students of the standard they were working on during this lesson: RI.9-10.2. Instruct students to respond briefly in writing to the following prompt:

Using specific textual details, determine one central idea that is emerging in this lesson's text excerpt.

Remind students to answer the above prompt based on the reading completed in the lesson by citing strong and thorough textual evidence. Remind them to take a look at their answers to the questions from the text to support their Quick Write response.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

ⓘ Consider reviewing the Short Response Rubric and Short Response Checklist by informing students that they should use the rubric and checklist to guide their own writing, and that they will be using this rubric for text analysis-based Quick Writes in this unit. For later units, students will use other assessment tools and rubrics specific to the research component of this module.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to reread and annotate pages 1–4 and preview the following lesson's text excerpt by reading and annotating for central idea pages 4–8 (from "Animals saved me" to "animal talents nobody can see based on what I know about autistic talent").

Additionally, students will write a response to the following prompt: Using specific textual details, determine one central idea that is emerging in pages 4–8.

ⓘ Consider reviewing the annotation codes introduced in Module 9.1.

- Box or circle unfamiliar words and phrases and rewrite a word or phrase you might have figured out
- Star (*) important or repeating ideas
- Put a question mark (?) next to a section you are questioning or confused about

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- Use an exclamation point (!) for areas that remind you of another text or ideas that strike you or surprise you in some way
- Use initials like CI (for central idea) and SC (for structural choice)

Remind students that besides using the codes, marking the text with thinking related to the codes is important. Explain that students will continue using these codes throughout their reading of the unit's text to think more deeply about textual details.

- Students follow along.

Homework

Reread and annotate pages 1–4 and preview the following lesson's text excerpt by reading and annotating for central idea pages 4–8 (from "Animals saved me" to "animal talents nobody can see based on what I know about autistic talent").

Additionally, write a response to the following prompt: Using specific textual details, determine one central idea that is emerging in pages 4–8.

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9.3 Common Core Learning Standards Tool

Name:		Class:		Date:	

CCL Standards: Reading—Informational Text		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
RI.9-10.1.a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).			
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.			

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CCL Standards: Reading—Informational Text		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
RI.9-10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.			
RI.9-10.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).			
RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.			

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CCL Standards: Writing		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
W.9-10.2.a-f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among			

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CCL Standards: Writing		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
	complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).			
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.			

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CCL Standards: Writing		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.			
W.9-10.7	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.			
W.9-10.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.			
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.			

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CCL Standards: Speaking & Listening		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.			

CCL Standards: Language		I know what this is asking and I can do this.	This standard has familiar language, but I haven't mastered it.	I am not familiar with this standard.
L.9-10.2.a-c	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.			

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Short Response Rubric

Assessed Standard(s): _____

	2-Point Response	1-Point response	0-Point Response
Inferences/Claims	Includes valid inferences or claims from the text. Fully and directly responds to the prompt.	Includes inferences or claims that are loosely based on the text. Responds partially to the prompt or does not address all elements of the prompt.	Does not address any of the requirements of the prompt or is totally inaccurate.
Analysis	Includes evidence of reflection and analysis of the text.	A mostly literal recounting of events or details from the text(s).	The response is blank.
Evidence	Includes relevant and sufficient textual evidence to develop response according to the requirements of the Quick Write.	Includes some relevant facts, definitions, concrete details, or other information from the text(s) to develop an analysis of the text according to the requirements of the Quick Write.	The response includes no evidence from the text.
Conventions	Uses complete sentences where errors do not impact readability.	Includes incomplete sentences or bullets.	The response is unintelligible or indecipherable.

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Short Response Checklist

Assessed Standard(s): _____

Does my writing…	Did I…	✔
Include valid inferences and/or claims from the text(s)?	Closely read the prompt and address the whole prompt in my response?	☐
	Clearly state a text-based claim I want the reader to consider?	☐
	Confirm that my claim is directly supported by what I read in the text?	☐
Develop an analysis of the text(s)?	Did I consider the author's choices, impact of word choices, the text's central ideas, etc.?	☐
Include evidence from the text(s)?	Directly quote or paraphrase evidence from the text?	☐
	Arrange my evidence in an order that makes sense and supports my claim?	☐
	Reflect on the text to ensure the evidence I used is the best evidence to support my claim?	☐
Use complete sentences, correct punctuation, and spelling?	Reread my writing to ensure it means exactly what I want it to mean?	☐
	Review my writing for correct grammar, spelling, and punctuation?	☐

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9.3.1 Lesson 2

Introduction

In this lesson, students will continue to read and analyze Chapter 1 of *Animals in Translation* (pp. 4–8 from "Animals saved me" to "animal talents nobody can see based on what I know about autistic talent"), in which Grandin further develops her claims about autism and understanding animal behavior.

Students will analyze the text in an evidence-based discussion that prepares them for the lesson assessment. The assessment asks students to focus on how Grandin uses particular sentences, paragraphs, and larger portions of the text to develop and refine her claim that autism gives her a unique understanding of animal behavior. Additionally, students will begin identifying topics for interesting and rich inquiry by reflecting on pages 1–8. Students will begin completing a **Topic Tracking Tool** that will be used in subsequent lessons to track topics that surface in Grandin's text. For homework, students will complete a short research assignment to determine the definitions of terms used by Grandin to help position and explain her unique perspective on animal behavior: "behaviorism" and "ethology."

Standards

Assessed Standard(s)	
RI.9-10.5	Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
Addressed Standard(s)	
RI.9-10.4	Determine the meaning of words and phrases as they are used in the text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

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Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the close reading (citing evidence from the text and analyzing key words and phrases) completed in the lesson. • Choose two sentences, paragraphs, or larger portions of this lesson's text excerpt and analyze how they develop and refine one of Grandin's claims about autism and animal behavior. ⓘ This assessment will be evaluated using the Short Response Rubric.
High Performance Response(s)
A high performance response may include the following: • On page 7, Grandin develops and refines her claim that autism has given her an advantage in understanding animals and ultimately helped her attain professional success. Grandin states, "Animal behavior was the right field for me, because what I was missing in social understanding I could make up for in understanding animals." Grandin realizes the limitations of her autism and uses it to hone her talents in translating animal behavior. She continues to explain her success in the field characterized by her numerous accomplishments, including "over three hundred scientific papers" published and "half the cattle in the United States and Canada are handled in humane slaughter systems I've designed." She attributes this success to the fact that her "brain works differently" because of her autism. • Grandin develops and refines another claim, how autism allows her to think "the way animals think" on page 6. Grandin describes autism as a "way station on the road from animals to humans, which puts autistic people like me in a perfect position to translate 'animal talk' into English." Grandin is able to comprehend why animals do the things they do unlike "normal" brained people and this is why her autism makes "animals easy" as opposed to normal people who cannot even recognize animal genius.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• savants (n.) – people with unusual mental abilities that other people do not have
Vocabulary to teach (may include direct word work and/or questions)
• riveted (v.) – to cause to be fixed or held firmly, as in fascinated attention • neuroscientific (adj.) – pertaining to the study of the anatomy, physiology, biochemistry, and pharmacology of the nervous system

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.5, RI.9-10.4, RI.9-10.2	
• Text: *Animals in Translation*, Chapter 1, pages 4–8	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Pages 4–8 Reading and Discussion	3. 40%
4. Identifying Research Topics	4. 30%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Copies of **Topic Tracking Tool** for each student
- Student copies of the **Short Response Rubric and Short Response Checklist** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and sharing the assessed standard for this lesson: RI.9-10.5. In this lesson, students continue to read Chapter 1 of *Animals in Translation*, pages 4–8 (from "Animals saved

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me" to "animal talents nobody can see based on what I know about autistic talent.") and analyze how Grandin further develops her claims about autism and understanding animal behavior. Students will then apply the reading analysis from pages 1–8 to begin surfacing possible research topics.

- Students look at the agenda.

ⓘ Students were introduced to RI.9-10.5 in Unit 9.2.3.

Activity 2: Homework Accountability 10%

Instruct students to take out their homework from the previous lesson.

- Students take out their homework.

ⓘ The homework from the previous lesson was the following: Reread and annotate pages 1–4 and preview the following lesson's text excerpt by reading and annotating for central idea pages 4–8 (from "Animals saved me" to "animal talents nobody can see based on what I know about autistic talent"). Additionally, write a response to the following prompt: Using specific textual details, determine one central idea that is emerging in pages 4–8.

Instruct students to examine their written response and annotation from pages 1–8 and choose four annotations that best exemplify the emerging central idea discussed in the written response.

- Students examine their written response and annotation from pages 1–8. Students then choose four annotations that best exemplify the emerging central idea discussed in the written response.

Instruct students to complete a Turn-and-Talk with a partner about their four exemplar annotation from pages 1–8, specifically discussing why the annotation best supports the emerging central idea.

- Annotation discussed may include the following:

  <u>Pages 1–4:</u>
  - Star next to "It took me a long time to figure out that I see things about animals other people don't," (p. 1) – noting how Grandin understands animals in ways that other people do not
  - Star next to "Autism made school and social life hard, but made animals easy" (p. 1) – noting that Grandin understands animals because of her autism but it poses difficulties for her when it comes to social situations
  - Exclamation point next to "Dogs have dog noses" (p. 1) – noting that Grandin thinks about animals in ways that other people may not (she uses different ways of categorizing animals) further revealing she has a unique perspective on animals

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- Exclamation point next to "because I got kicked out of high school for fighting" (p. 1) – noting that Grandin struggles in school because of her autism
- Star next to "It was like a loop inside my head, it just ran over and over again" (p. 2) – noting that her autism causes her to be repetitive, which makes her peers tease her, revealing how autism makes social interaction difficult
- Star next to "I think it was just one of my autism genes kicking into high gear" (p .4) – noting Grandin's anxiety and how this made school even more difficult for her

Pages 4–7:

- Star near the line "I got through my teenage years thanks to my squeeze machine and my horses. Animals kept me going" (p. 5) – noting Grandin's comment earlier that autism made animals easy. It seems to be a reciprocal relationship for her.
- Star near the line "Autistic people can think the way animals think" (p. 6) – noting Grandin's connection to her earlier idea about autism making animals easy
- Star near the line "Animal behavior was the right field for me, because what I was missing in social understanding I could make up for in understanding animals" (p. 7) – noting Grandin understands her limitations and strengths concerning her autism
- Exclamation point near the line "Autism has given me another perspective on animals most professionals don't have" (p. 7) – noting Grandin feels confident about her professional abilities due to her autism

Page 8:

- Star near the line "Animals are like autistic savants." – This is Grandin's claim about animal intelligence. She might try to prove this in the text and it further shows that because she is autistic, she might be better posed to prove an idea like this.
- Star near the line "Normal people never have the special talents animals have, so normal people don't know what to look for" – noting Grandin's support for why autism makes understanding animals easier

ⓘ Circulate around the room to monitor the pair discussion. Listen for students to discuss the above annotation in support of emerging central ideas from the text including: Grandin's autism gives her a unique perspective on animals and Grandin's autism makes school and social life difficult but animals easy.

Activity 3: Pages 4–8 Reading and Discussion 40%

Introduce the Quick Write assessment (choose either two sentences, paragraphs, or larger portions of this lesson's text excerpt and analyze how they develop and refine one of Grandin's claims about autism and animal behavior). Explain to students that this is the lesson assessment and the focus for today's reading.

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- Students examine the Quick Write assessment and listen.

ⓘ Display the Quick Write assessment.

Instruct students to keep this assessment in mind as they analyze the text during the following evidence-based activity. Remind students to keep track of the text analysis by taking notes and annotating the text.

Instruct students to take out their annotated copy of *Animals in Translation*, Chapter 1 and turn to page 4. Instruct students to reread in pairs from "Animals saved me" to "Now people are cut off from animals unless they have a dog or a cat" (pp. 4–5).

- Students take out their annotated copies of *Animals in Translation*, Chapter 1 and reread page 4 with a partner.

Ask students the following questions:

ⓘ **Differentiation Consideration:** Consider having student pairs discuss the questions before asking them in a whole-class setting.

What does the squeeze chute passage reveal about Grandin's relationship to animals?

- It shows how deeply connected she feels to animals and their experiences. The passage demonstrates how animals "saved" her by showing her that she needed a squeeze machine similar to the cows. She was able to get through her anxiety during her teenage years "thanks" to her squeeze machine, which was inspired by cows going into their own squeeze chutes.

How does Grandin demonstrate that she was "riveted" by the sight of those big animals inside the squeeze chute? What does Grandin mean by *riveted* in this excerpt?

- She has her aunt "stop the car so [she] could get out and watch." She is fascinated by seeing the cows go through the squeeze chute, so riveted could mean extremely focused or fascinated by.

Why might Grandin state that, "People and animals are supposed to be together"?

- Grandin has a strong connection to animals and sees how animals can be helpful to people, as she experienced in her own life: "Animals kept me going."

Instruct students to reread in pairs from "Horses are especially good for teenagers" to "But it would work a lot better if military schools still had horses" (pp. 5–6).

Ask students the following question:

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ⓘ **Differentiation Consideration:** Consider having student pairs discuss the question before discussing it in a whole-class setting.

What does Grandin explain about the instinctual nature of horseback riding? How does this explanation further develop the central ideas of the text?

- Grandin explains that "a good rider and his horse are a team." There is a mutual relationship between both rider and horse: "It's a relationship." Grandin is showing that she understands the relationship between a horse and rider; she can relate to animals, specifically horses, in this way: "Yet there I was, moving my body in sync with the horse's body to help him run right." This understanding continues to show how Grandin understands animals due to her autism and her own experiences/background.

Instruct students to reread in pairs from "*Animals in Translation* comes out of forty years I've spent with animals" to "They just don't know what it is, or how to describe it" (pp. 6–7) in pairs.

- Students reread pages 6–7 in pairs.

Ask students to do a Turn-and-Talk with a classmate discussing the various ways in which Grandin explains how she is "different from every other professional who works with animals."

Lead a whole-class share out of the pair discussion.

- Student responses should include the following:
  - Grandin states that "Autistic people can think the way animals think" (p. 6). Therefore, she is saying that since she is autistic she can understand animal behavior because she can think like an animal.
  - Grandin says that "Autism is a kind of way station on the road from animals to humans" (p. 6) making her the perfect person to translate "'animal talk' into English."
  - Grandin says that her "brain works differently" (p. 7) and that is why she has been successful in the field of translating animal behavior. Autism has given her a different "perspective" on animals that other professionals do not have.

Instruct students to reread in pairs from "I stumbled across the answer, or what I think is part of the answer" to "a difference in the brain autistic people share with animals" (pp. 7–8). Define the word *savants* (people with unusual mental abilities that other people do not have) and instruct students to write the definition on their text.

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- Students write the definition of *savants* on their text and then reread pages 7–8 in pairs.

Direct students to Grandin's discussion of "neuroscientific research" on page 7 ("Because of my own problems, I've always followed neuroscientific research on the human brain as closely as I've followed my own field.") Ask students to think about the root word *neur* and what it could refer to based on the sentence.

- The brain

Ask students to do a Turn-and-Talk with a classmate synthesizing Grandin's claim about autistic savants and animals and what led her to this claim.

Have the class share the outcome of the pair discussion.

- Student responses should include the following:
  - Animals are like autistic savants because their brains and talents are similar: "at least some animals have special forms of genius normal people don't, the same way some autistic savants have special forms of genius" (p. 8).
  - Grandin makes this claim based on her reading of "neuroscientific research" and autistic savants. She is able to make a "connection between human intelligence and animal intelligence the animal sciences have missed" (p. 7) because of her research and interest in the topics.

Instruct students to reread in pairs from "The reason we've managed to live with animals all these years" to "animal talents nobody can see based on what I know about autistic talent" (p. 8).

- Students reread page 8 in pairs.

Ask students the following question:

ⓘ **Differentiation Consideration:** Consider having student pairs discuss the question before discussing it in a whole-class setting.

What is Grandin exploring or researching? How does this exploration or research further develop a central idea in the text?

- Student responses should include:
  - Grandin is looking for specific animal talents where animals show how they can "perceive" (understand, identify, or become aware of things) that humans cannot and to remember "detailed information" that humans cannot remember.

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- Grandin is saying that her autistic mind gives her a unique perspective on animal behavior and she has an advantage in identifying animal talents that "normal people" cannot.
- She is able to "predict animal talents nobody can see based on what I know about autistic talent" (p. 8).

Activity 4: Identifying Research Topics 30%

Share with students that they have been reading closely and analyzing texts (in the previous two modules) for several purposes, including evidence-based discussion and writing. Share with students that this type of reading is also about deepening understanding. This understanding can be about a variety of things like authorial choices when analyzing literature, or it can be about learning and thinking in depth about a topic you want to know more about. For the purposes of this module, the text analysis is about analyzing the text itself, based on the standards, but also about surfacing topics that are potentially interesting and rich to research. These initial topics will begin the inquiry process. As the process unfolds, aspects of the topics will develop as questions are posed and refined and pre-research is conducted.

- Students listen.

Distribute the Topic Tracking Tool to each student.

- Students examine the Topic Tracking Tool.

ⓘ See the end of the lesson for an example Topic Tracking Tool.

Inform students that they will be reviewing pages 1–8 by thinking about the following question: What topics does Grandin surface or address in this part of the text? Instruct students to review pages 1–8 and write down key topics that surface in the text in column 1 on the Topic Tracking Tool. Instruct students to only complete column 1 for now.

- Students review pages 1–8 and complete column 1 of the Topic Tracking Tool by writing down key topics surfacing in this part of the text.

Lead a whole-class discussion about the topics Grandin surfaces.

- Student responses may include the following:
  - Autism
  - The link between autism and understanding animal behavior
  - Animal behavior
  - Animals helping emotionally disturbed people
  - Developmental disorders

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- Animal intelligence
- Autistic savants
- Neuroscience

ⓘ Consider displaying notes on the discussion so students can see the various topics.

Model for students how to complete columns 2 and 3 of the Topic Tracking Tool by identifying one topic, page number(s) where the topic is discussed, and key information about the topic from the text.

- Students listen and follow along with the modeling.

ⓘ See the Model Topic Tracking Tool at the end of the lesson for possible modeling content.

Instruct students to individually complete at least three more rows of the Topic Tracking Tool for the topics surfaced during the previous text review. Remind students that new topics will emerge in each portion of *Animals in Translation* and they should record all possible topics for research.

- Students individually complete at least three more rows of the Topic Tracking Tool for the topics surfaced during the previous text review.

ⓘ Circulate around the room to ensure students understand how to complete the Topic Tracking Tool.

ⓘ See model student responses at the end of the lesson.

Activity 5: Quick Write 10%

Instruct students to respond briefly in writing to the following prompt:

Choose either two sentences, paragraphs, or larger portions of this lesson's text excerpt and analyze how they develop and refine one of Grandin's claim about autism and animal behavior.

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to complete a short research assignment to determine the definitions of the following terms: *behaviorism* and *ethology*.

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Students will conduct a web search, finding resources that define and explain both terms. These resources should include common online reference materials and other online resources such as audio and video. Students will need to unpack the definitions and/or explanations of both sciences by answering the following prompt: Explain, in your own words, the terms *behaviorism* and *ethology*. How do the resources you found help you understand these terms?

Homework

Conduct a web search of the following terms, which will be referenced in the next excerpt we will be reading from Grandin's chapter 1.

- Behaviorism
- Ethology

Explain, in your own words, the terms *behaviorism* and *ethology*. How do the resources you found help you understand these terms?

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Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text

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Model Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text
The link between autism and understanding animal behavior	6–8	Grandin believes she has a unique perspective on animals because of her autism. She says, "Normal people never have the special talents animals have, so normal people don't know what to look for."
Animals can help emotionally disturbed people.	2–3, 5	Grandin understood the emotionally disturbed animals at her boarding school because of her own emotional issues. Kids who have emotional problems will do better if they are horseback riding: "the rider will end up doing better than the nonrider."
Developmental Disorders (Autism, Obsessive-Compulsive Disorder)	1, 4	Grandin has autism. She says it poses difficulties: "Autism made school and social life hard" but also advantages: "but it made animals easy."
Autistic Savants	7	Grandin thinks autistic savants share similar brains to animals that "animals are like autistic savants."
Animal Intelligence	8	Gradin claims, "Animal genius is invisible to the naked eye." She writes about using animal talents and intelligence for the betterment of humans and animals.

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9.3.1 Lesson 3

Introduction

In this lesson, students will read and analyze pages 9–14 from *Animals in Translation* (from "By the time I got to college" to "capable of a lot more than anybody thought, and that was a good thing"). In this portion of the text, Grandin unfolds her analysis of the behaviorist field of psychology.

This lesson is students' first introduction to the different fields of psychology that are foundational for understanding Grandin's unique point of view as an animal specialist. The lesson assessment asks students to analyze how Grandin unfolds her analysis of behaviorism. Students will also continue to track potential topics for research and practice how to generate inquiry questions from research topics, a fundamental starting point in the research process in this module. For homework, students will begin informally researching in order to explore, begin to build background knowledge, and generate interest around potential topics. The inquiry questions generated in class will guide students as they begin to explore research topics.

Standards

Assessed Standard(s)	
RI.9-10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Addressed Standard(s)	
RI.9-10.1.a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
L.9-10.4.c	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

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Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the close reading (citing text evidence and analyzing key words and phrases) completed in the lesson. • How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism? ⓘ This assessment will be evaluated using the Short Response Rubric.
High Performance Response(s)
A high performance response may include the following: • Grandin introduces behaviorism as a popular field of psychology when she started university, "the whole field of psychology was B.F. Skinner and behaviorism" (p. 9). Behaviorists believed that since you can "measure only behavior" environment is the "only thing that mattered" (p. 9). Behaviorists also study the effect of positive and negative reinforcements to shape or modify behaviors, "punishing a bad behavior isn't as effective as rewarding a good behavior" (p. 9). Grandin understands that there are benefits to behaviorism and the study of environment but she also believes, "Behaviorists made a big mistake declaring the brain off-limits" (p. 11). Grandin came to this conclusion through her own experiences and perspective: "I didn't believe it because I had problems that sure didn't seem to be coming from my environment" (p. 11).

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• behaviorism (n.) – the theory or doctrine that human or animal psychology can be accurately studied only through the examination and analysis of objectively observable and quantifiable behavioral events, in contrast with subjective mental states • ethology (n.) – the study of animal behavior with emphasis on the behavioral patterns that occur in natural environments • operant conditioning (n.) – the process of behavior modification that changes a subject's behavior based on positive and negative reinforcements • media specialist (n.) – In schools, the term covers a broad spectrum of educational roles. It can mean the person who operates audio-visual equipment, the librarian, a teacher with broad knowledge of media resources and the communication process, or one who helps other teachers or students locate an array of resources.

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Vocabulary to teach (may include direct word work and/or questions)
• stimulus (n.) – something that causes or quickens action

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.3, RI.9-10.1.a, RI.9-10.2, L.9-10.4.c	
• Text: *Animals in Translation*, Chapter 1, pages 9–14	
Learning Sequence:	
1. Introduction Lesson Agenda	1. 5%
2. Homework Accountability	2. 15%
3. Pages 9–14 Reading and Discussion	3. 40%
4. Posing Inquiry Questions	4. 25%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **Topic Tracking Tool** (refer to 9.3.1 Lesson 2)
- Copies of the **Posing Inquiry Questions Handout** for each student
- Student copies of the **Short Response Rubric and Short Response Checklist** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: RI.9-10.3. Inform students that they will be examining how Grandin unfolds her analysis of behaviorism in this chapter as well as tracking topics and learning how to generate inquiry questions.

- Students look at the lesson agenda.

Activity 2: Homework Accountability 15%

Instruct students to Turn-and-Talk with a classmate about the definitions of *behaviorism* and *ethology* they found for homework.

ⓘ **Differentiation Consideration:** Consider reminding students these are difficult concepts and knowing the definition of these terms will help them understand the text. This is why, in addition to common online reference materials, students were encouraged to use audio and video to help gain an understanding of these terms. Explain to students that it is also helpful to put these definitions in their own words to make sure they fully comprehend the definition.

ⓘ **Differentiation Consideration:** Consider leading a brief whole-class discussion in order to clarify the meaning of *behaviorism* and *ethology* before students talk in pairs.

- Students Turn-and-Talk with a classmate, discussing the definitions they found for homework.

- Student responses should include:
  - *Behaviorism* is the theory that human or animal psychology can be accurately studied and measured in a laboratory.
  - *Ethology* is the study of animal behavior in the animal's natural environment.

Ask students:

How did the resources you found help you understand these terms?

ⓘ Remind students that additional resources such as video clips that reinforce understanding of an idea or concept will be part of their Module Performance Assessment.

ⓘ It is important that students have an understanding of *behaviorism* as well as *ethology* as they continue to read *Animals in Translation* and it may be necessary to check in with student pairs or the entire class to confirm their understanding.

- Student pairs discuss the resources they found and how it helped them understand *behaviorism* and *ethology*.

- Student responses will vary depending on the resource:

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- This entry on dictionary.reference.com helped me understand ethology because it mentions that ethology emphasizes behavior that happens in natural environments. http://dictionary.reference.com/browse/ethology?s=t
- This video, "Behaviorism 101, by user Nessy Mond," helped me understand behaviorism because it presented information in a clear way and used visuals effectively.
- The video "Animal Behavior" by Bozeman Science helped me understand that ethology studies a wide variety of animal behaviors in their natural environments. This video used a lot of pictures and helpful examples.

ⓘ "Behaviorism 101" found on YouTube (http://www.youtube.com/watch?v=RU0zEGWp56Y&feature=youtu.be): © Copyright Vanessa Monaghan/Claire Whitehead/Catherine Lonegan/Ciara McDonnell. "Animal Behavior" found on YouTube (http://youtu.be/6hREwakXmAo) Creative Commons Attribution License.

Activity 3: Pages 9–14 Reading and Discussion 40%

Introduce and display the Quick Write assessment (How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism?)

- Students read the Quick Write assessment.

Instruct students to take out their Topic Tracking Tool introduced in the previous lesson. Inform students that they will continue to record potential topics for research as they read and discuss this portion of *Animals in Translation*. Explain to students that they will discuss potential topics for research with a partner as they emerge from the text. Remind students to record the topics as well as the key details from *Animals In Translation* about the topic on their Topic Tracking Tool.

Instruct students to form pairs and read pages 9–10 (from "By the time I got to college I knew" to "I wanted to talk to him about some of the research I had done"). Instruct students to discuss the following questions and record their answers.

ⓘ Potential topics can be found on the modeled Topic Tracking Tool at the end of this lesson. The topics revealed during Lessons 1 and 2's in-class work and assessments should provide a solid foundation for this work.

- Student pairs take out their Topic Tracking Tool, read, discuss, track topics, and record their answers to the questions.

According to Grandin what is the central feature behaviorists observe when studying an animal or human psychology?

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- Grandin writes that behaviorists believe that the "environment was the only thing that mattered" (p. 9).

ⓘ **Differentiation Consideration:** Remind students that this is the reason they searched, defined, and found a resource to understand the concept of behaviorism and that sometimes authors don't always explain complicated concepts in a text.

What is the "black box" and why was it off-limits to behaviorists?

- It was stuff, intelligence, emotions, and motives that you could not measure. Behaviorists only look at environment because you cannot see what is happening inside a person or an animal's head.

What is the difference between punishment and negative reinforcement?

- Punishment is something bad happening to you and negative reinforcement is "something you don't like either stops or doesn't start in the first place."

ⓘ **Differentiation Consideration:** Consider these questions to scaffold student understanding of positive and negative reinforcements:

What is the effect of positive and negative reinforcements?

- Positive and negative reinforcements shape animal behavior. "Animals only had behavior, which was shaped by…positive and negative reinforcements from their environment."

What kind of reinforcements are the most effective?

- Grandin writes that "rewarding good behavior" is more effective than punishment.

Based on Grandin's explanations of different types of positive and negative reinforcements, explain in your own words what she means by "stimulus-response machines."

- Behaviorists thought that animals were "stimulus-response machines" (p. 10), meaning that they would all react the same way to positive and negative reinforcements in an automatic way.

What details has Grandin introduced about behaviorism in this portion of text? Give three pieces of evidence to support your answer.

- Grandin has introduced several details about behaviorism. First, behaviorists believe that "environment was the only thing that mattered," (p. 9) when studying animals who they think do not "have emotions or intelligence," (p. 9). Grandin writes that behaviorists think that since animals are totally behavior driven their behavior can be "shaped by rewards, punishments."

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ⓘ **Differentiation Consideration:** Consider modeling *behaviorism* as a potential research topic to students who may need more support with the Topic Tracking Tool.

Ask students to read pages 10–12 (from "His office called and invited me down" to "It works better because it respects the animal's behavior"). Instruct students to discuss the following questions and record their answers. Remind students to continue to record potential research topics on their Topic Tracking Tool.

Provide the definition of *operant conditioning* as: the process of behavior modification that changes a subject's behavior based on "positive and negative reinforcements from their environment," (p. 9).

- Student pairs read, discuss, track topics, and record their answers to the questions.

Why did Dr. Skinner believe that *operant conditioning* made the study of the brain unnecessary?

- Skinner believed that studying the effect of positive and negative reinforcements on behavior was such a powerful way to understand animal and human thinking that studying the brain did not seem necessary. "Animals only had behavior, which was shaped by rewards, punishments, and positive and negative reinforcements from the environment" (p. 9).

What made Grandin believe that Dr. Skinner's claim that *operant conditioning* was wrong? Give evidence to support your answer.

- From her own experience Grandin saw that she "had problems that sure didn't seem to be coming from my environment." In addition, in her ethology class she studied how instincts are "hardwired" into the animal without any influence from the environment.

What is the connection between behaviorists and ethologists? What does Grandin think about their approach to studying animals?

- Behaviorists and ethologists both study animals in their environments. Behaviorists study animals in laboratories while ethologists study them in their natural environments. Grandin, however, thinks that "looking at animals [only] from the outside" and "declaring the brain off-limits" (p. 11) is a big mistake.

How does Grandin support her claim that "the equipment won't work if the environment is bad"? How does this claim relate to behaviorism?

- Grandin supports this claim through her experience with designing equipment in the meatpacking industry, comparing the inefficient old V-restrainers with her new design: "animals don't like to walk into a space where they feel like there isn't enough space for their feet"

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(p. 12). She also says "a lot of plant owners don't think twice about their cattle's environment" (p. 12). Her innovation in the industry is a result of examining the cattle's environment as well as viewing the environment from their perspective.

Why does Grandin claim she is not an "enemy of behaviorism"?

- Grandin makes this claim because she uses behaviorism a lot in her work with animals, "My design innovation wasn't technological, it was behavioral." She uses behaviorism to support her understanding of animals but doesn't believe "the laws of learning were simple and universal, and all creatures followed them" (p. 12).

How does Grandin develop her analysis of behaviorism in this portion of text?

- Grandin writes that she did not agree with Dr. Skinner's statement that *operant conditioning* was the only thing that needed to be studied to understand the psychology of an animal. Grandin disproves Dr. Skinner's claim using her knowledge of ethology as well as her own experience, "I had problems that sure didn't seem to be coming from my environment" (p. 11). Grandin also introduces positive aspects of behaviorism, making her analysis more complex. She writes that behaviorist's focus on the study of the environment "was a huge step forward" (p. 11) toward understanding animal behavior.

Ask students to read pages 12–14 (from "But the plants don't realize that" to "capable of a lot more than anybody thought, and that was a good thing"). Instruct students to discuss the following questions and record their answers. Remind students to continue to record potential research topics on their Topic Tracking Tool.

What was the significance of Dr. Lovaas's study? How does the inclusion of this study further develop Grandin's analysis of behaviorism?

- Dr. Lovaas's study was important because it gave "a reason to think that autistic people were capable of a lot more than anybody thought" (pp. 13–14). This study develops Grandin's positive analysis of behaviorism, its benefits, and successes even if she does not fully agree with all behaviorist ideas.

Activity 4: Posing Inquiry Questions 25%

Instruct students to keep out their Topic Tracking Tool. Inform students that they will continue to record topics, the same way they were introduced to in the previous lesson, and that today they will begin to use these topics to generate inquiry questions to deepen their understanding. Explain to students that during this research process they will be using inquiry questions to guide their research and analysis.

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This process is recurring and they will continue to surface new questions as they acquire information about their research topics.

- Students listen.

Inform students that *Animals in Translation* will be used to generate sample topics for research in this module. Explain that Temple Grandin touches on many topics throughout the first chapter of *Animals in Translation*. Of these, they will use autism as a sample topic to generate inquiry questions as a class. Distribute the Posing Inquiry Questions Handout to students. Inform students that they will be focusing on generating inquiry questions that they will select and refine in later lessons. At this stage, the inquiry questions are meant to guide an initial exploration of a topic. Instruct students to read the Generating Questions portion of the handout.

- Students read the Generating Questions portion of the handout.

Explain to students that by using the questions on the handout concerning each individual topic, it is possible to come up with a wide variety of inquiry questions. Remind students to consider what they find interesting and what they would like to know more about when they are generating questions. Explain to students at this stage it is best to brainstorm as many questions as possible.

- Students listen.

Display the autism topic for students and the example inquiry question: How does autism affect the human brain? Explain to students that based on the "What are its causes and implications?" prompt from the handout this is an open-ended inquiry question. Ask students to volunteer potential inquiry questions.

- Student responses may include:
    - How is autism defined?
    - What is the history of autism?
    - Where did autism originate?
    - What are the major aspects of autism?
    - What are the characteristics of autism?
    - Why might people with autism be able to understand animals better than people without autism?
    - What else is autism connected and associated with?
    - Who are famous or important autistic people?
    - Who is an expert on autism?
    - Are there countries that have more people with autism than others?

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Instruct students to form pairs, choose a topic from the Topic Tracking Tool and generate five inquiry questions.

- Student responses will vary depending on the potential research topic. Student responses may include:

  Topic: Behaviorism
  Inquiry Questions:
  - What is the history of behaviorism?
  - Who are experts in behaviorism?
  - What are major aspects of behaviorism?
  - What are important discoveries behaviorists have found when observing animals?
  - What else is behaviorism associated with besides animal psychology?

Activity 5: Quick Write 10%

Instruct students to respond to the following Quick Write prompt:

How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism?

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

- Students independently respond to the Quick Write prompt.
- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to begin researching unknown topics using their inquiry questions developed in class as a guide. Remind students to consult other teachers, librarians, media specialists, books, the Internet, or any other available resource. The purpose of exploring a topic at this stage is to identify areas of interest within the topic and explore the dimensions of a topic. Instruct students to write 1–2 sentences identifying their area of interest within their research topic and come to the following lesson prepared to discuss one area of interest.

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ⓘ Explain to students that a media specialist can be the person who operates audio-visual equipment, the librarian, a teacher with broad knowledge of media resources and the communication process, or one who helps other teachers or students locate an array of resources.

It may be helpful to identify ahead of time the appropriate person/people in the building who will assist students with locating resources for their research.

- Students follow along.

Homework

Use your inquiry questions to guide your research and begin exploring various dimensions of a topic. Consult other teachers, media specialists, librarians, books, the Internet, or any other available resources. Begin to identify areas of interest within your research topic. Write 1–2 sentences identifying your area of interest within your research topic and be prepared to discuss one area of interest in the following lesson.

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Model Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text
behaviorism	9–14	Grandin writes that behaviorism dominated the whole field of psychology. To behaviorists "environment was the only thing that mattered." They thought animals had no emotions only behaviors.
B.F. Skinner	9–12	Dr. Skinner was, according to Grandin, "the god of psychology." He was a very influential behaviorist thinker.
ethology	11	Ethology is a field of animal psychology as well. Although the big difference from behaviorism is that, "ethologists study animals in their natural environment."
meatpacking industry	12	Grandin writes about her work in the meatpacking industry. A system she designed is being used in "half of all the plants in North America." She writes that environment is very important for an efficient cattle plant.
classical operant conditioning	11, 13	Grandin writes about classical operant conditioning in relation to a study done with autistic children: "having the kids go over and over the behaviors."

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Posing Inquiry Questions Handout

Name:		Class:		Date:	

Generating Questions

In this module, *Animals in Translation* is a starter or "seed text" that helps generate potential topics that drive the research process. Topics that are identified in the text will be used to pose inquiry questions. These inquiry questions will help illuminate different potential areas of investigation within a research topic. When generating inquiry questions, it is often a good idea to brainstorm as many as possible before selecting and refining the richest ones. Here are several to help you get started:

- How is the topic defined?
- What are its major aspects?
- Where did it originate?
- What are its causes and implications?
- What is its history?
- What other things is it connected to or associated with?
- What are its important places, things, people, and experts?

Selecting and Refining Questions

Once the brainstorming process is completed, it is important to review and select the strongest questions generated. Use these questions to assist with selecting and refining the strongest inquiry questions:

Are you genuinely interested in answering your question?

There is a lot of work involved in research and genuine interest motivates the research process. The best questions are about things that are interesting to individual researchers and what they consider to be valuable information.

Can your question truly be answered through your research?

Some questions are unanswerable (Are there aliens on Jupiter?) or take years to answer (What is the meaning of life?). A good inquiry question must be realistic and researchable.

Is your question clear? Can you pose your question in a way that you and others understand what you are asking?

Good inquiry questions are straightforward and not confusing. If the question has two parts it may be better to separate the parts to form two new questions.

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What sort of answers does your question require?

Questions that can be answered with a simple YES or NO generally do not make good inquiry questions. Good inquiry questions should support lots of investigation that may even lead to multiple answers, and more questions. For example, the question "What are the characteristics of autism?" could lead to asking questions about how these characteristics are defined and when they were first discovered.

Do you already know what the answer is?

Good inquiry questions are actually questions that cannot be answered immediately. The research process involves inquiry, finding more information about a question, and developing a perspective based on the evidence discovered and this cannot happen if the question is already answered or too simplistic. For example there is a big difference between the question, "Do I know anyone with autism?" (an easily answered question that requires little research) and, "What is the history of autism?" (a question that would require a lot of research).

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9.3.1 Lesson 4

Introduction

In this lesson, students will read and analyze pages 14–16 of *Animals in Translation* (from "The other major contribution behaviorists made" to "no one had ever seen before"). Students will continue to examine Grandin's analysis of behaviorism and ethology, and consider how this portion of text further refines and develops her central idea that autism has made understanding animals easy.

Students will continue to record, discuss, and track potential topics for research. They will also generate inquiry questions based on topics they have identified in the text to guide their research. Students will share these questions in small groups and discuss similarities and differences between questions on the same topic. The lesson assessment is an independent writing prompt that asks students to demonstrate how the central idea in this text is further developed and refined in pages 9–16. For homework, students will continue to conduct research based on the inquiry questions they have developed in class and identify three areas of interest within the topic.

Standards

Assessed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
Addressed Standard(s)	
RI.9-10.1.a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).
RI.9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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Assessment

Assessment(s)
The learning in this lesson is captured through a Quick Write at the end of the lesson. Students answer the following prompt based on the close reading (citing text evidence and analyzing key words and phrases) completed in the lesson. • How does Grandin further develop and refine the idea that her autism provides a unique perspective on animal behavior in pages 9–16? ⓘ This assessment will be evaluated using the Short Response Rubric. ⓘ Although students read pages 14–16 in this lesson, this assessment focuses on the comprehensive development and refinement of Grandin's central idea over pages 9–16. This will help prepare students for the End-of-Unit Assessment.
High Performance Response(s)
A high performance response may include the following: • Grandin says, "In my student days even though everyone was against anthropomorphizing animals, I still believed it was important to think about the animals' point of view." Grandin has a "pretty good grounding in ethology" and this allowed her to recognize that instincts were an example of something that "had nothing to do with the environment." She also uses ideas from behaviorism: "Until behaviorism came along, probably no one understood how important the environment is." Grandin explains that behaviorists and most ethologists considered looking from the animal's point of view to be illegal. As a result "neither group looked inside the animal's head." Because she is autistic, Grandin knows how important studying the brain is, and says that "the brain is pretty powerful, and a person whose brain isn't working right knows just how powerful." Through all of this understanding she came to the conclusion that understanding an animal's perspective is important to understanding their behavior. This further develops her central idea that her autism proves a unique perspective on animal behavior.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• contribution (n.) – the part played by a person or thing in bringing about a result or helping something to advance • environmentalists (n.) – people who consider that environment is the primary influence on the development of a person, group, or animal

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Vocabulary to teach (may include direct word work and/or questions)
• anthropomorphize (v.) – to attribute human form or behavior to an animal, object, etc.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.2, RI.9-10.1.a, RI.9-10.4	
• Text: *Animals in Translation* (pp. 14–16)	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Pages 14–16 Reading and Discussion	3. 40%
4. Generating Inquiry Questions	4. 30%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **Topic Tracking Tool** (refer to 9.3.1 Lesson 2)
- Student copies of the **Posing Inquiry Questions Handout** (refer to 9.3.1 Lesson 3)
- Student copies of the **Short Response Checklist and Short Response Rubric** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and assessed standard for this lesson: RI.9-10.2. Explain that in this lesson students continue to read pages 14–16 of *Animals in Translation*, track potential research topics, generate inquiry questions, and examine how this section of text further develops and refines Grandin's central idea.

- Students look at the agenda.

Activity 2: Homework Accountability 10%

Instruct students to form pairs and do a Turn-and-Talk about the area of interest they identified and the inquiry question that led to that area of interest.

- Student responses will vary based on the individual research they conducted. Look for students to use language such as:
  - A topic I identified in the Grandin text was behaviorism. She wrote a lot about behaviorists and how they study animals and people.
  - One of the inquiry questions I came up with in class was, "What are important discoveries behaviorists have found when observing animals?"
  - I consulted the media specialist at the library and gave me guidance on how to find reliable information online for this topic. I found information about understanding animal behavior and training animals.
  - An area of interest I have is animal behavior, and how that can help people train them.

Activity 3: Pages 14–16 Reading and Discussion 40%

Introduce and display the Quick Write assessment prompt (How does Grandin further develop and refine the idea that her autism provides a unique perspective on animal behavior in pages 9–16?). Explain to students that this is the lesson assessment and the focus for today's reading.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessment for students to see.

Instruct students to take out their Topic Tracking Tool for the purpose of recording potential research topics. Instruct students to form pairs and read pages 14–15 from "The other major contribution behaviorists made" to "At least that's what I was trying to do." Instruct student pairs to discuss the following questions and then record their responses in writing. Explain that an important vocabulary

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word in this section is *contribution*, "the part played by a person or thing in bringing about a result or helping something to advance." Display the following questions for students.

ⓘ For potential student topics for this reading, see the Model Topic Tracking Tool at the end of this lesson.

- Student pairs take out their Topic Tracking Tool, read, discuss, track topics, and record responses to the following questions.

What does being a "close observer" of behavior allow Grandin to do?

- Being a close observer allows her to "spot tiny changes in an animal's behavior quickly, and connect the changes to something in the environment."

What do ethologists and behaviorists agree on?

- Ethologists and behaviorists both "study animals in their natural environment" and both agree that "anthropomorphizing an animal is wrong."

Why were "behaviorist principles" (general laws or truths from which others are derived) important for John Ross to remember?

- Behaviorist principles were important because John Ross should have thought about "Jason's environment instead of about his 'psychology.'" Behaviorists wouldn't have made the mistake of thinking the dog was ashamed.

What details from the story of John Ross and Jason can help make meaning of the word *anthropomorphize*? What does it mean to *anthropomorphize* an animal?

- Grandin writes that John Ross said he was being anthropomorphic when he saw his dog Jason "take off running" whenever there was garbage on the floor. He assumed the dog had human characteristics like shame. "Mr. Ross thought…Jason knew that strewing garbage clear across the kitchen was wrong, and ran away because he felt bad." To *anthropomorphize* an animal means to think of that animal as if it is human.

ⓘ **Differentiation Consideration:** If students struggle to define *anthropomorphize* through context, consider explaining that this is a word that could also be defined using vocabulary definition skills such as taking the root word "anthro," and connecting it to other words that have the same root such as "anthropology," which is the study of humans; thus, a word that also starts with "anthro" will also involve thinking about humans in some way.

Why does Grandin believe *anthropomorphizing* animals can be dangerous to them?

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- Grandin believes *anthropomorphizing* animals can be dangerous to them because animals think differently from humans, and attributing human thoughts and motivations to animals means misunderstanding how animals think. Grandin uses the example of a lion that ate a pillow because its owner thought the lion would want a pillow to lie on, but instead the lion died.

What does Grandin mean by "I wasn't looking at the lion as a person, but as a lion"? How does this statement further develop her central idea?

- Grandin makes the point that "well, no, he doesn't want a pillow, he wants something soft to lie on, like leaves and grass." So the intention to give the lion something comfortable to sleep on was correct, but "looking at the lion…as a lion" means that you would give the lion what they would usually use to lie on, like grass, instead of something humans use, like a pillow. This further develops her central idea because it is an illustration of how her autism allowed her to think from an animal's perspective and ultimately (through her work) understand animals and keep them out of distressing situations and environments.

Instruct student pairs to continue reading pages 15–16 from "That kind of thinking was illegal for behaviorists" to "started developing complex behaviors no one had ever seen before." Direct student pairs to continue to record topics, discuss their responses to the following questions, and then record their responses in writing. Explain that an important vocabulary word in this section is *environmentalists:* people who consider environment to be the primary influence on the development of a person, group, or animal. Display the following questions for students.

- Student pairs read, discuss, track topics, and record responses to the following questions.

Why did Grandin not endorse the experiments at her university?

- Grandin was opposed to these experiments because they were "nasty experiments" and she did not understand what the psychologists were learning from them. Grandin also believes that since the environment in a lab is "totally artificial" it is not an effective way to learn about animals.

How does Grandin include behaviorist and ethologist thinking in her perspective? What makes her perspective distinct from both fields of study?

- Grandin has a "pretty good grounding in ethology" and this allowed her to recognize that instincts were an example of something that "had nothing to do with the environment." She also uses ideas from behaviorism: "Until behaviorism came along, probably no one understood how important the environment is." Grandin's perspective is unique because she decided to try and view the animal's perspective, "neither group looked inside the animal's head."

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Activity 4: Generating Inquiry Questions 30%

Explain to students that they will continue to generate inquiry questions about the possible research topics they have identified in the text. Instruct students to refer back to the Posing Inquiry Questions Handout from the previous lesson. Remind students that inquiry questions guide the research process and develop further pathways for exploration. Explain that at this stage it is helpful to think of as many questions as possible and that in the following lesson they will focus on refining their inquiry questions. Inform students they will be placed into groups of four to five students that work together throughout the module. First, this group decides on a topic identified in this portion of text. Then, the students break into subgroups of two or three. These subgroups generate and record five inquiry questions before rejoining their larger group and sharing their questions. Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

ⓘ Remind student groups that it is important to discuss which questions they have identified are similar and which ones are different. Also, students should discuss if there are any questions that would be broader and lend themselves to a rich understanding of the topic.

ⓘ Place students in heterogeneous groups of four to five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to refine their own inquiry topics and questions.

- Students form groups of four or five students to decide on a topic.
- Student topics will vary.
- Students form subgroups of two or three students, and generate five inquiry questions in pairs.
- Student responses will vary based on their individual potential research topics. Student responses may include the following:
  - Topic: Laboratory experiments on animals
  - Potential inquiry questions may include:
    - What are the benefits of experimenting on animals?
    - Why are people critical of laboratory experiments on animals?

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- What is the worst experiment ever done on an animal in a laboratory?
- Who is the most famous laboratory animal?
- Which animals are used most often in laboratory experiments?

Instruct student subgroups to rejoin their groups after generating five inquiry questions and to discuss their questions within their groups. Ask students to independently record the five inquiry questions generated by the other subgroup in their group. Explain that these inquiry questions as well as the ones they generated yesterday will help guide their searches for homework.

- Students follow along and record five inquiry questions based on group discussion.

Activity 5: Quick Write 10%

Instruct students to respond briefly in writing to the following writing prompt:

How does Grandin further develop and refine the idea that her autism provides a unique perspective on animal behavior?

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.

- See the High Performance Response at the beginning of the lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue researching unknown topics gathered from this lesson's reading and use inquiry questions generated in their groups to guide their searches. Remind students to consult media specialists, books, the Internet, or any other available resource. The purpose of exploring a topic at this stage is to identify areas of interest within the topic and to explore the dimensions of a topic. Instruct students to identify three areas of interest within the topic using the inquiry questions.

Additionally, ask students to preview and annotate *Animals in Translation,* pages 16–20 (from "The only research I was interested in doing" to "Why couldn't they see what they were doing wrong?") and be prepared to discuss 3–4 annotations in the following lesson.

- Students follow along.

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Homework

Based on your inquiry questions from this lesson, continue exploring various dimensions of a topic. Use your inquiry questions to guide your research. Using inquiry questions from the lesson, identify three areas of interest within your topic.

Also, preview and annotate *Animals in Translation,* pages 16–20 (from "The only research I was interested in doing" to "Why couldn't they see what they were doing wrong?") and be prepared to discuss 3–4 of your annotations in the following lesson.

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Model Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text
Anthropomorphizing animals	14–15	In this portion of text Grandin writes a lot about anthropomorphizing animals, or giving them human attributes. Grandin writes that both behaviorists and ethologists think it can be dangerous to animals: "everyone was against anthropomorphizing animals."
Dog training	14–15	Grandin writes briefly about how anthropomorphizing can be a problem when training a dog to behave. "He wasn't running away because he felt guilty…he felt scared."
John Ross	14–15	John Ross is mentioned in this portion of reading as a professional trainer as well as an author of the book "Dog Talk."
Ron Kilgour	15	Grandin writes about "a great animal psychologist out of New Zealand named Ron Kilgour." This is the only ethologist Grandin mentions by name in this portion of reading.
Laboratory experiments on animals	16	When Grandin was in university there were a lot of scientists doing "nasty experiments" on monkeys. Grandin believes that there should be something clear that can be learned if experiments that harm animals are going to happen.

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9.3.1 Lesson 5

Introduction

In this lesson, students reread and analyze pages 16–20 of *Animals in Translation* (from "The only research I was interested in doing" to "Why couldn't they see what they were doing wrong?"). In this passage Grandin explains what it means to be a visual thinker. Students will continue to examine the ways that Grandin develops her central idea (autism has made understanding animals easy) in this chapter. The lesson assessment asks students to analyze how Grandin unfolds an analysis or series of events.

Students will continue to track topics in the text and generate inquiry questions. Students will also begin selecting and refining inquiry questions for research. For homework, students will read and annotate pages 20–23. Additionally, students will choose one topic, generate five inquiry questions, and select and revise two of those inquiry questions.

Standards

Assessed Standard(s)	
RI.9-10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Addressed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will

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answer the following prompt based on the close reading (citing evidence from the text and analyzing key words and phrases) completed in the lesson.

- Analyze how Grandin unfolds an analysis or series of ideas or events, including the order in which she makes her points. Discuss how Grandin introduces and develops her points and the connections she draws between them.

ⓘ This assessment is evaluated using the Short Response Rubric.

High Performance Response(s)

A high performance response may include the following:

- Grandin begins her story with the central idea that her autism enables her to "understand the way animals think" (p. 1). Grandin further develops and refines this idea when she describes what it means to be a "visual thinker." She does it in several steps. She begins by saying that she does not mean "just that [she's] good at making architectural drawing and designs." She then explains that she "actually thinks in pictures." When she thinks, she "has no words in [her] head" (p. 17). She then offers two examples: she cannot understand economics or algebra because she cannot visualize them. Grandin explains that her visual thinking ability helps her see and understand what animals see.
- Grandin begins her story with the central idea that her autism enables her to "understand the way animas think" (p. 1). She explains that she is a visual thinker. She thinks in pictures. Grandin develops and refines what it means with an example of a court. She says: "If you think about a judge and jury, all deliberations are in pictures." She explains that words do not "come in" until her thought process is complete. Her "final judgment," her "final verdict," only these are "in words" (p. 17). Grandin explains that her visual thinking ability helps her see and understand what animals see.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)

- refining (v.) – making more fine, subtle, or precise

Vocabulary to teach (may include direct word work and/or questions)

- obsolete (adj.) – no longer in use
- gravitated (v.) – was attracted by, as if by an irresistible force

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: RI.9-10.3, RI.9-10.2, SL.9-10.1 • Text: *Animals in Translation* (pp. 16–20)	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Pages 16–20 Reading and Discussion	3. 40%
4. Refining Inquiry Questions	4. 30%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **Topic Tracking Tool** (refer to 9.3.1 Lesson 2)
- Student copies of the **Posing Inquiry Questions Handout** (refer to 9.3.1 Lesson 3)
- Student copies of the **Short Response Rubric and Checklist** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and assessed standard for this lesson: RI.9-10.3. Explain that today students continue reading and analyzing pages 16–20 of *Animals in Translation*, track potential research topics, as well as generate and refine further inquiry questions.

- Students follow along and read the agenda.

Activity 2: Homework Accountability 10%

Instruct students to form pairs to do a Turn-and-Talk, discussing 3–4 annotations and why they annotated those sections of text from pages 16–20 in *Animals in Translation*.

- Students do a Turn-and-Talk and discuss 3–4 annotations.

Have students share out the annotations they discussed.

- Students responses may include the following:
  - Boxes around the words: macroeconomics, macramé, obsolete, gravitated, spectrum, anthropomorphic
  - Star near title of section: "Seeing the Way Animals See:" – This is an interesting concept, looking at the way animals see.
  - Star near "I'm a visual thinker." – The narrator combines seeing with thinking.
  - Star near "I flunked algebra." – She makes a connection between visual thinking and flunking algebra, since she could not visualize it.
  - Star near "final judgment" – The idea is that when she thinks it is in pictures, not words. Those only appear after she has visualized the facts.
  - Star near "when I was young" – This points to the fact that her special way of seeing things sets her apart from others even if earlier on she did not realize it.
  - Underline the sentence in italics: "*You get food by being highly attuned to the visual environment*." – This sentence must be important since it is in italics. She is making the connection between what animals see and their survival.
  - Underline "Well let's look at it from the animal's point of view." – She uses the quote to tell us what her thoughts were when she decided that in order to understand the problem the animals were having she needed to see it from their perspective.

Instruct student pairs to discuss their three potential areas of interest using their inquiry questions generated in the previous lesson.

- Students discuss their three areas of interest in pairs.

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- Student responses may include:
  - Based on the topic of Anthropomorphizing Animals there were a few areas of interest I identified.
  - One of my inquiry questions was, "How have people anthropomorphized animals throughout history?"
  - Using this inquiry question, I searched for different ways people have anthropomorphized animals throughout history.
  - One area that interests me is the way that people have told stories using anthropomorphized animals. This happens in fables and lots of other stories.
  - I also found that anthropomorphizing did not start with animals but with gods. Zeus is an example of an anthropomorphized god, meaning that he was a god who behaved like a person sometimes—he got angry, jealous, etc.
  - I would also be interested in researching how anthropomorphizing has affected the way humans have treated different kinds of animals.

ⓘ This response is an example of what students might discuss as a potential area of interest based on a topic from the previous lesson. This activity is priming students to use the Exploring A Topic Tool in Lesson 6.

Activity 3: Pages 16–20 Reading and Discussion 40%

Introduce the Quick Write assessment (Analyze how Grandin unfolds an analysis or series of ideas or events, including the order in which she makes her points. Discuss how Grandin introduces and develops her points and the connections she draws between them). Explain to students that this is the lesson assessment and the focus for today's reading.

- Students read the assessment and listen.

Instruct students to form pairs, take out their Topic Tracking Tool, and read *Animals in Translation*, pages 16–18 from "The only research I was interested in doing" to "it was just what I naturally gravitated to." Direct student pairs to discuss their answers and then record them in writing. Remind students to also record potential topics for research as they read. Display the following questions for students.

ⓘ For potential student topics for this reading see the Model Topic Tracking Tool at the end of this lesson.

- Student pairs reread, discuss, track topics, and record their answers to the following questions.

How does Grandin explain what it means to be a "visual thinker?"

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- Grandin articulates what it means to be a "visual thinker" in several steps. She begins by saying that she does not mean "just that [she's] good at making architectural drawing and designs." She then explains that she "actually thinks in pictures." When she thinks, she "has no words in [her] head" (p. 17). She then offers two examples: she cannot understand economics or algebra because she cannot visualize them.

How does the word *obsolete* further contribute to Grandin's explanation of the "visual thinker"?

- Grandin says that she knew that the dot-com industry would suffer a crisis (which it did). She argues that since she could not visualize these companies, they would fail. What she did see were images of "rented office space" and computers that "would be obsolete in two years" (p. 17). In this context the rented office space and computers were no longer in use.

How does Grandin use the concept of judge and jury to explain her thought process?

- Grandin describes her thought process: "If you think about a judge and jury, all deliberations are in pictures." She explains that words do not "come in" until her thought process is complete. Her "final judgment," her "final verdict," only these are "in words" (p. 17).

ⓘ If students struggle with this question due to lack of background knowledge about the legal process, ask if they can determine the meanings of the words "deliberations" and "verdict" from the context of this paragraph. The author makes a fairly explicit connection, but it is worthwhile to confirm that students understand these references.

Why did Grandin *gravitate* to the animals' visual environment? What does the word *gravitate* mean in this sentence?

- Grandin explains that she did not like the lab work. She *gravitated* toward, or was drawn instead, to the animals' "natural environment." She knew that she would learn more when she shared their "visual environment." One may infer that she wanted to be able to see what the animals saw.

Instruct student pairs to continue reading pages 18–20 from "Being verbal thinkers, behaviorists hadn't really thought about" to "Why couldn't they see what they were doing wrong?" Direct student pairs to discuss their answers and then record them in writing. Remind students to continue tracking potential research topics. Display the following questions for students.

- Student pairs reread, discuss, track topics, and record their answers to the questions.

What are "verbal thinkers" and what do they fail to realize?

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- "Verbal thinkers," unlike "visual thinkers," think in words. They do not consider the animals' "visual environment." In the wild, animals "*get food by being highly attuned to the visual environment*" (p. 19).

How does Grandin make the connection between her visual thinking ability and her research?

- In this passage, Grandin specifically mentions her research. She describes the move she made from the lab to the yard. She was investigating a problem: the animals did not want to go through "the chutes," the "narrow passages." She knew that the problem, and therefore the solution, had to be visual. She determined that in order to solve the problem she had to see what the animals see.

Activity 4: Refining Inquiry Questions 30%

Remind students that in the two previous lessons they have been generating inquiry questions, and in this lesson they will focus on selecting and refining the best questions to support rich inquiry and research. Display and ask students to retrieve the Posing Inquiry Questions Handout. Instruct students to first form the same research groups of four to five students they established in the previous lesson. Instruct each group to generate five inquiry questions based on the topics recorded in this lesson.

ⓘ The heterogeneous groups of four to five students were established in the previous lesson.

ⓘ Explain to students that to *refine* means "to make more fine, subtle, or precise." Students will make their questions better and more precise after using the questions on the Posing Inquiry Questions Handout.

- Students take out their Posing Inquiry Questions Handout and form the same research groups from the previous lesson. Student groups begin generating inquiry questions.

- Students responses may include:
  - Topic: Visual thinking
  - Inquiry Questions:
    - What are the causes of visual thinking?
    - What are the major aspects of visual thinking?
    - Who are famous visual thinkers?
    - What are the benefits of visual thinking compared to verbal thinking?
    - What has been a major contribution of visual thinking to science?

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Direct student groups to read the Selecting and Refining Questions portion of the Posing Inquiry Questions Handout. Explain that choosing strong inquiry questions, just like using strong evidence when making a claim, is an important part of the research process. Explain to students that they need strong inquiry questions to support thorough research. Remind students that as they use the Selecting and Refining portion of this handout they will not always be able to answer every question without doing some initial investigation, like they have done for homework in the previous lessons. For example, the question "Can your question be truly answered through research?" may require some exploration to answer.

- Student groups follow along and read the Selecting and Refining portion of the Posing Inquiry Questions Handout.

Display the following inquiry question for students: "What is visual thinking?" Explain that it is possible to determine the strength of this inquiry question by using the Selecting and Refining section of the handout. Model for students how to answer these questions using the "Think Aloud" technique.

Are you genuinely interested in answering your question?

- Yes, I would like to know more about visual thinking.

Can your question truly be answered through your research?

- I am sure I can find out more about visual thinking but I would need to do some exploration.

Is your question clear? Can you pose your question in a way that you and others understand what you are asking?

- This is a clear question although not everyone may know the meaning of the word *visual*.

What sort of answers does your question require?

- This question requires an explanation of the process of visual thinking but it might not be very long.

Do you already know what the answer is?

- From reading *Animals in Translation*, I actually already know about visual thinking, which means to think in pictures.

- Student groups follow along as the teacher models responses to the questions.

Ask student groups:

Based on the responses to the questions in the Selecting and Refining section, is this a good inquiry question?

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- No, this inquiry question can already be answered using the Grandin text. It would not be a strong question for research.

Display the following example inquiry questions: 1. "Who are famous visual thinkers?" 2. "What are the benefits of visual thinking compared to verbal thinking?" Instruct students to use the Selecting and Refining questions in their groups to decide which question is a stronger inquiry question. Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules. Ask student groups to go through and discuss each of the Selecting and Refining questions for the first inquiry question, and then repeat the process for the second inquiry question.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

- Student groups use the Selecting and Refining questions on the Posing Inquiry Questions Handout for the displayed inquiry questions.

Ask student groups to share which of the inquiry questions (1 or 2) is a stronger inquiry question and which Selection and Refining questions assisted with their understanding.

- Student groups share which question is a stronger inquiry question.
- "What are the benefits of visual thinking compared to verbal thinking?" is a stronger inquiry question because it would have a more complicated answer than just finding famous visual thinkers. We also already know that Temple Grandin is a famous visual thinker, and question 1 does not necessarily illuminate potential areas of investigation as it can be answered by identifying individuals who are famous visual thinkers.

Instruct student groups to use the Selecting and Refining questions to select the strongest of the five inquiry questions they generated in this lesson. Explain that the purpose of selecting and refining is to prepare them for their homework assignment, which is to select a topic, generate inquiry questions, and select and refine the two strongest inquiry questions.

- Student groups use the Selecting and Refining questions to choose the strongest inquiry question from the five they generated in this lesson.
- Student responses will vary depending on the topic, inquiry questions, and refining process.

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Activity 5: Quick Write 10%

Instruct students to respond briefly in writing to the following prompt:

How does Grandin unfold an analysis or series of ideas or events, including the order in which the points are made? Discuss how they are introduced and developed, and the connections that are drawn between them.

Remind students to use the Short Response Checklist and Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of this lesson.

Activity 5: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to read and annotate pages 20–23 from "I remember one situation in particular" to "The cows all walked into the chute just as nice as could be." In addition, instruct students to select a topic from the Topic Tracking Tool, and use the Generating Questions and Selecting and Refining Questions sections of the Posing Inquiry Questions Handout to generate five inquiry questions and select, as well as refine, two of those inquiry questions. Remind students to be prepared to discuss their topic and the inquiry questions they selected and refined in the following lesson.

- Students follow along.

Homework

For homework, first read and annotate pages 20–23 from "I remember one situation in particular" to "The cows all walked into the chute just as nice as could be." Be prepared to discuss 3–4 of your annotations. Second, select one topic from all of the topics recorded on your Topic Tracking Tool. Use the Generating Questions and Selecting and Refining Questions sections of the Posing Inquiry Questions Handout to generate five inquiry questions and select, as well as *refine*, two of those inquiry questions. Be prepared to discuss your topic and the inquiry questions you selected and refined in the following lesson.

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Model Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text
Visual thinking	16–20	This portion of text is largely about Grandin's process of visual thinking and how it has helped her understand animals. She describes visual thinking as, "During my thinking process I have no words in my head at all, just pictures."
Visual illusions	16, 19	Grandin writes that as a student she was only interested in "studying visual illusions in animals." She experimented with visual illusions on cattle and tried to determine why some cattle might not want to go through chutes.
Skinner Box	18	In this text Grandin references the Skinner Box which is "a special cage…behaviorists used to test and analyze a rat's behavior." This is a specific device used in behaviorist experiments. Grandin also says that in the Skinner box "usually the punishment would be a shock."
Environment affecting behavior	19	Grandin ties in visual thinking with how environment affects animal behavior using an example of cattle and a ladder: "Those cattle would just not walk by that ladder."

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9.3.1 Lesson 6

Introduction

In this lesson, students continue to read *Animals in Translation* by Temple Grandin, from "I remember one situation in particular" to "The cows all walked into the chute just as nice as could be" (pp. 20–23). In this excerpt, Grandin describes how she is able to solve an animal related problem due to her unique perspective.

Through an evidence-based discussion, students continue to examine the ways Grandin introduces and develops her ideas, specifically as she unfolds an analysis of problems in the cattle industry. A series of questions will guide small group and class discussion. The lesson assessment asks students to analyze how Grandin introduces and develops her discussion of the cattle industry and how it helps refine a central idea of the text. Additionally, students continue their research work by considering and choosing areas of investigation. Students will glean these areas of investigation from larger topics and inquiry questions posed in earlier lessons.

For homework, students will preview the following lesson's text excerpt by reading and annotating from "That feedlot consultation was the king of thing," to "I hope what I've learned will help people see" (pp. 24–26). They will consider how Grandin further develops and refines the central idea in this last excerpt. Additionally, students will complete the **Exploring a Topic Tool** for their selected areas of investigation.

Standards

Assessed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
RI.9-10.3	Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

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Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the evidence-based discussion conducted in the lesson. • How does Grandin introduce and develop her discussion of the cattle industry? How does this discussion develop and refine a central idea of the text? ⓘ This assessment will be evaluated using the Short Response Rubric.
High Performance Response(s)
A high performance response may include the following: • Grandin introduces a problem that an owner of a "cattle-handling facility" encountered. The cattle refused to "walk into a squeeze chute." Grandin explains that neither the chute nor the shots bother the cows. Something else caused the problem. And since vaccinations of cattle are essential, the owner, according to Grandin, "was starting to panic" (p. 20). The reason for the panic was the greater problem; the consequences of the situation would lead to lack of income. Grandin explains how her unique skills, due to her autism, helped her solve the problem. In order to figure out what was wrong with the animals, people must "*try to see what the animal is seeing*" (p. 23). Once she did that she identified what was wrong and she offered an immediate, successful solution.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• None.
Vocabulary to teach (may include direct word work and/or questions)
• cower (v.) – to crouch in fear • ambiguity (n.) – uncertainty or inexactness of meaning in language

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.2, RI.9-10.3, W.9-10.7	
• Text: *Animals in Translation*, by Temple Grandin (pp. 20–23).	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 15%
3. Pages 20–23 Reading and Discussion	3. 35%
4. Areas of Investigation	4. 30%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **9.3 Common Core Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- Student copies of the **Topic Tracking Tool** (refer to 9.3.1 Lesson 2)
- Copies of the **Exploring A Topic Tool** for each student
- Student copies of the **Short Response Rubric and Checklist** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standards for this lesson: RI.9-10.2 and RI.9-10.3. Explain that in this lesson, students continue to use evidence-based discussion to examine the ways Grandin introduces and develops her ideas, specifically as she unfolds an analysis of problems in the cattle industry. Additionally, students continue their research work by considering and choosing areas of investigation. These areas of investigation will be gleaned from the larger topics and inquiry questions students have posed in the previous lessons. The lesson concludes with a Quick Write.

- Students look at the agenda.

Activity 2: Homework Accountability 15%

Instruct students to form pairs and share their annotation from pages 20–23.

- In pairs, students share annotations from pages 20–23.

Ask student volunteers to briefly share out some of their annotations.

- Student annotations may include the following:
  - Boxes around the words: *cower, dwarfism*
  - Underline the sentence: "Thinking about a shot makes it worse."– an interesting observation that humans feel more pain because they think about the shot
  - Star near "pneumonia" – Animals get the same diseases as people. This could lead to a possible topic.
  - Star near "prods" – Doesn't seem right, but what else can they do?
  - Star near several references to "stress" – This whole idea of stress among animals and people and the physical impact seems interesting.
  - Exclamation point near "They were afraid to walk into pitch-black space."
  - Star near *"try to see what the animal is seeing."*

Ask student pairs to now share two of the inquiry questions they developed and refined for homework. Students should identify the topic that the inquiry questions address.

- Students share two of their five inquiry questions in pairs.

Have several student volunteers share out their inquiry questions and the topic each question addresses.

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- Student responses will vary based on their individual research. Possible student responses may include:
  - Topic: Animal Intelligence
  - Questions: Are animals intelligent? How intelligent are they? What kinds of things can smart animals do?

Explain that the rest of the homework from the previous lesson will be integrated into the Areas of Investigation section of this lesson.

Activity 3: Pages 20–23 Reading and Discussion 35%

Introduce the Quick Write assessment (How does Grandin introduce and develop her discussion of the cattle industry? How does this discussion develop and refine a central idea of the text?). Explain to students that this is the lesson assessment and the focus for today's reading. Instruct students to keep this assessment in mind as they analyze the text.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessment for students to see.

Transition students to reading and discussion. Instruct students to form small groups to analyze the Grandin text from *"I remember one situation in particular"* to *"The cows all walked into the chute just as nice as could be"* (pp. 20–23).

- Students form small groups.

Instruct students to take out their Topic Tracking Tool. Explain that they will continue to record potential topics for research as they read and discuss this portion of *Animals in Translation*. Inform students that they will discuss in pairs any potential topics for research that emerge from the text. Remind students to record the topics as well as the key details about the topic from *Animals In Translation* on their Topic Tracking Tool.

ⓘ Potential topics can be found on the Model Topic Tracking Tool at the end of this lesson.

- Students take out their Topic Tracking Tool, read, discuss, track topics, and record their answers to the following questions.

What is the "problem" that Grandin describes?

- The owner of a "cattle-handling facility" asked for Grandin's help in solving a problem he had. The cattle refused to "walk into a squeeze chute." Grandin explains that neither the chute nor

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the shots bother the cows. Something else created the problem. And since vaccinations of cattle are essential, the owner, according to Grandin, "was starting to panic" (p. 20).

How did the "problem" get even worse?

- To make matters even worse the handlers of the cows, in their attempt to get the cows into the chutes, used prods that gave the animals electric shocks. Grandin says that the prods are "stupid things to use" and caused even more problems. The use of prods endangers handlers. Additionally, the shocks stress the animals. Consequently, they are more likely to get sick; they do not grow as much, and therefore, the owners have less meat to sell. In the case of dairy farms, the cows have less milk.

Read the sentence on page 20 that begins "They'll watch their dog cower and cringe." Based on how the dog reacts when the vet "sticks him with a needle," what can you infer that *cower* means?

- *Cower* is to be scared and crouch down, like a dog with a tail between its legs.

How does Grandin emphasize the impact of stress?

- In order to further emphasize the impact that stress has on animals, Grandin turns to humans. She cites researchers who "have known for quite a while that anxious adults often have low levels of growth hormone" (p. 21). She also points to a case of two orphanages in Germany and reports that the way that the children were treated had an impact on their growth. Children who were treated poorly, even if they had more food, grew less. The "teacher's pets," the "favorites," grew more.

Read the sentence on page 24 that begins, "With animals there is no ambiguity." Based on that sentence, as well as on the discussion in the previous paragraph, what can you infer that *ambiguity* means?

- In the previous paragraph, Grandin is discussing how stress seems to be bad for growth in both boys and girls, but there is more research about stress impacting girls' growth than there is for boys' growth. She just "assumes" it is equally as bad for boys. When she says, "With animals there's no ambiguity: stress is horrible for growth" she means that we do not have to "assume" anything, because it is obvious and true. If there is no *ambiguity*, then *ambiguity* means uncertainty.

How did Grandin figure out the animals' problem?

- In order to figure out what was wrong, Grandin followed the path that the animals take. She quickly realized what the problem was: The animals had to transition from daylight to an "alley that was too dark." Simply put: "They were afraid to walk into pitch-black space" (p. 22).

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How does Grandin explain her ability to solve the problem?

- When you have a problem with an animal, Grandin emphasizes: "*try to see what the animal is seeing"* (p. 23). Grandin explains that animals react to changes in their environment. She adds that in order to resolve issues, people must see situations from the animals' point of view.

Activity 4: Areas of Investigation 30%

Direct students to take out the revised inquiry questions from the previous lesson's homework, and explain that these questions are necessary for this activity. In addition, instruct students to take out all of their completed Topic Tracking Tools for reference during this activity. Explain that in this activity, students choose 2–3 areas of investigation based on the topics explored and inquiry questions posed in the previous lessons and revised for homework.

Distribute the Exploring A Topic Tool. Remind students that they have explored several topics, generated inquiry questions for these topics, and now they will begin to identify areas of investigation for research. Explain that while early research discussions produce many topics, now they are narrowing their investigation by focusing on specific aspects of the topic, known as areas of investigation. Through discussions and pre-searches, students will focus on more specific questions and central ideas that they continue to investigate.

Explain that students will explore aspects of the topic.

Post or project the Exploring a Topic Tool to model the three sections/boxes in the tool. Explain that each of the three sections serves a specific purpose to guide their investigation. In each section students must include a well-articulated statement or a question. Encourage them to move beyond the text to areas of investigation that Temple Grandin's story provoked. Explain to students that a sample topic for this investigation is autism.

The purpose of the top box is to identify a narrower theme to focus on.

In a few words, describe an area within the topic that you would like to know more about. *Temple Grandin's autism makes her a visual thinker. I want to know more how autistic people think, and whether they are all visual thinkers.*

Instruct students to consider why they are curious about this particular area of investigation and how it may connect to the original topic.

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Explain why you are interested in this area of the topic. *In the case of Grandin, the explanation for the way that she thinks is her autism. I am interested in finding out more about how autism creates visual thinking and whether or not all autistic people are visual thinkers. I'm curious to learn about the different ways that other autistic people think.*

Explain to students that in conducting research one must ask questions. Their pre-search will begin with a question that will eventually lead to others.

Express your potential area of investigation as a question or a problem: *Are all autistic people visual thinkers? If not, how else do autistic people think?*

- Students follow along and copy column one onto their tool.

Instruct students to individually work on column two of the Exploring a Topic Tool, completing the three boxes around their area of investigation. Remind students to choose their own topic, not the one used for modeling.

- Students independently work on the Exploring a Topic Tool.

Instruct students to talk in pairs about their potential area of investigation that they identified. Then ask volunteers to share out with the class.

- In pairs and then with the class, students share potential areas of investigation.

- Student responses will vary based on their individual research conducted. Student responses may include the following:
  - The topic: Stress
    Interest: The German orphanage story is interesting and I want to look into children today who are growing up in stressful conditions. I am interested in this area of the topic because I want to know more about children who live in stressful situations today.
    Phrased as a question: What effect does stress have on children as they are growing up?
  - The topic: Animal Intelligence

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Interest: I am interested in animal intelligence, and whether or not animals really can do things humans cannot. I am interested in this area of the topic because I want to know more about what animal cognition can tell us about human cognition. For example, if animals and autistic people are both visual thinkers, can studying animals' thinking help us understand autistic people's thinking, or vice versa?
Phrased as a question: What can studying animal intelligence tell us about humans?

Activity 5: Quick Write 10%

Instruct students to respond briefly in writing to the following prompt:

How does Grandin introduce and develop her discussion of the cattle industry? How does this discussion develop and refine a central idea of the text?

Remind students to use the Short Response Checklist and Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.

- See the High Performance Response at the beginning of the lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to preview the following lesson's text excerpt by reading and annotating from "That feedlot consultation was the king of thing" to "I hope what I've learned will help people see" (pp. 24–26). Instruct them to consider how Grandin further develops and refines the central idea in this last excerpt. Additionally, instruct students to complete the Exploring A Topic Tool for their selected areas of investigation.

- Students follow along.

Homework

Preview the following lesson's text excerpt by reading and annotating from "That feedlot consultation was the king of thing" to "I hope what I've learned will help people see" (pp. 24–26). Consider how Grandin further develops and refines the central idea in this last excerpt. Additionally, complete the Exploring A Topic Tool for your selected areas of investigation.

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Model Topic Tracking Tool

Name:		Class:		Date:	

Topic	Page Number(s)	Key Information About the Topic from the Text
Stress	20–21	This portion of text talks about how stress impacts biological functions, like growth. "Stress is bad for human growth."
Stress Dwarfism	21	This portion is specifically about how stress creates a "failure to thrive" and results in "stress dwarfism," where a child is noticeably shorter than others because of the impact stress had on their health.
Prey Animals	22	This portion of text talks about prey animals and how even though they "usually like the dark," they "balk" when they have to turn into a dark space without knowing what is inside.
Animal Sight	23	"Whenever you're having a problem with an animal, *try to see what the animal is seeing*."

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Name ..... Topic .....

Write a brief account of the class conversation about the topic, describing what you know at this point about some of its aspects:

POTENTIAL AREA OF INVESTIGATION 1

In a few words, describe an area within the topic that you would like to know more about:

Explain why you are interested in this area of the topic:

Express your potential area of investigation as a question or problem:

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EXPLORING A TOPIC

Name ..... Topic .....

POTENTIAL AREA OF INVESTIGATION 2	POTENTIAL AREA OF INVESTIGATION 3	POTENTIAL AREA OF INVESTIGATION 4
In a few words, describe what you would like to know more about within the topic:	In a few words, describe what you would like to know more about within the topic:	In a few words, describe what you would like to know more about within the topic:
Explain why you are interested in this:	Explain why you are interested in this:	Explain why you are interested in this:
Express your potential area of investigation as a question or problem:	Express your potential area of investigation as a question or problem:	Express your potential area of investigation as a question or problem:

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EXPLORING A TOPIC

Name Sample **Topic** Animal Intelligence

Write a brief account of the class conversation about the topic, describing what you know at this point about some of its aspects:

While reading the Grandin chapter, we came across parts where Grandin talked about human vs. animal thinking. For example, she said, "Visual thinkers of any species, animal or human, are detail-oriented." So far, I know that animal thinking and human thinking can be similar at times, especially for people like Grandin, who think visually. I also know that people used to not think at all about animal thinking and would only look at their behavior, but now more people think about the internal world of animals. Grandin also writes that she is looking for ways animals can "perceive things humans can't perceive." I would like to know more about how human thinking compares to animal thinking.

POTENTIAL AREA OF INVESTIGATION 1

In a few words, describe an area within the topic that you would like to know more about:

I would like to know whether studying animal thinking can help us understand human thinking.

Explain why you are interested in this area of the topic:

I am interested in this area of the topic because I want to know more about what animal cognition can tell us about human cognition. For example, if animals and autistic people are both visual thinkers, can studying animals' thinking help us understand autistic people's, or vice versa?

Express your potential area of investigation as a question or problem:

How can studying animal cognition help us learn more about human cognition?

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Name Sample **Topic** Animal Intelligence

POTENTIAL AREA OF INVESTIGATION 2	POTENTIAL AREA OF INVESTIGATION 3	POTENTIAL AREA OF INVESTIGATION 4
In a few words, describe what you would like to know more about within the topic: I would like to know if humans or animals are more intelligent.	**In a few words, describe what you would like to know more about within the topic:** I would like to know the history of what people thought about animal intelligence.	**In a few words, describe what you would like to know more about within the topic:** I would like to know how people measure animal intelligence.
Explain why you are interested in this: I am interested in this because I think animals are more intelligent than most people think they are.	**Explain why you are interested in this:** I am interested in this because in Grandin's chapter, she talked about how behaviorists aren't totally correct, but at one point, everyone thought they were. What were some other theories about animals that have changed?	**Explain why you are interested in this:** I am interested in this because I know we measure intelligence by talking to one another, writing essays, and taking tests, but animals can't do those things, so how do we figure out how smart they are?
Express your potential area of investigation as a question or problem: Are animals smarter than humans?	**Express your potential area of investigation as a question or problem:** What is the history of the way people thought about animal intelligence?	**Express your potential area of investigation as a question or problem:** How do people measure animal intelligence?

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9.3.1 Lesson 7

Introduction

In this lesson, students watch an excerpt from the movie *Temple Grandin* in which she presents her cattle chute design to meatpacking industry executives. Students analyze which details are emphasized in film versus those emphasized in the text of *Animals in Translation.* The lesson assessment asks students to reflect in writing on the presentation of this account in the two different mediums.

In this lesson, students also begin to develop inquiry questions based on their proposed areas of investigation. These questions will help students gain more familiarity with their areas of investigation, as well as guide their pre-searches in Lesson 8. For homework, students continue developing inquiry questions for their areas of investigation, and come up with five more possible inquiry questions.

Standards

Assessed Standard(s)	
RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
Addressed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the evidence-based discussion of the text and the excerpt from the movie: • Watch the clip from the movie and, with your text of chapter one, explore which details the filmmaker chooses to emphasize. How does the depiction of these details in the clip enhance your

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understanding? What is absent that you would want to see to understand more?

ⓘ This assessment will be evaluated using the Short Response Rubric.

High Performance Response(s)

A high performance response may include the following:

- In the clip from the movie *Temple Grandin*, the filmmaker chooses to emphasize people's distrust in Grandin's design system and the challenges she faced going into the meatpacking industry. The clip also highlights Grandin's ability to argue for her design and prove to her superiors that her ideas are well thought out. Finally, the clip highlights Grandin's visual thinking, how she sees her system in her head. She knows the animals will be calmer in it: "I know my system will work," she says, "because I've been through it a thousand times in my head." This depiction enhanced my understanding by allowing me to see her designs in action and to see an actress speak the way Temple Grandin does. I would want to see how she came up with the idea, and what it looks like in her head. Maybe that's in the part of the movie we didn't watch.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)

- accounts (n.) – reports or descriptions of an event
- mediums (n.) – the means by which something is communicated or expressed
- depiction (n.) – a representation in a drawing, painting, or another art form
- implications (n.) – conclusions that can be drawn from something, although they are not explicitly stated

Vocabulary to teach (may include direct word work and/or questions)

- None.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: RI.9-10.7, W.9-10.8 • Text: *Animals in Translation*, Chapter 1 **Learning Sequence:** 1. Introduction of Lesson Agenda	1. 10%

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2. Homework Accountability	2. 15%
3. *Temple Grandin* Film Analysis	3. 35%
4. Quick Write	4. 15%
5. Inquiry Question Development	5. 20%
6. Closing	6. 5%

Materials

- Student copies of the **Exploring a Topic Tool** (refer to 9.3.1 Lesson 6)
- *Temple Grandin*. Dir. Mick Jackson. Perf. Claire Danes, Julia Ormond, David Strathairn. HBO, 2010. Film. (http://www.youtube.com/watch?v=0Ff9eW0vEj0)
- Copies of **the Book vs. Movie Details Tool** for each student
- Student copies of the **Short Response Rubric and Checklist** (refer to 9.3.1 Lesson 1)
- Student copies of the **Posing Inquiry Questions Handout** (to be used for homework) (refer to 9.3.1 Lesson 3)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the agenda and assessed standard for this lesson: RI.9-10.7. Remind students that they worked with this standard in unit 9.2.3 when they watched a video about Bernard Madoff's crime. Tell students they have also worked with this standard's literature counterpart, RL.9-10.7, when watching *Romeo and Juliet*.

Ask students to look at the language of the standard and respond to the following:

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Give one example of an account told in two different mediums.

- *Romeo and Juliet* is a play that has been performed on the stage and made into a movie.

Inform students that in this lesson, they will be viewing an excerpt from a movie about Temple Grandin's life and analyzing this dramatic account, determining the different details that are emphasized in the movie as compared to the chapter from *Animals in Translation*. In addition, by watching the film excerpt, students may acquire a new perspective on central ideas and details emphasized in the text. Inform students that they will then work to further refine their inquiry questions. The lesson concludes with a Quick Write.

Activity 2: Homework Accountability 15%

Read aloud this sentence from the text excerpt assigned for homework: "Autistic people and animals are *seeing* a whole register of the visual world normal people can't, or don't" (p. 24).

Instruct students to form pairs to do a Turn-and-Talk about the following question before sharing out with the class.

What examples does Grandin use to illustrate the point that she makes in this excerpt?

- Students responses may include the following:
  - Grandin describes an experiment that a psychologist from the University of Illinois conducted. Participants in the experiment were instructed to "count how many passes one team makes," (p. 24) when they watched a video of a basketball game. In the middle of the tape a "woman wearing a gorilla suit walks onto the screen", (p. 24). Amazingly, the people watching the video did not see her.
  - Grandin reports of a scarier study. She calls it scary because it involved the visual perception of commercial pilots. NASA conducted the experiment. In a flight simulator pilots followed several "routine landings." In some cases a "large commercial airplane" (p. 25) was actually parked on the very runway where they were supposed to land. The scary part of the experiment was the fact that "*One quarter of the pilots landed right on top of the airplane*" (p. 25).

Read aloud the final paragraph of the chapter:

> I hope this book will help regular people be a little less verbal and a little more visual. I've spent thirty years as an animal scientist, and I've spent my whole life as an autistic person. I hope what I've learned will help people start over again with animals (and maybe with autistic people, too), and begin to think about them in a different way.

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I hope what I've learned will help people *see*. (p. 26)

Ask the students:

Why do you think the final word of the chapter, "*see*," appears in italics?

- Students responses may include the following:
  - Throughout the chapter, Grandin emphasizes the importance of seeing. She connects seeing to thinking because she is a visual thinker. So maybe she means "see" the ways that she "sees"—that is, that she will change the way people think to a way that she thinks.
  - She also means "see" as in "understand."

How does Grandin further develop and refine her central idea in this passage?

- Students responses may include the following:
  - Grandin says that verbal thinkers often do not *see* small details. Grandin refines the idea that being a visual thinker has helped her understand animals, and she says she hopes her thinking will help other people see more clearly (25–26).

Instruct students to take out the Exploring a Topic Tool, which they should have completed for homework. Students will use this tool to guide their inquiry question development later in the lesson. For now, circulate to ensure everyone has completed this assignment.

Activity 3: *Temple Grandin* Film Analysis 35%

Introduce the Quick Write assessment (Watch the clip from the movie and, with your text of Chapter 1, explore which details the filmmaker chooses to emphasize. How does the depiction of these details in the clip enhance your understanding? What is absent that you would want to see to understand more?). Explain to students that this is the lesson assessment and the focus for today's reading.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessments for students to see.

ⓘ If students are unfamiliar with the word *depiction*, tell them that in this context, it means, "a representation in a drawing, painting, or another art form."

ⓘ There are a variety of possible film excerpts, interviews, and documentaries about Temple Grandin available online and elsewhere. Many of these will work equally well with this activity and

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assessment. Review the film to ensure connections with central ideas and/or topics explored in Chapter 1 of *Animals in Translation*.

Before having students watch the excerpt from the film, provide them with context: The film *Temple Grandin* is a biographical drama that shows her challenges and successes. Explain to students the scene they will watch is related to what they just read.

Transition students to watching an excerpt from the movie *Temple Grandin.* Ask them to consider which details are emphasized in this medium and how they are depicted. Recommend that students take notes during the viewing of the film excerpt in order to have notes to compare with their analyses of Chapter 1 of *Animals in Translation*.

- Students watch the movie excerpt.

ⓘ If time allows, have students watch the clip one or two more times to ensure comprehension and to aid in deeper analysis.

Direct students to form small groups. Distribute the Book vs. Movie Details Tool and instruct groups to discuss the details that were emphasized in the movie and then compare those to the book. Instruct students to record their findings. Have students cite page numbers for details from the Grandin text.

Ask volunteers to share an example.

- The excerpt begins with a group of people telling Grandin her idea is too expensive and will not work, but she begins to convince them with her arguments and the confidence she has about her design.
- Student groups work on the tool.

Lead a brief class discussion of group responses.

- Students responses may include the following:
  - In the book, Grandin talks about her designs and why they succeed. In the movie, we actually get to see the designs.
  - In the book, she talks about how stress is bad for animals and in the movie, you see how the cows calm down.
  - In the book, Grandin says that she failed algebra because she could not visualize it. But when you look at her design you realize that she has an understanding of engineering in order to do her work.

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- The movie actually shows the design "in action." Actually seeing the design in the film helps conceptualize her work—something harder to do with the book's text. This is interesting since it enables the audience to *see*.

Activity 4: Quick Write 15%

Instruct students to respond briefly in writing to the following prompt:

Watch the clip from the movie and, with your text of Chapter 1, explore which details the filmmaker chooses to emphasize. How does the depiction of these details in the clip enhance your understanding? What is absent that you would want to see to understand more?

Remind students to use the Short Response Checklist and Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of this lesson.

Activity 5: Inquiry Question Development 20%

Inform students that they will now begin to develop inquiry questions based on their area of investigation in preparation for research. An inquiry question is a question that identifies things one needs to know about a topic and helps guide research and analysis. Explain to students that questions drive research because they serve as the fuel to search for information. Explain that if there is no question, research can be misdirected, unorganized, and fruitless. Remind students that inquiry questions should not be the type that can be answered with a yes or no answer since these do not fuel research.

Instruct students to take out the Exploring a Topic Tool they completed for homework and talk in pairs about the areas of investigation that they identified. In these pairs, students begin to develop inquiry questions related to their areas of investigation.

Explain to students that to guide their inquiry question development, they should ask themselves the following questions about their area of investigation:

How is it defined? Where did it originate? What is its history? What are its major aspects? What are its causes and implications? What other things is it connected to or associated with? What are its important places, things, people, or experts?

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ⓘ If students are unfamiliar with the word *implications*, tell them that it means "conclusions that can be drawn from something, although they are not explicitly stated."

Explain to students that one example of an inquiry question would be: What is the history of autism? Instruct students to begin developing questions.

- Student inquiry questions may include:
  - How has animal intelligence been measured in the past?
  - What types of things can animals learn, and what is instinct?
  - What is the purpose of studying animal intelligence?

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue developing inquiry questions for their areas of investigation and come up with five more possible inquiry questions, using the Posing Inquiry Questions Handout as a guide.

- Students follow along.

Homework

Continue developing inquiry questions for your areas of investigation, using the Posing Inquiry Questions Handout as a guide. Come up with five more possible inquiry questions.

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Book vs. Movie Details Tool

Name:		Class:		Date:	

Animals in Translation	*Temple Grandin* Movie	Analysis of Detail

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Model Book vs. Movie Details Tool

Name:		Class:		Date:	

Animals in Translation	*Temple Grandin* Movie	Analysis of Detail
In the book Grandin observes the animals in order to find solutions (p. 12).	The excerpt begins with Grandin presenting her solution to the problem of inefficiency in the meatpacking plant. Her superiors tell her the solution is too expensive and not worth their time.	Grandin explains that she knows her designs work because she has "been through it a thousand times in [her] head."
In the book, Grandin says, "The reason plants have adopted my design is that animals are much more willing to walk into it… so it's a lot more efficient" (p. 12).	In the movie, Grandin convinces the plant managers to listen to her by insisting her design is more efficient than what they have.	Here, we are seeing people act reluctantly and be proven wrong by Grandin's argument that her design will ultimately save them money.
"That's because autistic people think in pictures" (p. 10).	In the movie, we see (and hear from Temple) that she has been over her design a thousand times in her head, and when she says this, we see images of cattle going through a plant.	This is an example of a shared detail: in both the text and the movie, we are told (then shown) that Grandin thinks visually.

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9.3.1 Lesson 8

Introduction

In this lesson, students will engage in a pre-search activity in order to begin gathering sources for further research in future lessons, as well as develop students' proficiency for posing general and specific questions. This process will also help students to validate their own interest in their proposed topic. Students will use the **Pre-Search Tool** to record relevant information about the sources they find (author's name, topic, source, location, publication date, and general content/key ideas). This activity will help to develop students' ability to find relevant sources on their own, as well as to navigate through a wide pool of potential research sources. This activity will also help students confirm that there is enough information available about their topic to warrant further research.

For an assessment, students will refine or rewrite their inquiry questions based on what they found today in order to help them further explore the topic; they will then explain their choice. For homework, students will continue with their pre-searches and find three more potential sources.

Standards

Assessed Standard(s)	
RI.9-10.1.a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).
Addressed Standard(s)	
RI.9-10.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
L.9-10.4.a,c,d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries,

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	thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson is captured through a series of brief responses to the following prompt. **Refine or rewrite your inquiry questions based on what you found today. Explain in 2–3 sentences what changes you have made to your question, and what about your sources led you to make the change. If you feel a change is unnecessary, write 2–3 brief sentences explaining how the sources you have found validate your initial question.** **Before responding, students should consider the following questions:** o Do these sources point your research in a different direction? o After reading through several potential sources, how could you refine your inquiry question to sharpen your research? o Do any of these sources make you curious about something else?
High Performance Response(s)
A high performance response may include the following: **Initial Question: What is the history of studying animal intelligence?** **Revised Question: How has the definition and study of animal cognition changed over the course of history?** **The sources I found, using my first inquiry question, made me realize that the "history of studying animal intelligence" is more specifically the history of the definition and study of animal "cognition" or thinking. Animal cognition was once believed to not exist, and only very recently have people begun to think more seriously about the way animals think. One source I found discussed how the ways we measure animal intelligence are still changing.**

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
validate (v.) – check or prove the accuracy of something **etymology (n.) – the study of the origin of words and the way in which their meanings have changed**

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throughout history
Vocabulary to teach (may include direct word work and/or questions)
None.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
Standards: RI.9-10.1.a, RI.9-10.4, L.9-10.4.a,c,d	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Inquiry Question Peer Feedback	3. 15%
4. Vocabulary Journal Introduction	4. 15%
5. Pre-Search	5. 40%
6. Assessment	6. 10%
7. Closing	7. 5%

Materials

Copies of the **Vocabulary Journal Template** for each student

Copies of the **Pre-Search Tool and Model** for each student

Copies of the **Potential Sources Tool** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.

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ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: RI. 9-10.1.a. Inform students that today they will be using the inquiry questions they developed in the previous lesson. They will begin the pre-search for sources and record relevant information on the Potential Sources Tool. For homework, students will continue with their pre-searches and find three more potential sources.

- Students look at the lesson agenda.

Activity 2: Homework Accountability 10%

Ask student volunteers to share out the inquiry questions they developed for homework. Instruct students that, when sharing, they should clarify the area of investigation to which the question relates.

- Student volunteers share their inquiry questions aloud.

- Student responses may include the following:

Area of Investigation	Inquiry Question
Autism	What is the history of autism?
Meatpacking Industry	What are some current problems with the meatpacking industry, and what are people doing to help?
Animal Intelligence	What is the history of studying animal intelligence?

Activity 3: Inquiry Question Peer Feedback 15%

Once several students have completed a share out of their inquiry questions, ask students to work in pairs to discuss their inquiry questions in more detail. Explain to students that they should ask one another about their thought process, with questions such as:

Why do you want to know about this topic? How did you come up with this question? Will the answer to this question satisfy your curiosity?

Instruct students to use questions like this to help them gain an understanding of their classmate's curiosity and research goals. Then, if they see a more useful way to ask the question, or if they think there is another direction in which to take the research, they should offer that feedback. Inform students this is not a peer review or assessment but rather a chance for students to work with one another to construct meaningful inquiry questions before searching for sources.

- Students work in pairs to explain and refine their inquiry questions.

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Activity 4: Vocabulary Journal Introduction 15%

Share with students that this research process exposes them to new vocabulary through the reading of a wide variety of academic texts. Instruct students to keep track of vocabulary learned by using a Vocabulary Journal. Students should also use the Vocabulary Journal to record their reflections on the strategies employed to learn the vocabulary.

- Students listen.

ⓘ Because the following lessons in this module are not close-reading lessons, the Vocabulary Journal will ensure the application of vocabulary strategies modeled thus far.

Explain to students that the vocabulary they track in the Vocabulary Journal should be words they come across in their searches that are proving to be an obstacle to understanding the text. Additionally, the words should fit into one of two categories. One category is words that are found across multiple texts, in a variety of classes; these are words that might appear in all of their content classes like science, math, English, and social studies. Examples are words like *plagiarism*, *relevant*, and *assess*. The second category of words is vocabulary that is specific to one content area or class. These are words like *behaviorism*, *ethologist*, and *operant conditioning*. Ask students to record any words that prove to be an obstacle and fit into one of the above categories in their Vocabulary Journal.

ⓘ Share with students the purpose of differentiating between these words—that one type of words are those they are likely to encounter often with texts as they proceed with the remainder of high school, college, and their civic life; the other are types of words that may be specific to the domain of their research. For example, *verify*, *metaphor*, and *complex* are words that they may see in their arts, science, and social studies texts; *cerebellum*, *psychosomatic*, and *neurological* are words they may encounter in a science article that would be a potential source related to their area of investigation.

- Students listen.

ⓘ Remind students that the volume of unknown words should not prove such an obstacle that the text is largely inaccessible. The Potential Sources Tool should vet for this type of issue.

Share with students the following strategies that can be employed to determine the meaning of unknown words or phrases:

Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

Verify the meaning of the word or phrase (by checking the inferred meaning in context or in a dictionary).

Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical). How do changes in prefixes and suffixes affect word meaning?

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Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its *etymology*.

Inform students that *etymology* can be an important part of learning vocabulary. *Etymology* is the study of the origin of words and the way in which their meanings have changed throughout history.

- Students listen.

ⓘ Consider displaying the strategies for students to see.

ⓘ Consider reviewing how to use reference materials (dictionaries, glossaries, thesauruses) to determine word meaning if students need more support.

ⓘ These strategies come directly from standard L.9-10.4. Consider drawing students' attention to their application of standard L.9-10.4.a,c,d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Instruct students on how to complete the Vocabulary Journal when it is assigned for homework in a lesson by explaining the following:

Describe where you encountered the word/phrase in the research and why it is proving problematic.

Discuss how you tried to figure out the meaning of the word/phrase.

Confirm the word's meaning as it is used in the research text by using a reference source (dictionary, encyclopedia, etc.).

- Students listen.

ⓘ Consider instructing students to use notebooks or additional paper for the Vocabulary Journal. The notebook or additional paper can be kept in the Research Portfolio throughout the research process.

Activity 5: Pre-Search 40%

Now that students have developed their inquiry questions and received peer feedback, instruct them to use one of these questions to guide preliminary research. Inform students that the nature of this lesson's pre-search is not to fully answer their inquiry questions, but to ensure there is enough source material to begin doing more in-depth research.

Ask students to also use this lesson's pre-search exercise to refine their inquiry questions even further before beginning more detailed research. Finally, inform students to use this pre-search to confirm their interest in the topic, as well as the direction in which their question leads them.

- Students listen.

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Instruct students to use the Pre-Search Tool to record general information about the sources they find, including author's name, topic, source, location, publication date, and general content/key ideas. Explain to students that this process helps them keep track of their sources for later.

Instruct students to use the resources available to them (the Internet, library, librarian/media specialist, etc.) to begin independently searching for sources. Inform students that, at this point, they should not read closely and annotate the sources they find; instead, they should record general information on the Pre-Search Tool and read enough of the potential source to confirm that it is relevant. The students' goal should be to confirm that there is enough available information on this topic to warrant further research.

As they search, students should consider:

> **Do these sources point your research in a different direction?**
>
> **After reading through several potential sources, how could you refine your inquiry question to sharpen your research?**
>
> **Do any of these sources make you curious about something else?**

ⓘ Consider the school's resources and model a search for sources. Model a search for cattle and antibiotics. (In the absence of a computer in class, prepare a presentation in advance, or coordinate with the school's librarian/media specialist in advance to ensure computer access for students.)

Instruct students to record basic information about the sources that they identify in the Potential Sources Tool.

ⓘ Consider taking the students to the school library to use the physical and technological resources available to them there. Encourage students to discuss their pre-searches with a media specialist or librarian.

Pause for questions and clarification. Circulate and assist students as they conduct their pre-search.

ⓘ **Differentiation Consideration:** If students are not yet prepared to begin searching independently, or if they would benefit from working in pairs, consider organizing students by topic into small groups of two to four. Students could work alongside one another and share with the group the sources they find individually. This helps students articulate general information about the source as they explain it to the rest of the group.

- Students use the resources available to them to begin independently searching for sources, recording what they find on the Pre-Search Tool.

Activity 6: Assessment 10%

Once students have found several sources, ask them to reconsider their initial inquiry questions. Have students consider the following questions:

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Do these sources point your research in a different direction?

After reading through several potential sources, how could you refine your inquiry question to sharpen your research?

Do any of these sources make you curious about something else?

For an assessment, instruct students to respond to the following prompt:

Refine or rewrite your inquiry questions based on what you found today. Explain in 2–3 sentences what changes you have made to your question, and what about your sources led you to make the change. If you feel a change is unnecessary, write 2–3 brief sentences explaining how the sources you have found *validate* your initial question.

Inform students that *validate* means to prove the accuracy or worthiness of something.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of the lesson.

ⓘ Assess students' inquiry questions for clarity and their potential to result in meaningful research. Assess students' 2–3 sentence explanations on their thoughtfulness and as evidence that students engaged with the material they found during their pre-search.

Activity 7: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue with their pre-searches. Ask students to find three more potential sources and record the same information they recorded today in class: author's name, topic, source, location, publication date, and general content/key ideas.

- Students follow along.

Homework

Continue with your pre-search. Find three more potential sources and record the same information you recorded today in class: author's name, topic, source, location, publication date, and general content/key ideas.

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Vocabulary Journal Template

Name:		Class:		Date:	

Word	
Describe where you encountered the word/phrase in the research and why it is problematic.	
Discuss how you tried to figure out the meaning of the word/phrase in context.	
Confirm the word's meaning as it is used in the research text by using a reference source (dictionary, encyclopedia, etc.).	
Word	
Describe where you encountered the word/phrase in the researchand why it is problematic.	
Discuss how you tried to figure out the meaning of the word/phrase in context.	
Confirm the word's meaning as it is used in the research text by using a reference source (dictionary, encyclopedia, etc.).	

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Pre-Search Tool

Name:		Class:		Date:	

Source Notes	How does this source connect to your potential area of investigation?
Source # 1 Title: Location: Author:	
Source # 2 Title: Location: Author:	
Source # 3 Title: Location: Author:	

Is there enough source information to research this potential area of investigation?

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Model Pre-Search Tool

Name:		Class:		Date:	

Source Notes	How does this source connect to your potential area of investigation?
Source # 1 Title: "The History of Autism" Location: http://www.english.certec.lth.se/autism/kunskap_e.html Author: No author.	This source explains the history of how autism was diagnosed and what the outlook for people with autism has been over the last several decades.
Source # 2 Title: "Autism at 70, From Kanner to DSM-5" Location: http://www.autismspeaks.org/science/science-news/autism-70-%E2%80%93-kanner-dsm-5 Author: No author.	This source provides a timeline of the history of autism and how it was diagnosed.
Source # 3 Title: "Some Key Dates in Autism History" Location: http://www.washingtonpost.com/wp-dyn/content/article/2008/06/27/AR2008062703062.html Author: Brittney Johnson	This source provides another timeline of key dates in the history of autism.

Is there enough source information to research this potential area of investigation?

There is enough source information to research the history of autism, but I need to redefine what I mean by "history of autism."

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Name ..... Topic .....

Area of Investigation .....

SOURCE	Title:	Location:	
#	Author:	Text Type:	Publication Date:
General Content / Key Ideas / Personal Comments:			Connection to Inquiry Paths:
Credibility: [ ] High [ ] Medium [ ] Low	Relevance/Richness: [ ] High [ ] Medium [ ] Low	Accessibility/Interest: [ ] High [ ] Medium [ ] Low	

SOURCE	Title:	Location:	
#	Author:	Text Type:	Publication Date:
General Content / Key Ideas / Personal Comments:			Connection to Inquiry Paths:
Credibility: [ ] High [ ] Medium [ ] Low	Relevance/Richness: [ ] High [ ] Medium [ ] Low	Accessibility/Interest: [ ] High [ ] Medium [ ] Low	

SOURCE	Title:	Location:	
#	Author:	Text Type:	Publication Date:
General Content / Key Ideas / Personal Comments:			Connection to Inquiry Paths:
Credibility: [ ] High [ ] Medium [ ] Low	Relevance/Richness: [ ] High [ ] Medium [ ] Low	Accessibility/Interest: [ ] High [ ] Medium [ ] Low	

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POTENTIAL SOURCES

Name Student Sample **Topic** Animal Intelligence

Area of Investigation How does animal intelligence compare to human intelligence?

SOURCE #	Title: Animal Minds: Minds of Their Own	Location: National Geographic Magazine Online	
	Author: Virginia Morell	Text Type: Article	Publication Date: March 2008

General Content / Key Ideas / Personal Comments:

The article is relevant because it is about researching animals' intelligence, which is my focus inquiry question. Also, it seems credible because at the beginning the writer cites a study conducted by a Harvard graduate, which shows the writer is looking at research to compose the article.

Connection to Inquiry Paths:

Credibility: [ ] High [ ] Medium [ ] Low | Relevance/Richness: [ ] High [ ] Medium [ ] Low | Accessibility/Interest: [ ] High [ ] Medium [ ] Low

SOURCE #	Title: The Brains of the Animal Kingdom	Location: Wall Street Journal Online	
	Author: Waal	Text Type: Article	Publication Date: 2013

General Content / Key Ideas / Personal Comments:

This article is relevant because it is about measuring animal intelligence using different kinds of experiments that showcase animal intelligence. This article seems credible because it comes from a notable news source (Wall Street Journal) and the author is a professor and has written a book on the topic.

Connection to Inquiry Paths:

Credibility: [ ] High [ ] Medium [ ] Low | Relevance/Richness: [ ] High [ ] Medium [ ] Low | Accessibility/Interest: [ ] High [ ] Medium [ ] Low

SOURCE #	Title: Think You're Smarter Than Animals? Maybe Not	Location: New York Times Online	
	Author: Alexandra Horowitze and Ammon Shea	Text Type: Article	Publication Date: 8/20/11

General Content / Key Ideas / Personal Comments:

This article seems relevant because it has several studies on animal intelligence where animals show how smart they truly are. It also begins to compare animal and human intelligence. The article seems credible because it comes from a notable news source (New York Times) and the authors have written books on animal intelligence.

Connection to Inquiry Paths:

Credibility: [ ] High [ ] Medium [ ] Low | Relevance/Richness: [ ] High [ ] Medium [ ] Low | Accessibility/Interest: [ ] High [ ] Medium [ ] Low

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9.3.1 Lesson 9

Introduction

In this lesson, students will engage in several discussions to further clarify both their understanding of the Grandin text, as well as their potential areas of investigation. Students will first participate in a fishbowl discussion about their areas of investigation, dialoguing with their peers about the pre-search and its effect on their understanding of an area of investigation. Students will then engage in a short discussion in pairs or small groups about a central idea in the Grandin text and how it is developed and refined over the course of the chapter. For assessment, students will then individually create an evidence-based claim about the development and refinement of a central idea in the chapter. For homework, students will review the Grandin text and their annotations—as well as their notes from today's fishbowl discussion—in preparation for the End-of-Unit Assessment. Additionally, students will review the sources they found in the previous lesson and use them to solidify their area of investigation in preparation for the End-of-Unit Assessment.

Standards

Assessed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt citing evidence from the text. • Students will write 1–2 paragraphs in which they make an evidence-based claim about Grandin's development and refinement of a central idea in the text. ⓘ Assess this response using the Short Response Rubric.
High Performance Response(s)
A high performance response may include the following: • Animal stress in feedlots and meatpacking houses is inefficient and costs money, and visual thinkers, like Temple Grandin, can help lower stress, and therefore help the meatpacking industry make money. Grandin says that, "stressed animals gain less weight, which means less meat to sell." She also points out that animals that are stressed will sometimes not walk through the lot efficiently, and an entire operation can slow down. Grandin says that often small visual details that most people do not notice are making the animals stressed, and she can notice those details: "When I got to the feedlot, it took me about ten minutes to figure out the problem…to me it was obvious: the alley was too dark." Once she fixes the subtle visual problems, the animals become less stressed, things run more efficiently, and a business can run more effectively."

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• relevant (adj.) – closely connected or appropriate to the matter at hand
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students should be adding to their Vocabulary Journal as they conduct searches and evaluate sources for credibility and relevance. See Lesson 8, Activity 4 for more information.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.2, W.9-10.7, SL.9-10.1	
• Text: Grandin, *Animals in Translation*, Chapter 1	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 15%
3. Fishbowl Discussion: Areas of Investigation	3. 55%
4. Quick Write	4. 20%
5. Closing	5. 5%

Materials

- Student copies of the **Short Response Rubric and Short Response Checklist** (refer to 9.3.1 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: RI.9-10.2. Inform students that today's class involves two discussions: one larger discussion to further investigate their potential areas of investigation, and one smaller discussion to explore the development of a central idea in Grandin's first chapter.

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- Students listen.

Activity 2: Homework Accountability 15%

Ask students to work in pairs and share the potential sources they found for homework. Instruct students to first articulate their question and then briefly explain how each source relates to that question.

- Student pairs share the potential sources they found for homework. The students' responses vary based on the individual research they conducted.

Now ask students to discuss in pairs how this source is *relevant* to that question. Explain to students that *relevant* means closely connected to their question.

- Student responses vary based on the research each conducted. Possible student responses may include:
  - My question was, "How has the definition and study of animal cognition changed over the course of history?" The source I found is related to this question because it discusses how people have measured animal intelligence over the years. It also discusses what philosophers used to say about animal intelligence, including that it does not exist.

Ask students to share out any word they recorded in their vocabulary journal, including how they determined the meaning.

- Student responses vary based on the research each conducted. Possible student responses may include:
  - The source I found contained the phrase, "While the study of animal cognition is largely an empirical endeavor, the practice of science in this area relies on theoretical arguments and assumptions." I did not know what *empirical* meant, but I guessed it was different from "theoretical arguments and assumptions." If an argument or assumption is theoretical, that means it has not been proven. So I think *empirical* might mean something that can be proven. I looked up the word on dictionary.com, and learned it means "provable or verifiable by experience or experiment."

Activity 3: Fishbowl Discussion: Areas of Investigation 55%

In order to further explore their potential areas of investigation, instruct students to engage in a fishbowl discussion. Remind students that they have had this type of discussion in 9.2.3, Lesson 13. Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in

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SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

Break the class into two equal groups and form two circles—one inner and one outer. Explain to students that the inner circle serves as the discussion group, while the outer group listens and takes notes on the inner group's discussion. After 10 minutes, the outer group provides feedback to the inner group about their discussion. After that feedback has been provided, the groups switch places, and the process repeats.

ⓘ Remind students that it is important to remain respectful during discussion. Respectful disagreement is okay, as long as the discussion remains focused and students articulate their disagreements collegiately.

- Students break into two groups, form two circles, and listen.

Instruct the outer group to take notes on the inner group's discussion, especially when something is unclear or when something engaging happens. Once students have formed two groups and arranged themselves into a fishbowl, pose the following question to the inside circle:

What did your pre-searches reveal about your areas of investigation?

ⓘ Student answers may vary depending on their areas of investigation and research conducted. The task at-hand is not to have students explain to the class how their pre-search affected their understanding of an area of investigation. Rather, it is for students to engage in a discussion about a range of possible areas of investigation and hear their peers' thoughts.

Encourage students to ask questions about their peers' areas of investigation and presearches. Possible questions might include:

How does this area of investigation interest you?

How did a particular source you found during your pre-search change your thinking about your area of investigation?

For example, students may ask: What about animal intelligence interests you? How has the source from *Scientific American* shaped your thinking so far about animal intelligence? What are contrasting points of view?

- Students discuss.

After 10 minutes, instruct students in the outer circle to share at least one inner circle student's point, question, or response as well as something new they learned as a result of the discussion. Ask students

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to note the strong points of the discussion and where it could have been stronger. Inform students in the outer circle that they have five minutes to share.

- Students in the outer circle share one point, question, or response as well as one thing they learned as a result of the discussion. Students in the inner circle listen.

Instruct students in the inner circle to move to the outer circle and the students in the outer circle to move to the inner circle. Repeat the discussion process.

Activity 4: Quick Write 20%

Instruct students to respond briefly in writing to the following prompt:

Make an evidence-based claim about the development and refinement of a central idea in the Grandin chapter.

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

ⓘ Display the prompt for students to see or provide the prompt in hard copy.

- Students independently answer the prompt using evidence from the text.

- See the High Performance Response at the beginning of this lesson.

Activity 5: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to review the Grandin text and their annotations—as well as their notes from today's fishbowl discussion—in preparation for the End-of-Unit Assessment. Additionally, instruct students to review the sources they found in the previous lesson and use them to solidify their area of investigation in preparation for the End-of-Unit Assessment.

- Students follow along.

Homework

Review the Grandin text and annotations—as well as your notes from today's fishbowl discussion—in preparation for the End-of-Unit Assessment. Additionally, review the sources you found in the previous lesson and use them to solidify your area of investigation in preparation for the End-of-Unit Assessment.

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9.3.1 Lesson 10

Introduction

In this lesson, the End-of-Unit Assessment, students will complete a two-part assessment. First, students will synthesize and compose a multi-paragraph response tracing the development and refinement of a central idea from Chapter 1 of *Animals in Translation*. In part two, students will write about two or three areas of investigation that emerged from *Animals in Translation*, explaining how and from where the areas emerged.

This lesson asks students to apply standards RI.9-10.2 and W.9-10.4 as they examine the development of a central idea in the text itself. This lesson also assesses students' comprehension of the research process that has been introduced in this unit. Students will use their areas of investigation to guide their research in the following unit. For homework, students will continue to read sources found during pre-searches and identify, record, and use vocabulary strategies to define unknown words in their Vocabulary Journal.

Standards

Assessed Standard(s)	
RI.9-10.2	Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Addressed Standard(s)	
None.	

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Assessment

Assessment(s)
The assessment in this lesson is the End-of-Unit Assessment. This assessment will encompass *Animals in Translation*, Chapter 1 as well as the research component introduced in this unit. • Part 1: How does Grandin develop and refine a central idea in the text? In a response of 3–4 paragraphs, identify a central idea from Chapter 1 of *Animals in Translation* and trace its development and refinement in the text. Use at least four details from the text in your response. ⓘ For Part 1, use the Text Analysis Rubric and Checklist to assess student responses. • Part 2: Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the Topic Tracking Tool and Exploring a Topic Tool as well as notes from the Grandin text. ⓘ For Part 2, use the Area Evaluation Checklist to assess student responses.
High Performance Response(s)
A high performance response may include the following: Part 1 response: • A central idea from Chapter 1 of *Animals in Translation* is Grandin's claim that her autism provided her with a unique perspective and insight into animal behavior: "Autism made school and social life hard but it made animals easy" (p. 1). Grandin develops this idea throughout the chapter in several ways. First, she explains her own background, her autism as well as her experience and love for animals: "Animals saved me" (p. 4). Grandin also studied psychology and used principles of behaviorism and ethology to discover what has escaped other animal researchers. Grandin further develops this central idea through her clarification of what it means to be a visual thinker: she "actually think[s] in pictures" (p. 17). Grandin refines and supports her claim by illustrating her success in the meatpacking industry. • Temple Grandin says plainly, "I'm different from every other professional who works with animals" (p. 6). Grandin is different because she is autistic, but she has used autism to her advantage: "Autism is kind of a way station on the road from animals to human" (p. 6). She explains that she has a "special connection to animals" and that she is now able to comprehend the emotionally disturbed horses that resided at her former boarding school because she understands "the way animals think" (p. 1). • In this chapter, Grandin provides some background in animal psychology focusing on behaviorial and ethology theories. Grandin writes that behaviorists "made a big mistake declaring the brain off-limits" (p. 11). When behaviorists, as well as ethologists, ruled out study of the brain, they focused solely on environment. Both stressed that "anthropomorphizing an animal was wrong" (p. 14).

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Grandin noticed that she had a lot of problems that did not come from her environment and was suspicious of this way of thinking. Her idea that it is important not to think of an animal as a human but to "think about the animal's point of view" (p. 15) was central to her understanding of animal behavior.

- Grandin was easily able to see from an animal's point of view because she is a visual thinker: "During my thinking process I have no words in my head at all, just pictures" (p. 17). Her natural inclinations toward visual thinking lead her to try to process animal thinking through a completely visual lens: "Since I was a visual thinker I assumed cows were, too. The difference was I happened to be right" (p. 18). She notes that not everyone is a visual thinker, and most people without autism have a tendency to overlook or not even register the visual. Grandin's visual thinking is a key point that underscores her central idea, and her success in the meatpacking industry is evidence that her claim has merit.
- Grandin writes about her ability to see from an animal's perspective, but she has had practical success as well: "Half the cattle in the United States and Canada are handled in human slaughter systems I've designed" (p. 7). She continues to explain her success in the field characterized by her numerous accomplishments, including "over three hundred scientific papers" published. This success clearly demonstrates that Grandin's claim is well supported and she truly does have a unique perspective on animal behavior because of her autism.

Part 2 response:

(Topic) Areas of Investigation

- (Animal Intelligence) Area of Investigation: How does animal intelligence compare to human intelligence?
    - One area of investigation from *Animals in Translation* is: How does animal intelligence compare to human intelligence? This area of investigation came from page 8 of *Animals in Translation*: "Animal genius is invisible to the naked eye." Grandin writes a lot about animal intelligence, but it would be fascinating to know more about smart animals. Also it would be interesting to understand how scientists know when an animal is intelligent and how animal intelligence compares to human intelligence. If animal genius is hard to see then there may be interesting ways that researchers have developed to identify animal intelligence and compare it with human intelligence.
- (Autism) Area of Investigation: What is the history of the diagnosis and treatment of autism?
    - What is the history of the diagnosis and treatment of autism? What have people called it in the past, and how have they worked with children diagnosed with autism? This area of investigation came from *Animals in Translation*, as Grandin discusses many of her own self-developed treatments that helped her cope with the disorder. For example, Grandin discusses

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her instinct to work with animals and how it helped her. She also describes her "squeeze machine," which many people thought was crazy at the time but ended up being very useful in the treatment of autism.

- (Meatpacking Industry) Area of Investigation: What are some current problems with the meatpacking industry, and what are people doing to help?
  - The final area of investigation from *Animals in Translation* is: What are some current problems in the meatpacking industry, and what are people doing to help? This came from Grandin's discussion of the inefficiency she witnessed in the meatpacking industry and the accidental cruelty toward animals. Grandin has helped many companies in the meatpacking industry become "a lot more efficient" and more respectful toward animals by reducing environmental stresses and the need for prods. However, it is still worth thinking about what more could be done, and if anyone is as actively involved as Grandin in trying to find solutions to problems in the meat industry.

ⓘ These areas of investigation should be kept after assessment, as they will be redistributed to students in 9.3.2, Lesson 1.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• None.*
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Because this is not a close reading or a research lesson, there is no specified vocabulary. However, in the process of returning to the text, students may uncover unfamiliar words. Teachers can guide students to make meaning of these words by following the protocols described in 1E of this document http://www.engageny.org/sites/default/files/resource/attachments/9-12_ela_prefatory_material.pdf.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: RI.9-10.2, W.9-10.4, W.9-10.9 • Text: *Animals in Translation*, Chapter 1	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. End-of-Unit Assessment Part 1: *Animals in Translation*	3. 50%
4. End-of-Unit Assessment Part 2: Areas of Investigation	4. 30%
5. Closing	5. 5%

Materials

- Copies of the **End-of-Unit Assessment** for each student
- Copies of the **Text Analysis Rubric and Checklist** for each student
- Student copies of the **Topic Tracking Tool** (refer to 9.3.1 Lesson 2)
- Student copies of the **Exploring a Topic Tool** (refer to 9.3.1 Lesson 6)
- Copies of the **Area Evaluation Checklist and Model** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by introducing the lesson agenda and assessed standards for this lesson: RI.9-10.2, W.9-10.4 and W.9-10.9. Inform students they will be completing a two-part End-of-Unit Assessment: a multi-paragraph response analyzing the development and refinement of a central idea in *Animals in Translation* as well as an analysis of 2–3 areas of investigation that have emerged from *Animals in Translation*.

- Students follow along and read the agenda.

Activity 2: Homework Accountability 10%

Instruct students to form pairs and do a Turn-and-Talk to discuss their review of the Grandin text and their annotations—as well as their notes from the previous lesson's fishbowl discussion—in preparation for the End-of-Unit Assessment.

- Students form pairs and discuss their review of the Grandin text.

ⓘ Students will be held accountable for the second part of the previous lesson's homework—to look over their sources and solidify their area of investigation—when they articulate their area of investigation in Activity 4.

Activity 3: End-of-Unit Assessment Part 1: *Animals in Translation* 50%

Display and introduce the End-of-Unit Assessment writing prompt:

How does Grandin develop and refine a central idea in the text? In a response of 3–4 paragraphs, identify a central idea from Chapter 1 of *Animals in Translation* and trace its development and refinement in the text. Use at least four details from the text in your response.

Ask students if they have remaining questions about the assessment prompt.

- Students examine the End-of-Unit Assessment prompt and ask remaining questions.

Remind students to use the Text Analysis Rubric to guide their written response.

Distribute and review the Text Analysis Rubric. Remind students to revisit the rubric once they are finished with the assessment to ensure they have fulfilled all the criteria.

- Students review the Text Analysis Rubric.

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Instruct students to compose a multi-paragraph response to the writing prompt. Remind students as they write to refer to the notes, tools, and annotated text from the previous lessons.

- Students independently compose their multi-paragraph response.
- See the High Performance Response at the beginning of this lesson.

Activity 4: End-of-Unit Assessment Part 2: Areas of Investigation 30%

Display and introduce the second portion of the End-of-Unit Assessment:

Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the Topic Tracking Tool and Exploring a Topic Tool as well as notes from the Grandin text.

Ask students if they have remaining questions about the assessment prompt.

- Students examine the End-of-Unit Assessment prompt and ask remaining questions.

Inform students that they may use their Tracking Topics Tool, Exploring a Topic Tool, and notes to assist them with composing this portion of the End-of-Unit Assessment. Students should use their notes from the Grandin text to describe how the area of investigation emerged from the text. Remind students that they already have all the information needed to answer this prompt; reaching back to these tools helps support students in their synthesis of this information.

- Students listen.

Distribute the Area Evaluation Checklist to students. Inform students that as they articulate their areas of investigation, they should use this checklist as a reference to ensure their areas are sufficient in terms of coherence, scope, relevance, and interest. Students should consult this checklist as they respond to the prompt but understand there is no need to fill it out.

ⓘ **Differentiation Consideration:** For further support, consider having students fill in the Area Evaluation Checklist independently, using their Tracking Topics Tool, Exploring a Topic Tool, and notes to assist them. When students have completed the Area Evaluation Checklist, instruct them to begin working directly on the prompt, translating the information compiled in the checklist into a coherent response to the prompt.

- Students independently write the second part of the End-of-Unit Assessment.
- See the High Performance Response at the beginning of this lesson.

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ⓘ These areas of investigation should be kept after assessment, as they will be redistributed to students in 9.3.2, Lesson 1.

Activity 5: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue to read the sources they found during their pre-searches and identify, record, and define unknown vocabulary using their Vocabulary Journals. Ask students to check the definitions for at least five unknown vocabulary words. Remind students to be prepared to discuss this vocabulary and the definitions they found for these words in the following lesson.

ⓘ The Vocabulary Journal is introduced in 9.3.1 Lesson 8.

- Students follow along.

Homework

Continue to read the sources you found during your pre-searches and identify, record, and define unknown vocabulary using your Vocabulary Journal. Check the definitions of at least five unknown vocabulary words. Be prepared to discuss these words and their definitions in the following lesson.

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End-of-Unit Assessment (9.3.1 Lesson 10)

Part 1: Text-Based Response

Your Task: Rely on your close reading of *Animals in Translation* to write a well-crafted multi-paragraph response to the following prompt.

> *How does Grandin develop and refine a central idea in the text? In a response of 3–4 paragraphs, identify a central idea from Chapter 1 of Animals in Translation and trace its development and refinement in the text. Use at least four details from the text in your response.*

Your writing will be assessed using the Text Analysis Rubric.

Guidelines:

Be sure to:

- Closely read the prompt
- Respond directly to all parts of the prompt
- Paraphrase, quote, and reference relevant evidence to support your analysis
- Organize your ideas in a cohesive and coherent manner
- Use precise language appropriate for your task
- Follow the conventions of standard written English

CCLS: RI.9-10.2; W.9-10.4

Commentary on the Task:

This task measures RI.9-10.2 because it demands that students:

- Determine a central idea of a text and analyze its development over the course of the text
- Analyze how a central idea emerges and is shaped and refined by specific details

This task measures W.9-10.4 because it demands that students:

- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience

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End-of-Unit Assessment (9.3.1 Lesson 10)

Part 2: Articulating Areas of Investigation

Your Task: Rely on your Topic Tracking Tool and Exploring a Topic Tool along with your notes from *Animals in Translation* to write a well-crafted multi-paragraph response to the following prompt.

> *Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the Topic Tracking Tool and Exploring a Topic Tool as well as notes from the Grandin text.*

Your writing will be assessed using the Area Evaluation Checklist.

Guidelines:

Be sure to:

- Closely read the prompt
- Respond directly to all parts of the prompt
- Paraphrase, quote, and reference relevant evidence to support your analysis
- Organize your ideas in a cohesive and coherent manner
- Use precise language appropriate for your task
- Follow the conventions of standard written English

CCLS: W.9-10.4, W.9-10.9

Commentary on the Task:

This task measures W.9-10.9 because it demands that students:

- Draw evidence from informational texts to support analysis, reflection, and research.

This task measures W.9-10.4 because it demands that students:

- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience

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Text Analysis Rubric _____/16

Criteria	4 – Responses at this Level:	3 – Responses at this Level:	2 – Responses at this Level:	1 – Responses at this Level:
Content and Analysis: The extent to which the response conveys complex ideas and information clearly and accurately in order to respond to the task and support an analysis of the text. (W.9-10.2, W.9-10.9, R.9-10.2, R.9-10.5)	Introduce a well-reasoned claim regarding the development of a central idea. Demonstrate a thoughtful analysis of the author's use of specific details to shape and refine the central idea. and/or Demonstrate a thoughtful analysis of how the structure of texts, including how specific sentences, paragraphs, and larger portions of the text relate to each other and the whole.	Introduce a clear and focused claim regarding the development of a central idea. Demonstrate an appropriate analysis of the author's use of specific details to shape and refine the central idea. and/or Demonstrate an appropriate analysis of how the structure of texts, including how specific sentences, paragraphs, and larger portions of the text relate to each other and the whole.	Introduce a claim regarding the development of a central idea. Demonstrate a superficial and/or mostly literal analysis of the author's use of specific details to shape and refine the central idea. and/or Demonstrate a superficial and/or mostly literal analysis of how the structure of texts, including how specific sentences, paragraphs, and larger portions of the text relate to each other and the whole.	Introduce a confused or incomplete claim. and/or Demonstrate a minimal analysis of the author's use of details to shape and refine the central idea and/or Demonstrate a minimal analysis of how the structure of texts, including how specific sentences, paragraphs, and larger portions of the text relate to each other and the whole.
Command of Evidence: The extent to which the response presents evidence from the provided text to support analysis. (W.9-10.2.a, W.9-10.9)	Present ideas clearly and consistently, making effective use of specific and relevant evidence to support analysis.	Present ideas sufficiently, making adequate use of relevant evidence to support analysis.	Present ideas inconsistently, inadequately, and/or inaccurately in an attempt to support analysis, making use of some evidence that may be irrelevant.	Present little or no evidence from the text.
Coherence, Organization, and Style: The extent to which the response logically organizes complex ideas, concepts, and information using formal style and precise language. (W.9-10.2.b, e; W.9-10.9)	Exhibit logical organization of ideas and information to create a cohesive and coherent response. Establish and maintain a formal style, using precise language and sound structure.	Exhibit acceptable organization of ideas and information to create a coherent response. Establish and maintain a formal style, using appropriate language and structure.	Exhibit inconsistent organization of ideas and information, failing to create a coherent response. Lack a formal style, using language that is basic, inappropriate, or imprecise.	Exhibit little organization of ideas and information. Use language that is predominantly incoherent, inappropriate, or copied directly from the task or text. Are minimal, making assessment unreliable.
Control of Conventions: The extent to which the response demonstrates command of conventions of standard English grammar, usage, capitalization, punctuation, and spelling. (L.9-10.1, L.9-10.2)	Demonstrate control of the conventions with infrequent errors.	Demonstrate partial control of conventions with occasional errors that do not hinder comprehension.	Demonstrate emerging control of conventions with some errors that hinder comprehension.	Demonstrate a lack of control of conventions with frequent errors that make comprehension difficult. Are minimal, making assessment of conventions unreliable.

- A response that is a personal response and makes little or no reference to the task or text can be scored no higher than a 1.
- A response that is totally copied from the text with no original writing must be given a 0.
- A response that is totally unrelated to the task, illegible, incoherent, blank, or unrecognizable as English must be scored as a 0.

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Text Analysis Checklist

Assessed Standard: _____

	Does my writing…	✔
Content and Analysis	Introduce a well-reasoned claim regarding the development of a central idea?	☐
	Demonstrate a thoughtful analysis of the author's use of specific details to shape and refine the central idea? and/or Demonstrate a thoughtful analysis of how the structure of texts, including how specific sentences, paragraphs, and larger portions of the text relate to each other and the whole?	☐
Command and Evidence	Present ideas clearly and consistently, making effective use of specific and relevant evidence to support analysis?	☐
Coherence, Organization, and Style	Exhibit logical organization of ideas and information to create a cohesive and coherent response?	☐
	Establish and maintain a formal style, using precise language and sound structure?	☐
Control of Conventions	Demonstrate control of the conventions with infrequent errors?	☐

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Name..... Area of Inv..... Date .....

AREA EVALUATION CHECKLIST		✓	COMMENTS
I. COHERENCE OF AREA ***What is the area of investigation?***	The researcher can speak and write about the Area of Investigation in a way that makes sense to others and is clearly understood.	☐	
II. SCOPE OF AREA ***What do I need to know to gain an understanding of the area of investigation?***	The questions necessary to investigate for gaining an understanding require more than a quick review of easily accessed sources. The questions are reasonable enough so that the researcher is likely to find credible sources that address the issue in the time allotted for research.	☐	
III. RELEVANCE OF AREA ***How is this Area of Investigation related to a larger topic?***	The Area of Investigation is relevant to the larger topic.	☐	
IV. INTEREST IN AREA ***Why are you interested in this Area of Investigation?***	The researcher is able to communicate genuine interest in the Area of Investigation. Gaining an understanding of the area would be valuable for the student.	☐	

In one or two sentences express the potential area of investigation in the form of a problem or overarching question:

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Name Sample ..... **Area of Inv.** Animal Intelligence ..... **Date** .....

AREA EVALUATION CHECKLIST		✓	COMMENTS
I. COHERENCE OF AREA ***What is the area of investigation?***	The researcher can speak and write about the Area of Investigation in a way that makes sense to others and is clearly understood.	✓	The area of investigation is comparing human and animal intelligence.
II. SCOPE OF AREA ***What do I need to know to gain an understanding of the area of investigation?***	The questions necessary to investigate for gaining an understanding require more than a quick review of easily accessed sources. The questions are reasonable enough so that the researcher is likely to find credible sources that address the issue in the time allotted for research.	✓	I need to find information about how people have tested animal intelligence. I also need to find out if there have been experiments that have compared humans and animals doing the same task and who is smarter.
III. RELEVANCE OF AREA ***How is this Area of Investigation related to a larger topic?***	The Area of Investigation is relevant to the larger topic.	✓	This area of investigation is related to animal intelligence. This larger topic came out of Animals of Translation because Temple Grandin writes about using animal intelligence to benefit animals and humans.
IV. INTEREST IN AREA ***Why are you interested in this Area of Investigation?***	The researcher is able to communicate genuine interest in the Area of Investigation. Gaining an understanding of the area would be valuable for the student.	✓	I am interested in this because I think animals are more intelligent than most people think they are. I think there are many ways humans can benefit from knowing more about animal intelligence.

In one or two sentences express the potential area of investigation in the form of a problem or overarching question:

In this area of investigation I need to figure out whether humans or animals are more intelligent. How does animal intelligence compare with human intelligence?

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9.3.2	Unit Overview

Engaging in an Inquiry-Based, Iterative Research Process

Text(s)	Students choose texts for research based on their research question/problem. *Model Research Sources:* • "The Brains of the Animal Kingdom" by Frans de Waal (Source #1) • "Animal Minds: Minds of Their Own" by Virginia Morrell (Source #2) • "Think You're Smarter Than Animals? Maybe Not" by Alexandra Horowitz and Ammon Shea (Source #3) • "Monkeys Can Perform Mental Addition" (Source #4) • "Animal Intelligence: How We Discover How Smart Animals Really Are" by Edward Wasserman and Leyre Castro (Source #5)
Number of Lessons in Unit	12

Introduction

In this unit, students continue the research process begun in Unit 1. Students begin to deeply engage in this iterative, non-linear process with the goal of deepening students' understanding of topics of interest. Students continue to learn how to use the inquiry-based research process to gather, assess, read, and analyze sources, while organizing and synthesizing research to make claims about a specific research question or problem.

Students are formally introduced to the research process by creating a Research Portfolio and overviewing the Student Research Plan, a roadmap for students to reflect on their research progress and next steps. Students vet areas of investigation developed in Unit 1 to focus on a specific research question/problem. From there, students learn how to develop specific inquiry questions and choose credible, relevant, and accessible sources by planning for searches, assessing sources, and annotating and taking notes effectively. Through these inquiry steps, students create an initial research frame that guides independent searches. Using the reading skills developed in previous modules and the source assessment skills introduced in this unit, students conduct independent research by using inquiry

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questions to explore and deepen their understanding of their specific research question/problem. As the research process continues, students continually revisit the research frame to analyze their research direction and focus, while assessing and making changes as necessary. As this cyclical and iterative research process evolves, students begin to organize and synthesize their data, make claims about inquiry paths, and eventually craft the research question/problem itself.

There is one formal assessment in this unit; however, students continually reflect on their research progress by journaling about their research progress and next steps using a Research Journal. The End-of-Unit Assessment asks students to develop an Evidence-Based Perspective by writing a one-page synthesis of their personal conclusions and perspective derived from the research (W.9-10.7, W.9-10.9).

Note: This unit suspends Accountable Independent Reading (AIR). Students are held accountable for building a volume of independent reading as they read multiple sources and refine and deepen their understanding of their inquiry topic (research question/problem).

Literacy Skills & Habits

- Assess sources for credibility, relevance, and accessibility.
- Conduct independent searches using research processes including planning for searches, assessing sources, and annotating and recording notes.
- Develop, refine, and select inquiry questions for research.
- Develop and continually assess a research frame to guide independent searches.
- Collect and organize evidence from research to support analysis in writing.
- Make claims about inquiry questions, inquiry paths, and a research question/problem using specific textual evidence from the research.

Standards for This Unit

CCS Standards: Reading	
RI.9-10.1.a	**Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.** **a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).**

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RI.9-10.7	Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

CCS Standards: Writing	
W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
W.9-10.4	**Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.**
W.9-10.7	**Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.**
W.9-10.8	**Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.**
W.9-10.9	**Draw evidence from literary or informational texts to support analysis, reflection, and research.**

CCS Standards: Speaking & Listening	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts,*

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	and issues, building on others' ideas and expressing their own clearly and persuasively.

CCS Standards: Language	
L.9-10.4. a,c,d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Note: Bold text indicates standards that will be assessed in the unit.

Unit Assessments

Ongoing Assessment	
Standards Assessed	RI.9-10.1a, W.9-10.4, W.9-10.7, W.9-10.8, W.9-10.9,
Description of Assessment	Varies by lesson but may include completed research tools, responses to quick write questions focused on developing research skills, and vocabulary learned through research as tracked in the Vocabulary Journal.

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End-of-Unit Assessment	
Standards Assessed	W.9-10.7, W.9-10.9
Description of Assessment	• Students submit a completed Research Portfolio with the four sections organized including 1. Defining an Area of Investigation, 2. Gathering and Analyzing Information, 3. Drawing Conclusions, 4. Discarded Material *The Research Journal is also located in the Research Portfolio. • Students write a one-page synthesis of their personal conclusions and perspective derived from their research. Students draw on the research outcomes, as developed in the Organizing Evidence-Based Claims Tools to express their perspective on their respective research question/problem.

Unit-at-a-Glance Calendar

Lesson	Text	Learning Outcomes/Goals
1	Students choose texts for research based on their individual research question/problem.	Students are formally introduced to the research unit and construct a Research Portfolio to house all research previously conducted in Unit 1 and the research materials distributed and gathered in this unit. Additionally, students vet their 2–3 possible areas of investigation (from Unit 1, Lesson 10) to craft a rich and interesting research question/problem to explore throughout the unit.
2	Students choose texts for research based on their individual research question/problem.	Students engage in a research process check-in where they overview the Student Research Plan. The Student Research Plan serves as a guide to the research process and a place to reflect on next steps. Students review inquiry questions from Unit 1 and generate, vet, and refine specific inquiry questions for their research question/problem using a Specific Inquiry Questions Checklist.
3	Students choose texts for research based on	Students learn how to select inquiry questions, plan search location, and choose key words and phrases to conduct effective

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	their individual research question/problem. Model Source: "Animal Minds: Minds of Their Own"	and efficient research. Additionally, students learn how to formally assess sources by analyzing a source's relevance to the inquiry question and its credibility.
4	Students choose texts for research based on their individual research question/problem. Model Source: "Animal Minds: Minds of Their Own"	Students continue to learn how to assess sources more extensively by identifying credible, relevant, and accessible sources to prepare for conducting searches independently. In a classroom with technology access, students learn how to assess the sources they found in the previous lesson's activities and homework by answering in-depth questions to assess their potential sources.
5	Students choose texts for research based on their individual research question/problem. Model Source: "Animal Minds: Minds of Their Own"	Students learn how to close read important sources for selected inquiry questions through annotation and taking notes. Students learn how reading closely for information is different than annotating and taking notes on literary texts.
6	Students choose texts for research based on their individual research question/problem.	Students construct a frame to guide their research by establishing inquiry paths that allow students to explore various aspects of their research question/problem. Students organize, categorize, and refine their inquiry questions by inquiry path and independently develop a detailed, organized Research Frame.
7	Students choose texts for research based on their individual research question/problem.	Students begin conducting searches independently using the Research Frame and associated search tools. This lesson is the first of three lessons during which students conduct sustained, independent research during class. While researching, students consider how to use inquiry questions to drive research while continually assessing sources for credibility and usefulness in

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		answering inquiry questions. This lesson is the first of three independent search lessons that will be assessed using a Conducting Independent Searches Checklist.
8	Students choose texts for research based on their individual research question/problem.	Students continue to conduct searches independently using the Research Frame as a guide, with the associated search tools. This lesson is part two of the independent search process and builds on the previous lesson by focusing students on determining if the research they did is sufficient to address established inquiry paths and questions, and adjusting the search accordingly. Additionally, students are reading sources closely, analyzing details and ideas, and taking notes for each source to determine how it addresses inquiry questions and paths.
9	Students choose texts for research based on their individual research question/problem.	Students continue to conduct searches independently. This lesson is the last in a series of three lessons focused on conducting searches independently. This lesson focuses on all criteria of the research process addressed in the Conducting Independent Searches Checklist. In the lesson's closing, students evaluate their collective independent searches from lessons 7–9 using the Independent Searches Self-Evaluation Tool.
10	Students choose texts for research based on their individual research question/problem.	Students analyze and synthesize their research to make claims about inquiry questions within an inquiry path or the inquiry path question itself. Students complete at least two Forming Evidence-Based Claims Tools for all inquiry paths on the Research Frame. These initial claims are the foundation for the Evidence-Based Perspective students will develop in Lessons 11 and 12.
11	Students choose texts for research based on their individual research question/problem.	Students synthesize their claims (Forming Evidence-Based Claims Tools) from the previous lesson to develop comprehensive claims about each inquiry path in the Research Frame using an Evidence-Based Claims Tools. This work directly prepares students for developing and writing an Evidence-Based Perspective (End-of-Unit Assessment) in the following lesson. Students build on the claims created in the previous lesson to develop comprehensive claims that reflect a deeper understanding of the inquiry paths and the

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		research question/problem itself.
12	Students choose texts for research based on their individual research question/problem.	Students complete the End-of-Unit Assessment by conducting a final review of the Research Portfolio and writing an Evidence-Based Perspective based on the research outcomes from the unit. Students submit the final **Research Portfolio** and the Evidence-Based Perspective. The Evidence-Based Perspective is assessed using a rubric based on the Research Portfolio content.

Preparation, Materials, and Resources

Preparation

- Identify and contact the media specialist/librarian/person best positioned to assist students with conducting research
- Reserve computer lab or classroom with technology and Internet access for all students
- Print and annotate model sources (see page 1)

Materials/Resources

- Binders or Electronic Folders (for the Research Portfolio)
- Access to technology (if possible): interactive whiteboard, document camera, and LCD projector
- Copies of handouts and tools for each student: see materials list in individual lesson plans
- Highlighters
- Smart Board/Document Camera (optional)
- Copies of model source "Animal Minds: Minds of Their Own" for each student

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9.3.2 Lesson 1

Introduction

In this first lesson of the unit, students will be formally introduced to the research unit and continue the research process that began in Unit 1. The teacher will provide an overview of the research process and will engage students in vetting their 2–3 possible areas of investigation (Unit 1, Lesson 10) in order to craft a rich and interesting research question/problem that students will explore throughout the unit.

Students will begin the lesson by learning more about the research process and constructing the **Research Portfolio** to house all research previously conducted in Unit 1 and the research materials that will be distributed and gathered in this unit. Next, using the **Area Evaluation Checklist**, students will vet their 2–3 possible areas of investigation previously drafted in Unit 1, Lesson 10 and will independently select a specific area of investigation or research question/problem. The lesson will conclude with a Quick Write where students discuss their research question/problem and how they crafted it using the **Area Evaluation Checklist** to vet the possible areas of investigation. For homework, students will use the **Pre-Search Tool** from Unit 1 to search for two sources related to the research question/problem drafted in the lesson. Students will prepare to discuss how the two sources connect to the research question/problem for the following lesson.

Standards

Assessed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
Addressed Standard(s)	
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

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Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. • Describe how you arrived at your specific research question/problem through the vetting process conducted in the lesson. Explain how the Area Evaluation Checklist led you to crafting and selecting your specific research question/problem.
High Performance Response(s)
A high performance response may include the following: • Through the vetting process in the lesson I selected the research question/problem: How does animal intelligence compare to human intelligence? Grandin argues that normal people do not realize the intelligence animals may possess. Grandin even says that animals may have an "animal genius" similar to autistic savants. The checklist helped me figure out that my other possible areas of investigation were weaker than the animal intelligence topic. The questions for the topic of animal intelligence are deep and will allow for plentiful research, including: How do researchers measure animal intelligence? What kinds of complex decisions do animals make? And what does animal intelligence look like and how is it different from human intelligence? All of these questions will lead to interesting and extensive research as opposed to some of the questions for my other possible areas of investigation. The research question/problem is related to the larger topic of animal intelligence, which is the focus of Grandin's work. Grandin is seeking more information about how animals think and show their own intelligence. My specific research question/problem is related to this topic but I want to know more about animal intelligence and how it compares to human intelligence. Our understanding of human intelligence is wide-ranging, and I think comparing animal intelligence to human intelligence might result in some surprising or interesting findings. I am interested in this area of investigation probably because I like animals. But Grandin made me think about more than just liking animals. What if animals are intelligent? How can we find out if they are and what can we do with this knowledge? I think this information will be extremely interesting, and the different pathways the area of investigation could take will be engaging enough to explore.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• sustained (v.) – kept up or continued, as an action or process

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• self-generated (adj.) – made without the aid of an external agent; produced spontaneously • vetting (v.) – appraising, verifying, or checking for accuracy, authenticity, validity
Vocabulary to teach (may include direct word work and/or questions)
• inquiry (n). – the act of seeking information by questioning • synthesize (v). – to combine into a single unit or unified entity

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.7, W.9-10.4	
Learning Sequence:	
1. Introduction to Lesson Agenda	1. 15%
2. Homework Accountability	2. 5%
3. Introduction to Research Process and Resources	3. 25%
4. Vetting Areas of Investigation	4. 40%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the 9.3 Common Core Learning Standards Tool (refer to 9.3.1 Lesson 1)
- Student copies of the Area Evaluation Checklist (at least 3 blank copies for each student) (refer to 9.3.1 Lesson 10)
- Binders or Electronic Folders (for the Research Portfolio)
- Students' 2–3 Areas of Investigation (refer to 9.3.1 Lesson 10, End-of-Unit Assessment, Part 2)
- Student copies of the Pre-Search Tool (refer to 9.3.1 Lesson 8)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.

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no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction to Lesson Agenda 15%

Begin by reviewing the agenda and sharing the assessed standard for this lesson: W.9-10.7. Students will begin the lesson by learning more about the research process and constructing the Research Portfolio to house all research previously conducted in Unit 1 and the research materials that will be distributed and gathered in this unit. Next, using the Area Evaluation Checklist, students will vet their 2–3 possible areas of investigation previously drafted in Unit 1, Lesson 10 and will independently select a specific area of investigation or research question/problem. The lesson will conclude with a Quick Write in which students will discuss their research question/problem and how they crafted it using the Area Evaluation Checklist to vet the possible areas of investigation.

- ▸ Students look at the agenda.

Explain to students that they will be assessed on a new standard: W.9-10.7. Ask students to individually reread standard W.9-10.7 and assess their familiarity with and mastery of the standard on the 9.3 Common Core Learning Standards Tool. Ask students to write down what they think are the large ideas in the standard and discuss with a classmate.

- ▸ Students read standard W.9.10.7, write down their ideas, and talk with a classmate.

ⓘ The 9.3 Common Core Learning Standards Tool was distributed in Unit 1, Lesson 1.

Lead a share out of the standard's large ideas.

- 🗨 Student responses should include the following:
  - conduct short as well as more sustained research projects
  - answer a question (including a self-generated question) or solve a problem
  - narrow or broaden the inquiry when appropriate
  - synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation

If necessary, define the words *sustained* (kept up or continued, as an action or process) and *self-generated* (made without the aid of an external agent; produced spontaneously) for students.

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- Students listen.

Ask students to consider the meaning of *inquiry* in the context of the standard.

- Students responses may include the following:
  - The standard is about conducting research, which means looking for information.
  - The verb is "to inquire," which means to look for information.

If necessary, define the word *inquiry* (the act of seeking information by questioning) and explain that the research process taught in this unit is based on inquiry and that questioning will play a vital role in exploring a specific research question/problem.

- Students listen.

Ask students to consider what action, in the context of this inquiry process, does the meaning of the verb *synthesize* ask for.

- The verb appears just before "multiple sources" is mentioned. If you gather information from more than a single source you have to compare, discuss, draw conclusions from multiple sources; this is likely to be what *synthesize* means.

If necessary, define the word *synthesize* (to combine into a single unit or unified entity) and explain to students that after plenty of research, they will draw conclusions or synthesize the research to make claims about the research question/problem. However, this action will come towards the end of the unit, after plenty of research and analysis has been conducted.

- Students listen.

Activity 2: Homework Accountability 5%

Inform students that during Unit 2, they will not be assessed on their Accountable Independent Reading. Instead, homework assessments will be an extension of the learning from the lesson. Students will also be expected to conduct research activities outside of class. They will build a volume of independent reading as they read multiple sources and refine and deepen their understanding of their inquiry topic (research question/problem). Remind students to continue to record new vocabulary words in their vocabulary journals when conducting independent searches for homework.

- Students listen.

ⓘ A formal review of the Unit 1 End-of-Unit Assessment is not conducted here for pacing concerns. Consider distributing the assessed Unit 1 End-of-Unit Assessment to each student for review

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purposes. Considering meeting with students who struggled with the End-of-Unit Assessment as soon as possible to provide extra support.

Activity 3: Introduction to Research Process and Resources 25%

Explain to students that in Unit 2 they will continue the research process begun in Unit 1. Additionally, students will use a set of tools that will help them organize and synthesize the information they gather across sources.

- Students listen.

Remind students that in Unit 1 they already engaged in identifying topics and narrowing down those topics into 2–3 possible areas of investigation. Inform students that in Unit 2, they will narrow down the 2–3 possible areas of investigation even further into a specific research question/problem they will explore through formal research by following multiple steps that will repeat themselves throughout the process. Explain to students that inquiry-based research is cyclical and they will repeatedly refine and redirect their search as they deepen their understanding of the research question/problem (area of investigation).

Begin by discussing the nature of this type of research. Explain to students that researchers follow a general iterative (repetitive) process and use tools and strategies to find, analyze, and organize information from sources that they read. Good researchers follow the data, which enables them to consider multiple points of view. Researchers conduct research not in order to support a point of view that is previously established, but to establish one through discovering new information, developing new ideas and drawing conclusions along the way. Explain to students that there are multiple steps in the process and many of the steps will be repeated; this type of research is not a sequential list of steps but a cyclical and iterative process where new directions and paths could be created at different points in the process.

- Students listen.

Explain to students that research is a form of exploration. They will be taught to use a set of skills like asking questions, conducting inquiries, and gathering reliable information. They will learn how to organize, make connections, and analyze the information they gather. This process will show students how to deepen their understanding of a specific research question/problem.

Ask students to consider what may be some of the purposes for conducting research. Remind them that they already know of at least one researcher, Temple Grandin, whose research serves multiple purposes. Inform students that additionally, many of the sources they will encounter (and end up using to support their claims) will also be based in research.

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- Student responses may include:
  - Grandin did research to help farmers and animals.
  - She researched to find solutions to problems that she saw. For example, animals were being mistreated and slaughtered inhumanely. She used research to find a more humane way of doing things.
  - In some history classes we talk about how historians use research to find more about historical events. They explore topics using primary sources and analyze those to discover how events unfolded.
  - Some journalists write about political campaigns. If they want to learn more about political candidates they examine their records, how they voted in the past and what they said in their speeches.
  - TV shows about nature have a lot of research in them. They begin with investigating potential areas of interest and using what they learn to narrow their investigation. These shows always have a lot of information focused on a specific topic to share with the audience. It seems like the research in these shows is to give people information about a specific topic.

Inform students that throughout the research process they are expected to use a structured organizational system for annotating, recording notes, analyzing sources, and sorting information. As students work though the research steps, they will construct a Research Portfolio consisting of various tools, handouts, checklists, and sources that guide, store, and organize their research and analysis. Explain the sections of the Research Portfolio:

- Section 1: Defining an Area of Investigation – This section stores all the work you do exploring the topic and choosing an area of investigation (research question/problem).
- Section 2: Gathering and Analyzing Information – This section stores all the information you gather throughout your investigation. It also stores your notes and analysis of sources.
- Section 3: Drawing Conclusions – This section stores your Evidence Based Claims about inquiry questions and Inquiry Paths and the personal perspective that you come to at the end of your inquiry.
- Section 4: Discarded Material – This section stores all the sources and analysis that you have discarded throughout your investigation. The purpose of this section is to keep a record of discarded materials until the end of the research process in case you change your mind and want to use them.

ⓘ Consider displaying the Research Portfolio sections for students to see.

Distribute binders and instruct students to create the four sections of the Research Portfolio and place all the research material from Unit 1 in Section 1.

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- Students create the four sections of the Research Portfolio and place the research materials from Unit 1 in Section 1.

ⓘ Consider using a form of electronic folders or other technological media to house the Research Portfolio contents. For teachers who choose to use Google Drive and/or other cloud-based online organizational formats, be sure to display sample folders and sub-folders on a smart board for students to see.

Activity 4: Vetting Areas of Investigation 40%

Share with students that they will be narrowing down the 2–3 areas of investigation crafted in Unit 1, Lesson 10's End-of-Unit Assessment into a research question/problem that will guide their inquiry for the rest of the unit. Explain to students that they will be using an Area Evaluation Checklist to vet their areas of investigation, so they can craft and select a research question/problem that will sustain effective research for the duration of the unit.

- Students listen.

Distribute students' 2–3 possible areas of investigation from Unit 1, Lesson 10 End-of-Unit Assessment.

- Students examine their 2–3 possible areas of investigation from Unit 1, Lesson 10 End-of-Unit Assessment.

ⓘ Unit 1, Lesson 10 End-of-Unit Assessment Part 2 prompt was the following: Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the **Tracking Topics Tool** and **Exploring a Topic Tool** as well as notes from the Grandin text.

Inform students that throughout Unit 2, the following research question/problem will be used to model the research process: How does animal intelligence compare to human intelligence? Explain to students that by using the Area Evaluation Checklist, they will learn how to craft and select their own research questions/problems from their Unit 1 areas of investigation. Inform students that this research question/problem is a model only and not an exemplary response to follow or mimic. Remind students they are required to follow their own inquiry as established by the research question/problem they will select in this lesson.

- Students listen.

Distribute a blank Area Evaluation Checklist to each student.

- Students examine a blank Area Evaluation Checklist.

ⓘ Distribute at least 2–3 blank copies of the Area Evaluation Checklist. Students will need to complete a checklist for each area of investigation from the Unit 1, Lesson 10 End-of-Unit Assessment.

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Remind students of the three model areas of investigation from Unit 1, Lesson 10:

- (Topic: Animal Intelligence) Area of Investigation: How does animal intelligence compare to human intelligence?
- (Topic: Laboratory Experiments on Animals) Area of Investigation: What are some benefits to experimenting on animals? Are all experiments harmful to the animal being studied?
- (Topic: Autistic Savants) Area of Investigation: Who are famous autistic savants from history?

  - Students listen.

ⓘ Consider displaying the three model areas of investigation for students to see.

Model for students how to use the Area Evaluation Checklist to vet a model area of investigation from above.

Explain to students that *vetting* means appraising, verifying, or checking for accuracy, authenticity, or validity and that students will be appraising their 2–3 areas of investigation for accuracy and validity using the Area Evaluation Checklist. Inform students the first area of investigation that will be modeled for vetting is the one about animal intelligence.

  - Students listen and following along with the modeling.

ⓘ Consider displaying the Area Evaluation Checklist for students to see the modeling.

Explain to students that the first part of the Area Evaluation Checklist calls for the researcher to clearly articulate his/her area of investigation in a way that others understand and makes sense. The area of investigation should demonstrate that the researcher has a coherent vision of his/her area of investigation. For example: In Unit 1, Grandin argues that many normal people do not realize that animals are intelligent or do not realize how they are intelligent. She even moves beyond discussing intelligence and claims that animals might even have a form of "animal genius." The word "genius" implies intelligence and an intelligence that many "normal" humans do not have. My area of investigation is animal intelligence, or more specifically animal intelligence and its comparison to human intelligence.

  - Students listen and follow along with the modeling.

Explain to students that the second part of the Area Evaluation Checklist calls for the researcher to think about what thoughtful questions are necessary in order to truly explore the area of investigation. These questions should allow for extensive research of the area of investigation but with available resources that are credible or academic in nature. Some of these questions may include:

- How do researchers measure animal intelligence?
- What kinds of complex decisions do animals make?

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- What does animal intelligence look like and how is it different than human intelligence?

Explain to students that the above questions would allow for interesting and rich research in the area of investigation and would contribute to a deeper understanding about it.

- Students listen and follow along with the modeling.

ⓘ Consider engaging students in the model vetting process by asking for additional questions that would lead to an understanding of the model area of investigation.

Explain to students that the third part of the Area Evaluation Checklist calls for an explanation of how the area of investigation is relevant to a larger topic. Remind students that at the beginning of the research process, while reading Grandin's text *Animals in Translation*, the focus on animal intelligence seemed interesting. It was from the broad topic of animal intelligence that the area of investigation was derived, especially after considering Grandin's claim that animals might have genius comparative to humans, like autistic savants. This idea of comparing animal intelligence and human intelligence seems interesting.

- Students listen and follow along with the modeling.

Explain to students that the fourth part of the Area Evaluation Checklist calls for the researcher to illustrate the reason for his/her curiosity and why it would be valuable to explore. Explain to students that if animals have intelligence that is unknown or misunderstood, humans could benefit by finding out more and using this animal knowledge to their advantage. Plus, it would be valuable to find out more about human intelligence by exploring animal intelligence.

- Students listen and following along with the modeling.

Model for students how to craft the potential area of investigation into a problem or overarching question by writing on the bottom of the Area Evaluation Checklist: How does animal intelligence compare to human intelligence? Explain to students that the area of investigation is leading to this idea of comparing human intelligence to animals and that the scope and relevance of the research question problem seems interesting and global enough to provide for good inquiry/research.

- Students follow along with the modeling.

ⓘ Remind students to avoid research problems/questions that lead to yes or no answers since those close rather than open inquiry. For example: Are antibiotics in cattle good or bad for humans? Or Are humans smarter than animals?

ⓘ Consider modeling how to vet one of the other two model areas of investigation from Lesson 10, Unit 1. Students might benefit from seeing multiple areas of investigation vetted to craft the richest research questions/problems possible.

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Instruct students to independently vet their 2–3 areas of investigation from Lesson 10, Unit 1 (End-of-Unit Assessment), using the Area Evaluation Checklist.

- Students independently vet their areas of investigation from the Unit 1 End-of-Unit Assessment using the Area Evaluation Checklist.

Circulate around the room to monitor students' progress.

ⓘ Students will need one Area Evaluation Checklist for each area of investigation, so distribute 2–3 blank checklists to each student.

Explain to students that they should now decide which vetted area of investigation produces the richest and most interesting research question/problem for exploration/research. Instruct students to look at their Area Evaluation Checklists for each area of investigation, specifically focusing on the bottom part of the checklist where the research question/problem was developed.

- Students examine the Area Evaluation Checklist for each area of investigation and select the research problem/question that would be the most interesting or rich to explore/research.

Lead a share out of the students' research questions/problems.

- Student responses may include the following:
  - Many children fail algebra in school, not only autistic children. How can the information that Grandin provides about visual thinkers open a discussion about the instruction of algebra?
  - Grandin's book portrays her ability to understand and therefore help solve problems with cattle. What is the cattle industry's perspective of Grandin's work?
  - Grandin says that "horses are especially good for teenagers." What do studies reveal about the influence of owning horses or dogs and their impact on teenagers?

ⓘ Consider writing students' research questions/problems and their corresponding name on chart paper, so students know who they can rely on for peer support with regards to related research questions/problems.

Activity 5: Quick Write 10%

Instruct students to briefly in writing respond to the following prompt:

Describe how you arrived at your specific research question/problem through the vetting process conducted in the lesson. Explain how the Area Evaluation Checklist led you to crafting and selecting your specific research question/problem.

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- Students independently answer the prompt using today's Area Evaluation Checklists and the selected research question/problem.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- See the High Performance Response at the beginning of this lesson.

Collect the Quick Writes as students finish.

- Students turn in the Quick Write.

ⓘ Consider using the Area Evaluation Checklist to assess the Quick Write.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to use the Pre-Search Tool from Unit 1 to search for two sources related to the research question/problem drafted in the lesson. Students will prepare to discuss how the two sources connect to the research question/problem for the following lesson.

- Students follow along.

Homework

Use the Pre-Search Tool from Unit 1 to search for two sources related to the research question/problem drafted in the lesson. Prepare to discuss how the two sources connect to the research question/problem for the following lesson.

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9.3.2 Lesson 2

Introduction

In this lesson, students learn how to generate more specific inquiry questions to frame their research. Students were introduced to inquiry questions in Unit 1, but will learn how to craft specific inquiry questions for their formal research question/problem (area of investigation) developed in the previous lesson.

In the beginning of the lesson, students engage in a research process check-in during which they overview the **Student Research Plan**. The **Student Research Plan** serves as a guide to the research process and a place to reflect on next steps. Next, students review inquiry questions from Unit 1 and help generate inquiry questions for their peers' research question/problem. Individually, students then use a **Specific Inquiry Questions Checklist** to vet the inquiry questions brainstormed by their peers and finalize a list of at least five specific inquiry questions that will guide their research. For the lesson assessment students select and submit their two strongest questions. For homework, students continue to craft, vet, and refine five more specific inquiry questions for their research question/problem using the **Specific Inquiry Questions Checklist**.

Standards

Assessed Standard(s)	
RI.9-10.1.a	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
Addressed Standard(s)	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.

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Assessment

Assessment(s)
Students generate at least five specific inquiry questions that will guide their research. Students turn in two of these questions for assessment purposes. ⓘ This assessment is evaluated using the Specific Inquiry Questions Checklist.
High Performance Response(s)
A High Performance Response may include the following: • The inquiry questions developed depend on the students' specific research problem/question (area of investigation). Teachers can use the Inquiry Questions Checklist criteria to guide their assessment of the students' two specific inquiry questions. • Examples of specific inquiry questions for the model research question/problem: "How does animal intelligence compare to human intelligence?" are the following: o How do researchers measure animal intelligence? o How can animal intelligence be used to benefit humans? o What characteristics do the animal and human brain share? o What kinds of complex decisions do animals make? o What does animal intelligence look like and how is it different from human intelligence? o What animals have "genius-like" qualities and how do we know?

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• factual (adj.) – based on or restricted to facts • interpretive (adj.) – serving to explain or provide the meaning of • evaluative (adj.) – serving to determine the significance, worth, or quality of • cyclical (adj.) – recurring or evolving in cycles
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: RI.9-10.1.a, W.9-10.7, SL.9-10.1	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 5%
3. Research Process Check-In	3. 5%
4. Inquiry Questions Review	4. 10%
5. Small Group Brainstorm	5. 30%
6. Vetting Specific Inquiry Questions	6. 20%
7. Finalizing Specific Inquiry Questions	7. 20%
8. Closing	8. 5%

Materials

- Student copies of the **9.3 Common Core Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- **Research Portfolio** (students have this)
- Student copies of the **Pre-Search Tool** (refer to 9.3.1 Lesson 8)
- Copies of the **Student Research Plan** for each student
- Copies of the **Specific Inquiry Questions Checklist** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the lesson agenda and assessed standards for this lesson: RI.9-10.1.a and W.9-10.7. Explain that in this lesson, students learn how to generate specific inquiry questions to frame their research. First, students engage in a research process check-in where they overview the Student Research Plan. Then, students work in small groups to help generate inquiry questions for their peers' research question/problem. Using an Inquiry Questions Checklist to vet the inquiry questions brainstormed, students finalize a list of at least five specific inquiry questions that will guide their research. Students turn in two of these specific inquiry questions for assessment purposes.

- Students look at the agenda.

ⓘ Students were introduced to W.9-10.7 in the previous lesson.

Explain that students will be assessed on a new standard: RI.9-10.1.a. Ask students to individually reread standard RI.9-10.1.a and assess their familiarity with and mastery of the standard on the 9.3 Common Core Learning Standards Tool.

- Students read standard RI.9-10.1.a.

ⓘ The 9.3 Common Core Learning Standards Tool was distributed in 9.3.1, Lesson 1.

Explain that this standard is assessed because as part of today's lesson, students will generate and craft a variety of inquiry questions including *factual*, *interpretive*, and *evaluative* questions. As necessary, explain to students the definitions of *factual* ("based on or restricted to facts"), *interpretive* ("serving to explain or provide the meaning of"), and *evaluative* ("serving to determine the significance, worth, or quality of questions").

Explain that later in the lesson students will craft specific inquiry questions that explore their topics through these types of questions.

- Students listen.

Activity 2: Homework Accountability 5%

Direct students to take out the Pre-Search Tool from the previous lesson's homework. Instruct students to form pairs and share two sources they discovered relating to the research question/problem and explain how the two sources connect to the research question/problem.

- Student responses will vary based on individual student's research question/problem. Sample responses might sound like the following:

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- I found an article, "Think You're Smarter Than Animals? Maybe Not," that it is about animals being more intelligent than humans. It fits with my research question/problem because I am looking to compare animal and human intelligence.
- I found an article, "Monkeys Can Perform Mental Addition," that it is about monkeys being able to perform mental math. Monkeys can mentally manipulate representations of numbers to add. This fits with my research question/problem because it is one example of animals that perform the same type of thinking that humans do. This relates to my research question/problem because I am comparing animal and human intelligence.

ⓘ Consider circulating during the partner discussion to monitor students' homework completion.

Activity 3: Research Process Check-In 5%

Explain that students will be tracking the research process at the beginning of most lessons to ensure they understand the research steps, their questions are answered, their concerns are addressed, and progress is made. Instruct students to take out their Research Portfolios.

- Students listen and take out their Research Portfolios.

ⓘ Research Portfolios were developed in the previous lesson.

Distribute the Student Research Plan to each student. Explain that this plan helps them track their research progress by describing the research process outcomes they should see at each step, and supporting students in journaling about their research progress and next steps. Remind students that the research process is iterative and cyclical, as the Research Plan indicates. There are specific steps that are "completed," but many steps in the process will need to be repeated or returned to because research develops and builds on itself and can lead to different paths that may need to be explored.

- Students listen and examine the Student Research Plan.

ⓘ Consider defining the word *cyclical* ("recurring or evolving in cycles") for students so they understand the research process is a cycle and not a linear process.

Instruct students to examine Part 1 of the Student Research Plan. Remind them that some of these research processes were conducted in Unit 1.

ⓘ The research processes addressed in Part 1 of the Student Research Plan will be completed in this lesson and students will journal about their research progress and next steps in the following lesson using the Student Research Plan.

Instruct students to file the Student Research Plan in the front of the Research Portfolio in Section 1.

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Activity 4: Inquiry Questions Review 10%

Instruct students to do a Turn-and-Talk to review inquiry questions (taught in Unit 9.3.1) by answering the following questions.

What is the purpose of asking inquiry questions?

- Student responses may include the following:
  - To guide an exploration of a topic by identifying the various aspects of a topic through questions.
  - To use for pre-searches to find out information you want to know.
  - The inquiry questions can allow you to identify which parts of the topic provide the most relevant and rich information, while also helping identify which parts of the topic may not be useful or pertinent.

What are key components of effective inquiry questions?

- Student responses may include the following:
  - The questions should lead to rich and relevant knowledge and information.
  - They should be questions you want to answer.
  - They are questions that can truly be answered through research.
  - They should be questions that are clear or easily understood.
  - The questions should lead to multiple answers or more questions.
  - They are questions that you do not already know the answer to.

ⓘ **Differentiation Consideration:** If students need help with this review, instruct them to reference the Posing Inquiry Questions Handout from Unit 9.3.1, Lesson 3.

ⓘ Consider reminding students of the language of standard RI.9-10.1.a discussed in the lesson opening. The inquiry questions they develop should seek answers regarding facts, explanation/understanding, and evaluation. There should be several inquiry questions developed in each of these categories.

ⓘ Consider writing notes from the discussion for students to see and apply during the small group brainstorm.

Remind students that, in Unit 1, they posed inquiry questions as an exploratory process to identify general areas of interest and confirm that a topic or area of investigation could be supported through research. The questions were more general in nature. The role and nature of the inquiry questions change now that students have established a research problem/question. The questions become more specific, the "frame" to guide the exploration of the research question/problem. Explain to students that the focus of the following activity, the small group brainstorm, is to generate inquiry questions. Students

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should try to think about specific inquiry questions but the goal of the brainstorm is to generate a large number of questions. Later in the lesson, students will vet the questions for specificity.

- Students listen.

Share with students the model research question/problem from Lesson 1: How does animal intelligence compare to human intelligence?

- Students listen.

Instruct students to form pairs to do a Turn-and-Talk about three possible inquiry questions that might frame effective research for the model research question/problem.

Lead a share out of the possible inquiry questions and write them on the board or chart paper as examples for students to see.

- Student responses may include the following:
  - Do animals think like humans?
  - Can animals make decisions?
  - How can we measure animal intelligence?
  - Why should animal intelligence be explored?
  - What characteristics do animals and humans share when it comes to intelligence?

ⓘ At this point in the lesson, the sample student responses do not need to be ideal inquiry questions yet. Later in the lesson, students will vet questions and refine them into stronger and more specific inquiry questions that yield more than yes/no answers.

Activity 5: Small Group Brainstorm 30%

Inform students they will participate in a small group brainstorm to help them generate inquiry questions that explore as many possible aspects of their individual research question/problem as possible. The goal is for each student to walk away from the brainstorm with a plentiful volume of questions that can later be condensed and refined to frame their specific research question/problem. Remind students that the questions could be seeking factual answers, explanation, understanding, or evaluation, or a combination of some or any of these.

- Students listen.

Explain the directions for the small group brainstorm. Each student in the small group presents their research question/problem to the group. The group then generates as many inquiry questions as possible for that individual student's research question/problem. The student presenting a research

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question/problem records the questions the group has brainstormed. The process continues until all students have presented their individual research question/problem and the rest of the group has brainstormed questions.

- Students listen.

TA*Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

SA*Students listen.

Instruct students to transition into small groups and complete the inquiry question brainstorm for each student in the group.

- Student questions will vary; questions brainstormed depend on the students' individual research questions/problems.

ⓘ Students learned about crafting and refining inquiry questions in Unit 1. However, if students struggle during the small group activity to brainstorm effective inquiry questions, consider using the Specific Inquiry Questions Checklist when circulating to support students who are struggling. Recommend that students consider the checklist's criteria when brainstorming possible inquiry questions.

ⓘ Encourage students to build on and borrow questions from each other as they brainstorm. Many research questions/problems may be related since all of the students generated their areas of investigation from the Grandin text in Unit 1.

ⓘ Consider reassuring students that they should not worry about the specificity of the questions right now; for the purpose of the small group brainstorm, students need to help their peers generate as many inquiry questions as possible for their research problem/question.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

ⓘ Consider placing students in small groups that will remain consistent throughout the module. Form groups ahead of time to maximize the range of different research topics and questions within each group. (For example, one group might consist of a student researching potential causes of autism, the impact of B.F. Skinner on modern psychology, factory farming/slaughterhouses and animal welfare, and the advantages of visual thinking.) The goal of these groups is to create small communities of inquiry/research teams that provide support and are accountable to each other. Students should know about their teammates' research question/problem. Students should share claims and evidence that arise from their individual inquiry and learn from each other's

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research processes, which they may use to potentially refine their own research questions/problem and inquiry questions.

Activity 6: Vetting Specific Inquiry Questions 20%

Transition students into a whole-class structure and distribute the Specific Inquiry Questions Checklist to each student. Explain to students that in this part of the lesson they use the Specific Inquiry Questions Checklist to vet, select, and refine at least five specific inquiry questions from the previous small group brainstorm activity.

- Students listen and examine the Specific Inquiry Questions Checklist.

Model for students how to use the Specific Inquiry Questions Checklist using a question brainstormed in the Inquiry Questions Review Activity (Activity #4).

Instruct students to look at the first question:

- Do animals think like humans?

Model for students how to evaluate the question using the Specific Inquiry Questions Checklist. In relation to the question, "Do animals think like humans?" instruct students to look at criterion #1:

- Does the question have an appropriate scope or purpose? Does it focus on an important aspect of the research question/problem?

Explain to students that this question seems repetitive of the actual research question/problem; the question does not focus on an aspect of the research question/problem. Instruct students to look at criterion #2 on the Specific Inquiry Questions Checklist:

- Is the question useful? Will it lead to meaningful inquiry?

Explain to students that the question is useful and could lead to meaningful inquiry but the scope feels too large. Instruct students to look at criterion #3:

- Is the question answerable through research?

Explain to students that it would be answerable through research. We could find information about animals thinking like humans. Instruct students to look at criterion #4:

- Is your question understandable or clear?

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Explain to students that the question could be refined to be more specific. This question is understandable but still too large, which makes it unclear. What do we want to know specifically about how animals think like humans? Instruct students to look at criterion #5:

- Does your question require multiple answers and possibly more questions?

Explain to students that the question requires a yes/no answer and not multiple answers and so it does not fit this criterion. Instruct students to look at criterion #6:

- Is your question's answer unknown to you?

Explain to students that yes, the answer is unknown. At this point, there is exploring to be completed to find information about animals thinking like humans.

Model for students how to tailor the inquiry question to make it more specific, to focus on an aspect of the model research question/problem, and to make it require more than a yes/no answer. Explain to students that a way to alter the question is to think about the type of answers they want to get. Beginning a question with the word, "Can" requires the answer to be yes/no. Changing the beginning of the question can alter the answer they will get: How do animals show they can remember information?

- Students follow along with the teacher modeling.

Guide students through the Specific Inquiry Questions Checklist to vet the new inquiry question (How do animals show they can remember information?) by having them check off the appropriate categories on their checklist.

- Students independently practice vetting the new inquiry question by using the Specific Inquiry Questions Checklist.

ⓘ Consider having students practice vetting another question from the Inquiry Questions Review Activity (Activity #4) in pairs if students need more support.

Activity 7: Finalizing Specific Inquiry Questions 20%

Explain to students that they will now use the Specific Inquiry Questions Checklist to vet the inquiry questions from the small group brainstorm and finalize at least five questions for assessment purposes.

- Students listen.

Instruct students to individually examine their list of inquiry questions generated from the small group brainstorm activity and use the Specific Inquiry Questions Checklist to select, vet, and refine at least five specific inquiry questions.

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ⓘ This process is appropriate for a lesson assessment because students previously crafted and refined inquiry questions in Unit 1.

Instruct students to choose two of the richest or strongest specific inquiry questions and copy the questions on a separate sheet of paper.

- Students complete the inquiry question assessment.

ⓘ Assess each student's two specific inquiry questions using the language of the Specific Inquiry Questions Checklist to provide feedback.

ⓘ If students struggle with choosing the richest or strongest specific inquiry questions, instruct them to think about choosing the inquiry questions that might lead to the richest inquiry or multiple sources of information.

Collect each student's two specific inquiry questions.

Instruct students to file their five specific inquiry questions in Section 1 (Defining an Area of Investigation) of the Research Portfolio.

Activity 8: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue crafting, vetting, and refining five more specific inquiry questions for their research question/problem using the Specific Inquiry Questions Checklist.

- Students follow along.

Homework

Continue crafting, vetting, and refining five more specific inquiry questions for your research question/problem using the Specific Inquiry Questions Checklist.

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Student Research Plan

Research Process	Process Outcomes	Associated Materials
Part 1: Initiating Inquiry	• Generates, selects, and refines inquiry questions to explore topics. • Develops 2–3 areas of investigation from the topic exploration. • Develops inquiry questions about areas of investigation. • Conducts pre-searches of areas of investigation. • Arrives at a research question/problem by vetting areas of investigation. • Generates specific inquiry questions for the research question/problem.	• Topic Tracking Tool • Posing Inquiry Questions Handout • Exploring a Topic Tool • Pre-Search Tool • Area Evaluation Checklist • Specific Inquiry Questions Checklist
Part 2: Gathering Information	• Plans for searches by determining key words/phrases and finding credible and relevant sources. • Assesses sources for credibility, relevance, and accessibility. • Annotates sources and records notes that will help answer the inquiry questions. • Builds an initial Research Frame to guide independent searches. • Conducts searches independently.	• Potential Sources Tool • Assessing Sources Tool • Assessing Sources Handout • Taking Notes Tool • Research Frame • Conducting Independent Searches Checklist • Independent Searches Self-Evaluation
Part 3: Organizing and Synthesizing Inquiry	• Organizes, connects, and synthesizes evidence to develop evidence-based claims about inquiry questions and inquiry paths. • Further organizes, connects, and	• Forming Evidence-Based Claims Tool • Organizing Evidence-Based Claims Tool • Evidence-Based Claims

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Research Process	Process Outcomes	Associated Materials
	synthesizes evidence-based claims about inquiry paths and the research question/problem itself. • Reviews and synthesizes the research to develop a written evidence-based perspective.	Criteria Checklist • Evidence-Based Perspective Rubric

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Specific Inquiry Questions Checklist

Name:		Class:		Date:	

Research Question/Problem (Area of Investigation):

Question #1: _____

Question #2: _____

Question #3: _____

Question #4: _____

Question #5: _____

Criteria	Q1	Q2	Q3	Q4	Q5
1. Does the question have an appropriate scope or purpose? (Does it focus on an important aspect of the research question/problem?					
2. Is the question useful? Will it lead to meaningful inquiry?					

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Criteria	Q1	Q2	Q3	Q4	Q5
3. Is the question understandable or clear?					
4. Is the question answerable through research?					
5. Does the question require multiple answers and possibly more questions?					
6. Is your question's answer unknown to you?					

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9.3.2 Lesson 3

Introduction

In this lesson, students continue to refine their inquiry questions as they begin to frame their research by planning for independent searches. Students learn how to select inquiry questions, plan search locations, and use key words and phrases to conduct effective and efficient research. Additionally, students learn how to begin formally assessing sources by analyzing a source's relevance to the inquiry question and its credibility.

Students begin the lesson by engaging in a research project check-in where they overview their **Student Research Plan** and informally journal about their research progress and next steps. The teacher models how to plan effective searches by selecting inquiry questions, planning where to look for sources, and choosing key words or phrases that target an effective and efficient search. Additionally, students discuss how these steps can contribute to finding credible and relevant sources. Students then transition into searching for relevant and credible sources using key words or phrases from their selected inquiry question and recording notes on a **Potential Sources Tool**. The learning in this lesson is assessed with a Quick Write in which students analyze three sources for relevance and credibility, explaining how they found the sources as well. For homework, students continue to conduct preliminary searches for one inquiry question, using the **Potential Sources Tool** to find three more potential sources. Students will prepare to discuss the preliminary search results in the following lesson.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

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Assessment

Assessment(s)
The learning in this lesson is captured through a Quick Write at the end of the lesson. Students answer the following prompt based on their preliminary search for relevant and credible sources: • Choose three sources from today's work and discuss how they meet the criteria of being credible and relevant sources. Additionally, discuss the inquiry questions, locations, and key words or phrases that led you to the discovery of the three credible and relevant sources. ⓘ The assessment is evaluated using the following criteria: 1. Uses inquiry questions to drive research and identify sources. 2. Assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.
High Performance Response(s)
A High Performance Response may include the following: • The search words I used were taken from my selected inquiry question: What does animal intelligence tell us about human intelligence? I typed the phrase "human and animal intelligence" into a search engine. I realized this phrase was too broad so I tried the phrase "comparing human and animal intelligence." There were many credible and relevant sources to choose after typing in this phrase. I started with an NBC essay, "The 10 Smartest Animals: How do humans compare to other intelligent creatures?" This essay is about smart animals and comparisons to human intelligence, so it is relevant to my search. NBC seems to be a credible source since it is an important TV network. The second source is a science magazine, *Scientific American*. I selected it because it states the opposite point of view of the NBC essay: "Subtle refinements in brain architecture, rather than large-scale alterations, make us smarter than other animals." I want to find more than one perspective regarding my research question/problem, so this essay is important. I then tried a different phrase. I asked, "Are animals smart?" The results were mostly new. In *National Geographic*, a credible source, I found a relevant article: "Animals Minds: Minds of Their Own," by Virginia Morell. Both *Scientific American* and *National Geographic* are reputable sources because their writing uses credible research to support their articles, and our media specialist told the class about these two sources when we conducted pre-searches in Unit 1.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)

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• authoritative (adj.) – substantiated or supported by documentary evidence and accepted by most authorities in a field • plagiarism (n.) – act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author's work as one's own, as by not crediting the original author • credible (adj.) – worthy of belief or confidence; trustworthy
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.8, W.9-10.7	
• Text: "Animal Minds: Minds of Their Own," by Virginia Morell	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 10%
2. Homework Accountability and Research Process Check-In	2. 15%
3. Planning for Searches	3. 30%
4. Conducting Research	4. 30%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **9.3 Common Core Learning Standards Tool** (refer to 9.3.1, Lesson 1)
- **Research Portfolio** (students have this)
- At least two blank copies of the **Potential Sources Tool** for each student (refer to 9.3.1 Lesson 8)
- Computers with Internet connection (one for each student)
- Smart Board/Document Camera (optional)

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Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.8. Explain that students begin with a research project check-in during which they overview their Student Research Plan and informally journal about their research progress and next steps. The teacher then models how to plan for effective searches by selecting inquiry questions, planning where to look for sources, and choosing key words or phrases that target an effective and efficient search. Students discuss how these steps can contribute to finding credible and relevant sources. Students then search for relevant and credible sources using key words or phrases from their selected inquiry question and recording notes on a Potential Sources Tool.

- ▸ Students look at the agenda.

Explain that students will be assessed on a new standard: W.9-10.8. Ask students to read standard W.9-10.8 individually and assess their familiarity with and mastery of the standard on the 9.3 Common Core Learning Standards Tool. Ask students to write down what they think are the large ideas in the standard and discuss in pairs.

- ▸ Students write down their ideas about standard W.9.10.8 and discuss it in pairs.

Lead a discussion about the standard's large ideas. Ask students to consider in their responses how the standard relates to their current research work.

- 🗨 Student responses should include the following:
  - We are starting our own research and this standard is about gathering information from sources to conduct the research.
  - *Authoritative* must mean (because of the noun *authority*) that the information is from a credible or academic source. The research has to come from a location that has authority regarding the topic.

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- We need to assess every source to see if it corresponds to our research question/problem. The source needs to be relevant by answering an aspect of the research question/problem or the research question/problem itself.
- And it is important not to cheat or plagiarize (say that an idea is ours when it is not).

If necessary, define the words *authoritative* ("substantiated or supported by documentary evidence and accepted by most authorities in a field") and *plagiarism* ("an act or instance of using or closely imitating the language and thoughts of another author without authorization and the representation of that author's work as one's own, as by not crediting the original author").

ⓘ In the next unit, Unit 3, students will learn more about the importance of and how to avoid plagiarism when they write (citation).

Explain to students that the standard W.9-10.8 works together with W.9-10.7 to guide the type of research students will conduct in this unit.

- Students listen.

ⓘ Standard W.9-10.7 was introduced in Lesson 1.

Activity 2: Homework Accountability and Research Process Check-In 15%

Instruct students to take out their Lesson 2 homework. Direct students to form pairs and discuss how they refined their five specific inquiry questions using the Specific Inquiry Questions Checklist.

- Responses will vary, but will include information like the following: The small group brainstorm from Lesson 2 began with more simple questions that were not specific enough but they gave me a general idea of where my questions could go. I then added to the questions brainstormed to give them more specificity and to ensure they required multiple answers and relevance to my inquiry question/problem. For example, I started out with questions like: Can animals make decisions? I realized that this question needed more specificity and required a yes/no answer. So I changed the question to give it more of a focus and to ensure that the answer would require multiple answers as discussed on the Specific Inquiry Questions Checklist

Ask student pairs the following question:

What role do questions play in the research process?

- Student responses may include the following:
  - Questions play an important role in research by showing you the different aspects of the research question/problem.

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- They allow you to think about the variety of ways in which you can approach your question/problem.

Instruct students to take out the Student Research Plan in the front of the Research Portfolio. Remind students that they received the Student Research Plan in the previous lesson. Explain that the purpose of the plan is to help students track their research progress by informally assessing completed research activities and planning next steps in a research journal. Remind students that the research process is iterative and cyclical, as the Research Plan suggests; there are specific steps that are not "completed" after one time. Journaling about the research process will help students track where they are in this iterative process.

- Students listen.

Instruct students to focus on Part 1 of the Student Research Plan and write a few sentences about their research progress and next steps based on the process outcomes described in Part 1.

- Responses will vary, but will include information like the following: I was able to narrow down the many topics surfaced in Grandin's text to a few areas of investigation that I thought were worth exploring. But I quickly realized with my pre-searches that researching areas like the history of autistic savants was not going to prove interesting and did not lend itself to many inquiry questions. Instead, I chose animal intelligence compared to human intelligence because it is going to provide many paths to explore as revealed in my variety of specific inquiry questions that I was able to develop in Lesson 2.

ⓘ Consider having students write in a notebook or on a separate sheet of paper for the research journal. Students can file the research journal in the Research Portfolio, along with the Vocabulary Journal.

ⓘ While students are writing, consider distributing the previous lesson's assessment with feedback so students can use this information for the reflection journal. Then students can file the assessment in their Research Portfolios for later use.

ⓘ The purpose of the research journal is to keep students accountable to the research process; fidelity to the process is vital if students are to conduct effective and efficient research. Providing students with an opportunity to reflect on the research process will help them build a foundation for inquiry that will take place in subsequent modules.

Instruct students to file the Student Research Plan in the front of their Research Portfolio and to organize the previous lesson's homework and assessment in Section 1.

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Activity 3: Planning for Searches 30%

Explain to students that they are ready to plan for effective searches to conduct formal research now that they have established a research question/problem and crafted specific inquiry questions.

Inform students that when planning for effective inquiry-based research, there are several steps to follow:

- Select an inquiry question to focus on
- Determine where to look for sources
- Choose key words or phrases to begin the search

Remind students that in the pre-search activities they identified a variety of sources. In today's class they are going to be looking for *credible* and *relevant* sources for their specific research question/problem, using the steps for planning effective and efficient research mentioned above.

Define the word *credible* ("worthy of belief or confidence; trustworthy"). Explain to students that credible sources are sources that have proven their worth through peer review and extensive research on a topic. Credible sources have employed the same inquiry methods of research that the students are currently conducting.

- Students listen.

ⓘ Consider reminding students that they learned the word *relevance* in 9.3.1 Lesson 9.

Ask students the following questions:

What are some of the sources you identified in your pre-search?

- Student responses may include the following:
  - articles
  - interviews
  - speeches
  - videos
  - charts
  - blogs

Did some sources seem more credible than others? How did you decide which were more credible than others?

- Student responses may include the following:
  - If I find material about autism in a medical journal, it is probably credible because medical researchers have to conduct extensive research to be published in a medical journal.

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- A government study about meat and antibiotics in cattle is probably credible because the government has performed lengthy research or experiments on the topic.
- If I am looking for studies where numbers are important (for example, how many cows die in the chutes), if an article does not provide data, it might not be as credible as an article that provides actual research data.

ⓘ Advise students to ask the teacher, librarian, or media specialist if they are not certain about the credibility of a source.

Explain to students that the planning they do today for effective and efficient searches will guide them to sources that are more credible and relevant. The Potential Sources Tool will then help students to further assess sources for credibility and relevance.

▸ Students listen.

ⓘ Consider informing students that today's lesson is an introduction to assessing sources and the following lesson will go more in-depth on this skill.

Share with students that effective and efficient searches begin with a focus. The type of research they are conducting in this unit is inquiry-based, so the specific inquiry questions students develop for the overarching research question/problem will guide the research focus.

Explain to students that the first step in planning for an effective and efficient search is to select an inquiry question to focus the research.

Explain to students a few guidelines for selecting inquiry questions to focus research:

- Move from general inquiry questions to specific.
- Move from questions that are easily answered to more complex questions with more interesting answers.
- Remember that the questions are always evolving and you can move from one question to another if the research takes you there.

▸ Students listen.

Model for students how to select inquiry questions by displaying the following three model questions (from the previous lesson) for students to see:

- How do researchers measure animal intelligence?
- What characteristics do the animal and human brain share?
- What animals have "genius-like" qualities and how do we know?

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Explain to students that the question "What characteristics do the animal and human brain share?" is the best question to focus the research because it is specific enough to generate concrete answers, but general enough to generate rich information. The first question may be too large and complex, while the third question's focus exclusively on "genius" seems too specific as a starting point.

- Students examine the three model questions and follow along with the modeling.

Explain that the second step in planning a good search is to determine the best sources for finding the information about the inquiry question. Give students the following questions to help them select and locate the right sources:

- What is the area of my search and where could I find credible sources? If I am looking at autism, then the field is developmental disorders. I will search in either that section of the library or an online source or website that specializes in developmental disorders.
- What type of information am I looking for and what type of sources should I be looking for? If I am looking at the rise or decline in autistic populations, I will need numbers, so I am looking for reports. If I am looking at the significance of an historical event, I will need to look at magazines or books that specialize in that time period.

Remind students that the location of the source is important in guiding students to credible and relevant sources.

Display the model inquiry question discussed previously: What characteristics do the animal and human brain share?

- Students examine the model inquiry question.

Ask students the following questions:

Under which topics does my search fall, and where might I find credible information for this search?

- Students responses may include:
  - biology
  - science
  - intelligence
  - medicine
- Credible information might be found on specialized websites and in specific sections of the library associated with medicine and biology.

What type of information am I looking for, and what sort of sources should I be looking for?

- Students responses may include the following:

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- I am looking for facts on comparing human and animal brains, so I might look for journals and magazines that focus on neuroscience or biological psychology.
- I am also looking for how the animal and human brain are alike so there might be credible experiments and reports that have conducted this type of research.

Explain the third step in planning a good search: selecting the best key words and phrases for the online search. Demonstrate an online search with key words and phrases using this model question: How do researchers measure animal intelligence? Conduct two searches as described below, and display the online search for all students to see. Instruct students to take brief notes on the results.

- Enter the search phrase: current research on animal intelligence
- Examine results of the search.
- Change the search phrase: How do researchers measure animal intelligence?
- Examine results of the search.
  - Students listen and take notes.

ⓘ Consider using a smart board or document camera to display the search results.

Instruct students to form pairs to discuss the differences they see between the two searches and results.

ⓘ Alternate between the two searches, giving students an opportunity to compare results. Provide students with time to take brief notes.

What differences did you notice between the results of the two searches?

- Student responses may include:
  - In the first search there are different types of sources: a magazine, *Scientific American*; an animal rights organization, PETA; and a TV station, NBC. These three seem like credible sources to read because they all have authority regarding the topic. *Scientific American* and PETA both focus on science research and animals respectively.
  - In the second search, some of the results are different. The most interesting that could be a very good source and did not appear in the first search is the article from *National Geographic*.

Point to several other important results. At the top of the search page students see the phrase "Scholarly articles for assessing human intelligence." Introduce the students to Google Scholar. Explain to them that it will help direct their search towards credible sources.

- Students examine the search results.

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Go back to the original search page and point to the .edu sources. Inform students that .edu usually means that this is a university site and therefore is often a credible source because university professors conduct extensive research before publishing documents.

Inform students that substituting a key word with a synonym (word that means the same) leads to more and sometimes different results. Remind them that they can also ask questions:

- Enter the search words: Are animals smart?
- Examine the results of the search.

What do you notice about the search results?

- Students responses may include:
  - The search words seem similar but because you used the word *smart,* some of the results were different.
  - This resulted in some credible sources including: *National Geographic* and PBS (Public Broadcasting Service).

Remind students that they can use the information they have on the original page to search the source directly rather than open the one link. For example:

- Search for Scientific American site.
- Enter search phrase: animal intelligence
- Search Result: The first of a two-part interview with anthropologist Carel Van Schaik about the role of culture in boosting intelligence in animals. (The interview is available both in audio and in print.)

Show another example:

- Search for the National Geographic site.
- Enter search phrase: animal intelligence
- Result, an article: "Animals Minds: Minds of Their Own," by Virginia Morell.

Ask students:

What makes these sources both relevant and credible?

- Both sources seem credible because they have numerous essays and articles about nature and animals. They are relevant since both publications have information about animal intelligence.

Ask students to think of an example of a source that may make a source unreliable or not credible.

- Student responses may include the following:

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- Teachers tell us not to use encyclopedia when we write papers. I think that this is because here we are not just looking for background but studies and research that other people do.
- Then there is Wikipedia. It is not always clear who writes the essays, so potentially they may not be credible.

Explain to students that they can find out how long these publications have existed. This fact usually points to credibility. Also, the author's profession is important: Is he/she a scientist or a professor in college? Has the author published a study in the field? The answers to these questions may identify a credible source or exclude one that is not credible.

- Students listen.

Activity 4: Conducting Research 30%

Explain that in this part of the lesson, students practice finding credible and relevant sources using key words/phrases from their research question/problem and specific inquiry questions. Distribute blank Potential Sources Tool to each student.

Model how to use the Potential Sources Tool by using the source from the previous activity. On the top left, number the source (begin with 1). Record basic information:

- Title: "Animal Minds: Minds of Their Own"
- Location: *National Geographic* online http://ngm.nationalgeographic.com/2008/03/animal-minds/virginia-morell-text
- Author: Virginia Morell
- Text Type: Article
- Publication Date: March 2008

ⓘ Consider displaying the Potential Sources Tool for students to see.

Read aloud the first two paragraphs of the article (from "In 1977 Irene Pepperberg, a recent graduate of Harvard University, did something very bold" to "that it is able to acquire information about the world and act on it").

- Students listen and follow along in their copy of the text.

Instruct students to turn their attention back to the Potential Sources Tool. In the second part of the Potential Sources Tool write the following comments for students to see:

The article is relevant because it is about researching animals' intelligence, which is my focus inquiry question. Also, it seems credible because at the beginning the writer cites a study conducted by a Harvard scientist, which shows the writer is looking at research to compose the article.

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ⓘ A completed Model Potential Sources Tool is in included at the end of the lesson; consider distributing to students for support.

Instruct students to independently search for credible and relevant sources for one inquiry question by following the steps for planning a search:

- Select an inquiry question on which to focus.
- Determine where to look for sources.
- Choose key words or phrases to begin the search.
  - Students independently conduct searches for one of their inquiry questions.

ⓘ Consider placing students in small heterogeneous groups that will remain consistent throughout the module, or using the groups established during the previous lesson. Form groups ahead of time to maximize the range of different research topics and questions within each group. (For example, one group might consist of a student researching potential causes of autism, the impact of B.F. Skinner on modern psychology, factory farming/slaughterhouses and animal welfare, and the advantages of visual thinking.) The goal of these groups is to create small communities of inquiry/research teams that provide support and are accountable to each other. Students should know about their teammates' research question/problem. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own research questions/problem and inquiry questions.

Remind students to record basic information about the source in the Potential Sources Tool. They are not expected to read the text closely at this point. The purpose of this tool is to help students locate the source again later. Instruct students not to fill in the bottom part where they rank the source, since they will be assessing sources more formally in the following lesson.

  - Students record basic search information on the Potential Sources Tools.

ⓘ Students need access to computers with Internet capacity for research purposes. Prepare for the lesson ahead of time by reserving space in classrooms with technology access for all students.

ⓘ Consider using the media center or library for this lesson so students have access to librarians or media center teachers.

ⓘ Circulate around the room to support students as they engage in this preliminary research process.

Activity 5: Quick Write 10%

Instruct students to respond briefly in writing to the following prompt:

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Choose three sources from today's work and discuss how they meet the criteria of being credible and relevant sources. Additionally, discuss the inquiry questions, locations, and key words or phrases that led you to the discovery of the three credible and relevant sources.

Remind students to use the Short Response Checklist and Rubric to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using the lesson's Potential Sources Tools and the preliminary research conducted in the lesson.

- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. Distribute additional Potential Sources Tools to each student. For homework, instruct students to continue to conduct preliminary searches for one inquiry question, using the Potential Sources Tool to find three more potential sources. Students will prepare to discuss the preliminary search results in the following lesson.

Homework

Continue to conduct preliminary searches for one inquiry question, using the Potential Sources Tool to find three more potential sources. Prepare to discuss the preliminary search results in the following lesson.

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9.3.2 Lesson 4

Introduction

In this lesson, students continue to learn how to assess sources more extensively. Students were introduced to the practice in Lesson 3 by beginning to identify credible and relevant resources. In this lesson, they go deeper and learn why it is important to assess sources and how to identify credible, relevant, and accessible sources to prepare for conducting searches independently.

The teacher models the next steps in assessing sources using the **Assessing Sources Handout** and returning to the **Potential Sources Tool** from Lesson 3. In a classroom with technology access, students learn how to assess the sources they found in the previous lesson's activities and homework by answering in-depth questions. Independently, students use the **Assessing Sources Tool** to assess one source for credibility, relevance, accessibility and interest. For homework, students continue looking for three more sources based on selected inquiry questions from Lesson 2. Students rate the sources on the **Potential Sources Tool** using the **Assessing Sources Handout and Tool**. Additionally, students record new vocabulary from these preliminary searches in the Vocabulary Journal.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
L.9-10.4.a, c, d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

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	c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt: • Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout. • Based on today's work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far? ⓘ This assessment will be evaluated using the Assessing Sources Tool.
High Performance Response(s)
A high performance response may include the following: • Source #3: "Think You're Smarter Than Animals? Maybe Not," by Alexandra Horowitz and Ammon Shea, *The New York Times*, August 20, 2011. I was able to find this article from *The New York Times*. When I read the first few lines it became clear that the article is relevant to my research because the authors begin by making the statement: "Humans have long been fascinated by animal intelligence" which relates to my area of investigation regarding animal intelligence. I know that *The New York Times* is a well-known newspaper that people trust and the writers have extensive credentials and use research to support their writing. I even Googled *The New York Times*, and I found out that it has been publishing since 1851. Additionally under the title of the article, it offers information about the two authors. Both of them have published before and Alexandra Horowitz has written a book about dogs and their intelligence. When I read the first part closely, I saw that this article is actually a review of a few studies that analyze animal behavior. This type of article, a review of studies, can lead me to other sources as well. I am not sure I can get these other studies online, but I will try. I concluded that this review is very relevant to my research. I will certainly rate it high for all categories because I understood the text, it's extremely relevant to my research question/problem, and the authors are credible as revealed in their background on animal

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intelligence.

- Source #4: "Monkeys Can Perform Mental Addition," a science news report. At first I was not sure if this article was credible. There is no author. But then I read carefully what is written under the title and I realized that the source is probably credible because they are researchers from Duke University. I think that usually one can trust universities because universities have a stake in producing quality research. The title is what drew me to this report at first; it directly suggests that animals, in this case, monkeys, can perform intelligent acts, like addition. I was also interested in reading on because in my question, I ask about how scientists can measure animal intelligence. Overall, I rank this source high for credibility and accessibility. It seems short, and the information is limited, so for richness I will only rank it medium.
- Next Steps: I will try to find some of the sources that these two articles reference. I may need some help in the library. If I cannot find these, I will continue to search for sources that discuss actual experiments that show how scientists measure intelligence. I think that these types of sources will help me write a strong essay. I should also make a greater effort to find essays that may disagree with the idea that you can compare animal to human intelligence to have a different perspective.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• credentials (n.) – evidence of authority • extensive (adj.) – far-reaching, broad, comprehensive, or thorough
Vocabulary to teach (may include direct word work and/or questions)
• accessibility (adj.) – easy to approach, enter, read, or use

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.8, W.9-10.7, L.9-10.4.a, c, d • Text: "Animal Minds: Minds of Their Own" by Virginia Morell (paragraphs 1–2)	
Learning Sequence: 1. Introduction to Lesson Agenda	1. 5%

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2. Homework Accountability	2. 10%
3. Assessing Sources: Next Steps	3. 30%
4. Assessing Sources Independently	4. 40%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Student copies of the **Potential Sources Tool** (refer to 9.3.1 Lesson 8)
- Copies of the **Assessing Sources Handout** for each student
- Copies of the **Assessing Sources Tool** for each student
- Copies of the article "Animal Minds: Minds of Their Own" by Viginia Morell (excerpt) for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction to Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.8. Students learn how to assess the sources they found in the previous lesson's activities and homework by answering in-depth questions to assess their potential sources. Independently, students use the Assessing Sources Tool to assess one source for credibility, relevance, accessibility, and interest.

- ▸ Students look at the agenda.

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Activity 2: Homework Accountability 10%

Instruct students to take out their Potential Sources Tool from the homework assignment from Lesson 3. Direct students to form pairs and discuss the results of the research they conducted at home by explaining the inquiry question selected, the search location, and key words/phrases used to find the three potential sources that are credible and relevant.

- Student responses will vary by individual research question/problem but may sound like the following:
  - I selected the inquiry question: How do animals show their "thinking" in experiments?
  - I couldn't figure out a specific location to search so I searched on Google for the following key phase: animals and thinking.
  - I could not find any relevant or credible sources, so I tried searching Google by typing in the actual inquiry question and found three potential sources.

Activity 3: Assessing Sources: Next Steps 30%

Introduce the Quick Write assessment (1. Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout. 2. Based on today's work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?) Explain that this is the lesson assessment and the focus for this activity.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessment for students to see.

Explain to students that the previous lesson's work focused on planning for searches and beginning to examine sources for relevancy and credibility. Explain that today's work focuses on assessing sources more deeply to ensure that sources are accessible, credible, relevant, and worth researching. Explain that it is important to assess sources first before reading them closely so students do not waste time on reading sources that do not contribute to a deeper understanding of the research question/problem.

- Students listen.

Instruct students to keep out their Potential Sources Tools from the previous activity and lesson. Distribute the Assessing Sources Handout and ask students to read it.

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Ask students to do a Turn-and-Talk about the Potential Sources Tool and the Assessing Sources Handout by considering the following questions:

What details are similar in the tool and the handout?

What details are different?

How do these differences inform your understanding of assessing sources?

Lead a share-out to ensure that students realize that the Assessing Sources Handout leads to a deeper or more extensive assessment of the sources.

- Students responses may include the following:
  - The Potential Sources Tool asks for general information or first impressions.
  - The Assessing Sources Handout asks for many more details about every section. For example in the Potential Sources Tool, all I have to do is just write the date, but in the Assessing Sources Handout I also have to think about how the date of publication is relevant to my research.
  - Another type of detail that the Assessing Sources Handout goes more in depth is the "scope and richness" part. I think that requires me to read the text a lot closer than just a quick scan or read.

ⓘ Consider defining the word *extensive* ("far-reaching, broad, comprehensive, or thorough") for students.

Distribute the Assessing Sources Tool to each student and instruct them to put the Potential Sources Tool aside for now. Instruct students to have the Assessing Sources Tool and Assessing Sources Handout side by side on their desks.

Explain to students that the Assessing Sources Tool is a replica of the Assessing Sources Handout and is a place for students to record their assessment of sources using the Assessing Sources Handout. Model how to use the Assessing Sources Tool by using the article from the previous lesson, "Animal Minds: Minds of Their Own" by Virginia Morrell. Distribute an excerpt from the article to each student.

- Students listen and examine the article excerpt.

Read aloud the first two paragraphs of the article (from "In 1977 Irene Pepperberg, a graduate student" to "about the world and act on it?") and instruct students to consider the top section (Assessing a Source Text's Credibility) of the Assessing Sources Tool as they listen. Remind them that even though

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they have already recorded some of the information in the Potential Sources Tool, the Assessing Sources Tool requires a deeper assessment of the source.

- Students follow along with the read aloud and consider the top section of the Assessing Sources Tool.

Model for students how to complete the top section of the Assessing Sources Tool using the excerpt just read aloud by writing the following notes on a Model Assessing Sources Tool. Show students how to use the Assessing Sources Handout to complete the Assessing Sources Tool.

- Students follow along with the modeling.

Assessing a Source Text's Credibility			
Publisher	**Date**	**Author**	**Type**
• National Geographic publishes many articles about science topics like animal intelligence. • The publisher has a stake in producing articles that are supported by real research since it is considered an academic nonfiction magazine.	• March 2008 • The date indicates that the information is current. • The topic seems to have a longer history as indicated by the research date first discussed in the opening paragraph (1977), but 2008 is relatively recent so there might be current research in the article.	• It says at the end of the article that the author, Virginia Morell, is a science writer who often writes for National Geographic. • It seems that she is not a scientist but someone who has a general interest in the topic. • The author gets paid to write the article but that seems to be it.	• This is an article. It is an informational text that includes reporting on studies. • The purpose of this article is to illustrate the intelligence of animals and therefore relates to the research question, How does animal intelligence compare to human intelligence?

ⓘ Consider displaying the model Assessing Sources Tool for students to see the notes.

ⓘ Explain to students that some of the questions, for example the "economic stake" or "political stake" may not always be relevant and leaving it open is okay. Consider reminding students that "economic stake" was relevant, for example, in Gradin's work since many farmers benefitted from her discoveries.

ⓘ Consider defining the word *credentials* ("evidence of authority") for students. Inform students that this word relates to the idea of authoritative resources discussed in standard W.9-10.8.

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Model for students how to complete the second section of the Assessing Sources Tool using the Assessing Sources Handout as a guide by writing the following notes on a model tool.

- Students follow along with the modeling.

Assessing a Source Text's Accessibility and Interest Level	
Accessibility to You as a Reader	**Interest and Meaning for You as a Reader**
• The text seems accessible. The reference to dogs and people makes it easier to relate to. • The short paragraphs help. • From this excerpt it seems that I will comprehend the whole essay because I understand most of the words and I can look up the rest that I do not understand.	• Very interesting. I always thought parrots only repeat people and now it seems they actually think for themselves. • One of my inquiry questions was: How do scientists measure animal intelligence? This essay addresses this question directly.

ⓘ Inform students that at this point they do not have to address the Inquiry Path question and that later in the unit they will be looking closely at the concept.

Ask students the following question:

What could the word *accessibility* mean based on the questions and answers just modeled?

- It means how easy it is to read, comprehend, or approach.

Model for students how to complete the bottom section (Assessing a Source Text's Relevance and Richness) of the Assessing Sources Tool by using the Assessing Sources Handout as a guide.

- Students follow along with the modeling.

Assessing a Source Text's Relevance and Richness		
Relevance to Topic & Purpose	**Relevance to Area to Investigation**	**Scope and Richness**
• This article provides information about animal intelligence and specific experiments used to measure animal intelligence. • Since my research involves	• It deals with measuring animal intelligence and therefore relates to my area of investigation and several inquiry questions. • The inquiry questions that this article might help me answer are:	• This is a long article (10 pages). I skimmed the article first and I realized that she talks about human intelligence and the way that Darwin approaches it.

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Assessing a Source Text's Relevance and Richness		
Relevance to Topic & Purpose	**Relevance to Area to Investigation**	**Scope and Richness**
both human and animal intelligence it will help my research because it will give me more insight into animal intelligence. • Since the article is from a credible source and reputable studies are used to support the information then I can assume that the information is accurate.	How do scientists measure animal intelligence? and Which animals do scientists study?	• The article provides a lot of details, especially discussing a variety of experiments. • Most of the texts about animal intelligence use studies to support their point of view.

ⓘ Consider introducing the practice of skimming. It is an important skill to teach at this stage of the process. It serves two important purposes: it allows the reader to quickly identify if a source is relevant and it also enables the reader to select excerpts rather than read every word when completing tools like the Potential Sources Tool.

Activity 4: Assessing Sources Independently 40%

Instruct students to put aside the excerpt and take out one of their Potential Sources Tools from the previous lesson. Remind students that in the previous lesson they did not complete Step 3 of the tool. Today, following the assessment of sources, they will complete this section.

- Students put aside the excerpt and take out one of their Potential Sources Tools from the previous lesson.

Instruct students to independently assess one of the sources from the Potential Sources Tool using the Assessing Sources Handout as a guide and by completing an Assessing Sources Tool.

- Students locate a source and assess it by completing the Assessing Sources Tool.

ⓘ See the end of the lesson for model student responses.

Instruct students to then complete Step 3 in the Potential Sources Tool for the source just assessed.

- Students individually complete Step 3 in the Potential Sources Tool for the source they just assessed.

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ⓘ Students need access to their sources. Unless students are able to print material, this activity will take place either in the library or a classroom with computers. Consider having the school's librarian and/or media specialist help students use the technology. However, since students will need to annotate material in later lessons, printing the material is recommended.

ⓘ Circulate around the room to monitor student progress. Check that students are using the Assessing Sources Handout when they assess their sources. Make sure they go back to the Potential Sources Tool and complete Step 3.

Activity 5: Quick Write 10%

Instruct students to briefly respond to the following prompts:

Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout.

Based on today's work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?

Remind students to use the Potential Sources Tool and Assessing Sources Tool to guide their written responses.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using the Potential Sources Tool and the Assessing Sources Tool work from the previous activity.
- See High Performance Response at the beginning of the lesson.

ⓘ This assessment will be evaluated using the Assessing Sources Tool.

Activity 6: Closing 5%

Display and distribute the homework assignment. Distribute additional Assessing Sources Tools to each student. For homework, instruct students to continue looking for three more sources based on selected inquiry questions from Unit 2, Lesson 2. Instruct students to rate the sources on the Potential Sources Tool using the Assessing Sources Handout and Tool. Additionally, students will record vocabulary from these preliminary searches in the vocabulary journal.

- Students follow along.

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- ⓘ Consider instructing students to use notebooks or additional paper for the vocabulary journal. The notebook or additional paper can be kept in the Research Portfolio throughout the research process.
- ⓘ Instruct students to print hard copies of sources to bring to the following lesson, if possible.
- ⓘ Consider drawing students' attention to their application of standard L.9-10.4.a,c,d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Homework

Continue looking for three more sources based on selected inquiry questions from Unit 2, Lesson 2. Rate the sources on the Potential Sources Tool using the Assessing Sources Handout and Tool. Additionally, record vocabulary from these preliminary searches in the Vocabulary Journal.

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ASSESSING SOURCES

ASSESSING A SOURCE TEXT'S CREDIBILITY

Look at the information you can find about the text in the areas below, and consider the following questions to assess a source text's credibility:

PUBLISHER	DATE	AUTHOR	TYPE
• What is the publisher's relationship to the topic area? • What economic stake might the publisher have in the topic area? • What political stake might the publisher have in the topic area?	• When was the text first published? • How current is the information on the topic? • How does the publishing date relate to the history of the topic?	• What are the author's qualifications/ credentials relative to the topic area? • What is the author's personal relationship to the topic area? • What economic/political stakes might the author have in the topic area?	• What type of text is it: explanation, informational article, feature, research study, op/ed, essay, argument, other? • What is the purpose of the text with respect to the topic area?

ASSESSING A SOURCE TEXT'S ACCESSIBILITY AND INTEREST LEVEL

Consider your initial experience in reading the text, how well you understand it, and whether it seems interesting to you:

ACCESSIBILITY TO YOU AS A READER	INTEREST AND MEANING FOR YOU AS A READER
• Am I able to read and comprehend the text easily? • How do the text's structure and formatting either help or hinder me in reading it? • Do I have adequate background knowledge to understand the terminology, information, and ideas in the text?	• Does the text present ideas or information that I find interesting? • Which of my Inquiry Paths will the text provide information for? • Which inquiry questions does the text help me answer? How?

ASSESSING A SOURCE TEXT'S RELEVANCE AND RICHNESS

Using your Research Frame as a reference, answer the following questions:

RELEVANCE TO TOPIC & PURPOSE	RELEVANCE TO AREA OF INVESTIGATION	SCOPE AND RICHNESS
• What information does the text provide on the topic? • How might the text help me accomplish the purpose for my research? • Does the text provide accurate information?	• How is the text related to the specific area I am investigating? • Which of my paths of inquiry might the text provide information for? • Which inquiry questions might the text help me address? How?	• How long is the text and what is the scope of the topic areas it addresses? • How extensive and supported is the information it provides? • How does the information in the text relate to other texts?

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Assessing Sources Tool

Name:		Class:		Date:	

Assessing a Source Text's Credibility			
Publisher	**Date**	**Author**	**Type**

Assessing a Source Text's Accessibility and Interest Level	
Accessibility to You as a Reader	**Interest and Meaning for You as a Reader**

Assessing a Source Text's Relevance and Richness		
Relevance to Topic & Purpose	**Relevance to Area of Investigation**	**Scope and Richness**

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Model Assessing Sources Tool (for Source #2)

Name:		Class:		Date:	

Assessing a Source Text's Credibility			
Publisher	**Date**	**Author**	**Type**
• National Geographic publishes many articles about science topics like animal intelligence. • The publisher has a stake in producing articles that are supported by real research since it is considered an academic nonfiction magazine.	• March 2008 • The date indicates that the information is current. • The topic seems to have a longer history as indicated by the research date first discussed in the opening paragraph (1977), but 2008 is relatively recent so there might be current research in the article.	• It says at the end of the article that the author, Virginia Morell, is a science writer who often writes for National Geographic. • It seems that she is not a scientist but someone who has a general interest in the topic. • The author gets paid to write the article but that seems to be it.	• This is an article. It is an informational text that includes reporting on studies. • The purpose of this article is to illustrate the intelligence of animals and therefore relates to the research question, How does animal intelligence compare to human intelligence?

Assessing a Source Text's Accessibility and Interest Level	
Accessibility to You as a Reader	**Interest and Meaning for You as a Reader**
• The text seems accessible. The reference to dogs and people makes it easier to relate to. • The short paragraphs help. • From this excerpt it seems that I will comprehend the whole essay because I understand most of the words and I can look up the rest that I do not understand.	• Very interesting. I always thought parrots only repeat people and now it seems they actually think for themselves. • One of my inquiry questions was: How do scientists measure animal intelligence? This essay addresses this question directly.

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Assessing a Source Text's Relevance and Richness		
Relevance to Topic & Purpose	**Relevance to Area of Investigation**	**Scope and Richness**
• This article provides information about animal intelligence and specific experiments used to measure animal intelligence. • Since my research involves both human and animal intelligence it will help my research because it will give me more insight into animal intelligence. • Since the article is from a credible source and reputable studies are used to support the information then I can assume that the information is accurate.	• It deals with measuring animal intelligence and therefore relates to my area of investigation and several inquiry questions. • The inquiry questions that this article might help me answer are: How do scientists measure animal intelligence? And another one is: Which animals do scientists study?	• This is a long article (10 pages). I skimmed the article first and I realized that she talks about human intelligence and the way that Darwin approaches it. • The article provides a lot of details, especially discussing a variety of experiments. • Most of the texts about animal intelligence bring studies to support their point of view.

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9.3.2 Lesson 5

Introduction

In this lesson, students learn how to close read important sources for selected inquiry questions through annotation and taking notes. Students learn how reading closely for information is different than annotating and taking notes on literary texts.

Students begin the lesson by engaging in a research project check-in where they review the **Student Research Plan** by journaling about their own research progress and next steps. Then, using the model source, "Animal Minds: Minds of Their Own," by Virginia Morell, the teacher discusses and models how to use an inquiry question to annotate for information and how to record notes using the **Taking Notes Tool**. Independently, students annotate their sources and record key information by completing a **Taking Notes Tool**.

To assess their learning in this lesson, students choose one annotated source and corresponding **Taking Notes Tool** and discuss briefly in writing how the information in the source and the tool address a specific inquiry question/problem. For homework, students annotate and take notes on a **Taking Notes Tool** from two more sources from the previous lesson's **Potential Sources Tools**. Additionally, students continue to record vocabulary from these preliminary searches in the Vocabulary Journal.

Standards

Assessed Standard(s)	
W.9.10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
L.9-10.4.a, c, d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies.

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	a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on their Taking Notes Tools: • Choose one annotated source and corresponding Taking Notes Tool and discuss how the information in the source and tool address a specific inquiry question or component of the research question/problem. • Students will turn in one completed Taking Notes Tool. ⓘ This assessment will be evaluated using the following criteria: 1. Assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question. 2. Marks key information in sources, takes notes of initial impressions and identifies additional research needs. 3. Reads sources closely, analyzes details and ideas, and records notes for each source to determine how it addresses inquiry questions.
High Performance Response(s)
A high performance response may include the following: • Source #1's information specifically addresses the inquiry question: How do researchers measure animal intelligence? The source discusses how parrots, through verbal communication, are showing "higher mental abilities." The researcher says that she went against convention and conducted experiments on parrots because of their talking abilities. It is through this communication that the parrot is showing its "good memory" and understanding of symbols. This type of research, teaching parrots how to talk and recognize symbols and relationships between words and ideas, is revealing how research can measure animal intelligence. • Students will also be evaluated on the Taking Notes Tool: See a sample tool at the end of the lesson.

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Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• analyze (v.) – to examine carefully and critically in detail so as to bring out the essential elements or give the essence of
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.8, W.9-10.7, L.9-10.4.a, c, d • Model Source Text: "Animal Minds: Minds of Their Own," by Virginia Morell	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability/Research Process Check-In	2. 15%
3. Annotating and Taking Notes on Rich Sources	3. 40%
4. Annotating and Taking Notes Independently	4. 25%
5. Quick Write	5. 10%
6. Closing	6. 5%

Materials

- Copies of the **Taking Notes Tool** for each student
- **Research Portfolios** (students have these)
- Student copies of **Potential Sources Tool** (refer to 9.3.1 Lesson 8)
- Printed Sources (from the previous lesson's searches and homework)
- Student copies of model source, "Animal Minds: Minds of Their Own" (refer to 9.3.2 Lesson 4)

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Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.8. Explain that students will begin the lesson by engaging in a research project check-in where they will review the Student Research Plan by journaling about their own research progress and next steps. Then, using the model source, "Animal Minds: Minds of Their Own," by Virginia Morell, the teacher will discuss and model how to use an inquiry question to annotate for information and how to record notes using the Taking Notes Tool. Independently, students will annotate their sources and record key information by completing a Taking Notes Tool.

- Students look at agenda.

Activity 2: Homework Accountability/Research Process Check-In 15%

Instruct students to take out the homework from the previous lesson and form pairs to discuss the sources they discovered and the sources' ratings according to the Assessing Sources and Potential Sources Tools. Instruct students to specifically share one successful search and one obstacle they may have encountered conducting research at home, based on their tools.

- Students form pairs and discuss the homework from the previous lesson by sharing one successful search and one obstacle.

Lead a brief share out of students' research experiences.

🗨 Students responses may include the following:

  - My biggest challenge is the long essays that I find. How do I manage to read all of them?

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- I learned how to skim and that helps with the long essays; I am making progress there. I am able to read closely the parts that help answer my inquiry research questions.
- I find the ideas interesting, but how do I remember the details?
- I highlight stuff that I like or find interesting.
- My challenge is finding answers to my inquiry questions.
- Answering all the questions on the Assessing Tools Handout can be time-consuming.
- I found a source and the title looked good but it turned out it was not about my topic at all. It was also written in academic language I could not understand.

ⓘ Students are likely to encounter similar experiences; hearing from peers will reassure them that researchers go through similar challenges. In this formal research process, a conversation among the students will alert both students and the teacher to possible obstacles that might need addressing.

Distribute the previous lesson's assessment (with feedback).

- Students examine the teacher's feedback on the previous lesson's assessment.

ⓘ The previous lesson's assessment was the following:

- Choose two sources from your Potential Sources Tool and using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout.
- Based on today's work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?

Instruct students to take out the Student Research Plan from their Research Portfolios.

ⓘ The Student Research Plan should be located in the front of each student's Research Portfolio.

Instruct students to review the Research Plan, Part 2 where it discusses planning for searches (Lesson 3) and assessing sources (Lesson 4). Instruct students to use the previous lesson's homework and assessment to journal about their research progress and next steps.

ⓘ Instruct students to continue the Research Journal started in Lesson 3; students can write on separate sheets of paper or in a notebook and keep the Research Journal in the Research Portfolio.

- Students review the Student Research Plan and write in their Research Journals.

- Student responses will vary by individual research question/problem but look for students to use the language of the Student Research Plan when reflecting on their research progress and next steps.

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Instruct students to file the Student Research Plan in the front section of the Research Portfolio and organize the tools from the previous lesson in Section 2: Gathering and Analyzing Information.

Ask students to take out the printed sources and the Potential Sources Tools from the previous lesson's homework.

- Students file away their Research Plans and take out the printed sources and the Potential Sources Tools from the previous lesson's homework.

ⓘ The printed sources and Potential Sources Tools will be needed for the next activity.

Activity 4: Annotating and Taking Notes on Rich Sources 40%

Introduce the Quick Write assessment (choose one annotated source and corresponding Taking Notes Tool and discuss how the information in the source and tool address a specific inquiry question or component of the research question/problem). Explain to students that this is the lesson assessment and the focus for this activity.

- Students read the assessment and listen.

ⓘ Display the Quick Write assessment for students to see.

Share with students that once researchers have identified and assessed several sources that have relevant, credible, and accessible information, they begin reading the texts closely. Close reading for the purpose of gathering and analyzing information is often done in two steps: annotating and taking notes. Remind students of the standard that is assessed in this lesson (W.9-10.8) and discuss how the standard states, "assess the usefulness of each source in answering the research question." Both annotating and taking notes aid in further assessing the usefulness of each source. Students have preliminarily assessed their sources by skimming. Now students will read their sources closely to determine if a source is truly useful in addressing an aspect of the research question/problem.

- Students listen.

Inform students that they will begin by focusing on how to annotate informational text. Explain to students that annotating informational text for research purposes is different than annotating literature.

Explain to students that when conducting research they annotate for:

- Key words and concepts
- Information that will answer inquiry questions

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- Initial impressions of the information
- Areas for possible further exploration
- Connections to other sources

Explain to students that annotating informational text for research may be different but the annotations codes used in previous modules remain the same.

Review the annotation codes from the previous modules:

- Box or circle unfamiliar words and phrases and rewrite a word or phrase you might have figured out
- Star (*) important or repeating ideas
- Put a question mark (?) next to a section you are questioning or confused about
- Use an exclamation point (!) for areas that remind you of another text or ideas that strike you or surprise you in some way

Remind students that besides using the codes, marking the text with thinking related to the codes is important.

- Students listen.

Introduce two new annotation codes specifically for informational text:

- Underline areas that represent major points. Use vertical lines in the margin to denote longer statements that may be too long to underline.
- Use numbers in the margin to indicate a sequence of points to trace the development of an argument.
  - Students listen.

ⓘ Consider displaying all annotation codes for students to see.

Distribute an excerpt from the model source "Animal Minds: Minds of Their Own," by Virginia Morell and read the excerpt aloud from "'That's why I started my studies with Alex,' Pepperberg said" to "And Alex the parrot turned out to be a surprisingly good talker." Instruct students to follow along.

- Students follow along, reading silently.

Explain that you will annotate this text for a specific inquiry question: How do researchers measure animal intelligence? Model how to annotate the informational text by coding and writing thoughts directly on the text, pausing after each annotation, and explaining the choice.

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- Star near "They were clearly a team." – An interesting comment; the relationship between the researcher and the parrot; "team" implies that they are equal.
- Exclamation point and star near "and because of their work, the notion that animals can think is no longer so fanciful." – The study will succeed in proving that animals can think.
- Underline the sentence: "Certain skills are considered key signs of higher mental abilities: good memory, a grasp of grammar and symbols, self-awareness, understanding others' motives, imitating others, and being creative." – These are key details about what scientists look for when measuring animal intelligence; this information directly connects to my inquiry question.
- Box around the word "ingenious experiments." – Unsure about what the word *ingenious* means but maybe new or interesting experiments is what it is saying.
- Star near "Bit by bit, in ingenious experiments, researchers have documented these talents in other species." – Researchers are able to see intelligence in animals that humans share. This might contribute to how they measure animal intelligence.
- Exclamation point near "Alex the parrot turned out to be a surprisingly good talker." – The parrot is a good talker; an important detail since the researcher was able to teach the parrot, revealing that animals can exhibit intelligences like learning how to communicate.

  - Students listen and follow along with the modeling.

ⓘ Consider creating an annotated text in advance and distributing copies to the students for support.

ⓘ Consider displaying the model annotation notes for students to see.

Instruct students to form pairs and practice annotating the model source by reading from "Thirty years after the Alex studies began" to "Nevertheless, this is not the same thing as having an animal look up at you, open his mouth, and speak." Remind students to mark their thinking directly on the source, next to their coding, and to keep the inquiry question in mind as they annotate: How do researchers measure animal intelligence?

  - Students form pairs and annotate the model source.

ⓘ **Differentiation Consideration:** Consider giving students highlighters to annotate.

Lead a brief share out of the annotation practice to confirm that students identify important details, record initial impressions, establish connections, and identify other areas of research.

  - Student responses may include the following:

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- Star near "She let the store's assistant pick him out because she didn't want other scientists saying later that she'd deliberately chosen an especially smart bird for her work." – The researcher is trying to prove her authority or credibility. This shows the actual source is credible because of the researcher's own integrity.
- Box around the word "futile." – I think this word means that it was not going to succeed or achieve anything.
- Star near "most researchers thought Pepperberg's interspecies communication study would be futile." – The researcher was encountering resistance; this comment also reminds me of the opposition to Grandin's ideas. I wonder how she will measure the animal's intelligence?
- Write the number 1 near "Nevertheless, this is not the same thing as having an animal look up at you, open his mouth, and speak." – It sounds like the researcher is going to prove animal intelligence through the parrot's talking as opposed to other researchers who have yet to do this with other animals. This seems to be her first point.

Share with students that they will now analyze the annotation just completed and write key details and their own thinking about those details. Explain that this is the beginning of analyzing the research and that taking notes is the next step in the close reading process.

- Students listen.

ⓘ Consider defining *analysis* for students ("to examine carefully and critically in detail so as to bring out the essential elements or give the essence of").

Distribute the Taking Notes Tools to each student.

Model using the Taking Notes Tool with students. Ask students to write the inquiry question in the top portion of the tool: How do researchers measure animal intelligence? Instruct students to record the source number as it appears on their Potential Sources Tool under the column marked "Reference." Explain that students should try to write where the detail comes from in the actual text. Model for students by writing "Source #1 and Paragraph #4." Remind students that when writing research papers they have to cite sources. Inform them that in Unit 3 they will learn more about how to cite sources, but they will need to know the source and the page number for all the research information for right now.

- Students follow along with the modeling.

Explain the next two columns of the tool by modeling how to record notes on the Taking Notes Tool. Inform students that one of the richest and most interesting details for the inquiry question "How do researchers measure animal intelligence?" came from paragraph four, where it described the characteristics of intelligence that researchers are looking for. Model for students by writing the textual detail under the column "Details." Explain that the "Comments" section is for commenting on that

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textual detail by thinking about (analyzing) how it relates to the inquiry question or the overarching research question/problem.

Reference	Details	Comments
Source #1 and Paragraph #4	"Certain skills are considered key signs of higher mental abilities: good memory, a grasp of grammar and symbols, self-awareness, understanding others' motives, imitating others, and being creative."	These are characteristics scientists look for when measuring animal intelligence. Humans also have these abilities or characteristics. So, researchers are comparing the same "intelligences" between humans and animals when conducting animal intelligence research.

- Students follow along with the modeling.

ⓘ **Differentiation Consideration:** Consider sharing another model example if time allows.

Instruct students to form the same pairs from the previous annotation activity and practice completing one detail and comment for the model source from the annotation previously completed on a Taking Notes Tool.

- Student responses may include the following:

Reference	Details	Comments
Source #1 and Paragraph #8	"Nevertheless, this is not the same thing as having an animal look up at you, open his mouth, and speak."	This source is proving animal intelligence through a parrot talking. This is one way to measure animal intelligence: verbal communication.
Source #1 and Paragraph #6	"She let the store's assistant pick him out because she didn't want other scientists saying later that she'd deliberately chosen an especially smart bird for her work."	The researcher's study on the parrot is credible. This is credible research that shows animal intelligence.

ⓘ Circulate around the room and monitor student progress.

Activity 5: Annotating and Taking Notes Independently 25%

Instruct students to select one of their sources (from the previous lesson's Potential Sources Tools) and begin close reading by annotating and taking notes using the Taking Notes Tool.

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Explain to students that to write successful essays they need many notes that are rich in content. If they read an essay or an article they originally thought was relevant, but once they read it closer they find very little to annotate, they should determine that it is not rich enough and move on to the next source.

- Students select one of their sources and begin close reading by annotating and taking notes using the Taking Notes Tool.

ⓘ Circulate and confirm that the students are annotating and then taking notes. Make sure they do not skip the annotation step.

ⓘ Students need hard copies of their sources in order to annotate. Students should have brought these to the lesson as directed in the previous lesson's homework.

ⓘ Remind students to keep all the annotated sources and Taking Notes Tools in Section 2 of the Research Portfolio.

Activity 6: Quick-Write 10%

Instruct students to respond briefly in writing to the following prompt:

Choose one annotated source and corresponding Taking Notes Tool and discuss how the information in the source and tool address a specific inquiry question or component of the research question/problem.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using the annotated sources and Taking Notes Tools from the lesson.

- See the High Performance Response at the beginning of this lesson.

Instruct students to turn in one completed Taking Notes Tool and the Quick Write.

ⓘ Consider assessing each Quick Write using the Taking Notes Tool collected with it.

Activity 6: Closing 5%

Display and distribute the homework assignment. Distribute additional Taking Notes Tools to each student. For homework, instruct students to annotate and take notes on a Taking Notes Tool for two more sources from the previous lesson's Potential Sources Tools. Additionally, students will continue to record vocabulary from these preliminary searches in the Vocabulary Journal.

- Students follow along.

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ⓘ IN*Consider drawing students' attention to their application of standard L.9-10.4.a,c,d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Homework

Annotate and take notes on a Taking Notes Tool for two more sources from the previous lesson's Potential Sources Tools. Additionally, continue to record vocabulary from these preliminary searches in the Vocabulary Journal.

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Name.....

Inquiry Question/Path .....

REF.	DETAILS	COMMENTS
Source # and location in the source:	I record details, ideas, or information that I find in my sources that help me answer my inquiry questions:	I explain the reason why I think they are important, and write personal comments:

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TAKING NOTES

Name Sample Student Responses

Inquiry Question/Path How do researchers measure animal intelligence?

REF.	DETAILS	COMMENTS
Source # and location in the source:	I record details, ideas, or information that I find in my sources that help me answer my inquiry questions:	I explain the reason why I think they are important, and write personal comments:
Source #2 and Paragraph #4	"Certain skills are considered key signs of higher mental abilities: good memory, a grasp of grammar and symbols, self- awareness, understanding others' motives, imitating others, and being creative."	These are characteristics scientists look for when measuring animal intelligence. Humans also have these abilities or characteristics. So, researchers are comparing the same "intelligences" between humans and animals when conducting animal intelligence research.
Source#2 and Paragraph #8	"Nevertheless, this is not the same thing as having an animal look up at you, open his mouth, and speak."	This source is proving animal intelligence through a parrot talking. This is one way to measure animal intelligence: verbal communication.
Source #2 and Paragraph #6	"She let the store's assistant pick him out because she didn't want other scientists saying later that she'd deliberately chosen an especially smart bird for her work."	The researcher's study on the parrot is credible. This is credible research that shows animal intelligence.
Source #1, Second Page	"Experiments with animals have long been handicapped by our anthropocentric attitude: We often test them in ways that work fine with humans but not so well with other species. Scientists are now finally meeting animals on their own terms instead of treating them like furry (or feathery) humans, and this shift is fundamentally reshaping our understanding."	This is saying that animal intelligence research design has to be from the animal's point of view. This is what Grandin was saying in Animals in Translation; animals are different than humans and research must think about that.

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9.3.2 Lesson 6

Introduction

In this lesson, students construct a frame (**Research Frame Tool**) to guide their research by establishing inquiry paths that allow them to explore various aspects of their research question/problem. Students group their inquiry questions thematically and then frame their research formally using the **Research Frame Tool**.

Students begin the lesson by refining inquiry questions from Lesson 2, based on search results from Lessons 3–5. The teacher introduces the concept of inquiry paths by modeling how to group inquiry questions thematically. The teacher then shows students how to complete a **Research Frame Tool** as a way to plan research using grouped inquiry questions. Students organize, categorize, and refine their inquiry questions by inquiry path and independently develop a detailed, organized Research Frame. For homework, students select one to two of their strongest inquiry questions to begin pursuing through independent research by following the research steps outlined in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) using the appropriate tools for each of the search activities. Additionally, students should continue to add new vocabulary learned through the research process to the Vocabulary Journal.

Standards

Assessed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
Addressed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism, and following a standard format for citation.
L.9-10.4 a-d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies.

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	a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson will be captured through the completion of the Research Frame Tool. Students will submit completed Research Frames during the lesson's closing. ⓘ This assessment will be evaluated using the criteria articulated in the High Performance Response below.
High Performance Response(s)
A High Performance Response may include the following: • See the model Research Frame Tool located at the end of the lesson. Use the following criteria to assess individual student's Research Frames: • Are the inquiry paths high-level? • Is there a range of inquiry paths regarding content and coverage of the research question/problem? • Are the inquiry paths distinct from one another? • Do the inquiry paths seem to be equally important? • Do the questions within the inquiry paths vary and address appropriate scope and utility?

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• thematically (adv.) – in a manner characterized by a unifying or dominant idea • static (adj.) – showing little or no change; lacking movement
Vocabulary to teach (may include direct word work and/or questions)
• None*

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*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.7, W.9-10.8, L.9-10.4.a, c, d	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Inquiry Paths and the Research Frame	3. 35%
4. Research Frame Tool: Independent Work	4. 40%
5. Closing	5. 10%

Materials

- Copies of the **Research Frame Tool** for each student
- Research Portfolios (students have these)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.7. Explain that students begin the lesson by refining inquiry questions from Lesson 2, based on search results from Lessons 3–5. The teacher then introduces the concept of inquiry paths by modeling how to group inquiry questions thematically. The teacher shows students how to complete a Research Frame Tool as a way to plan/frame research using grouped inquiry questions. Students then organize, categorize, and refine their inquiry questions by inquiry path and independently develop a detailed, organized Research Frame.

- Students listen.

Activity 2: Homework Accountability 10%

Instruct students to take out the homework from the previous lesson, which was: Annotate and take notes on a Taking Notes Tool from two more sources from the previous lesson's Potential Sources Tools. Additionally, record vocabulary from these preliminary searches in the Vocabulary Journal.

- Students take out their homework.

Instruct students to form pairs with a classmate for a Turn-and-Talk about the annotation and taking notes processes. Specifically, instruct pairs to discuss two details from the close reading of at least one source by discussing how the details address a selected inquiry question.

- Students do a Turn-and-Talk.

ⓘ Consider circulating during the Turn-and-Talk to monitor students' discussions.

Lead a brief share out of students' discussions.

- Student responses will vary by individual research question/problem. An example response may sound like the following:
  - In Source # 1, the author says, "Certain skills are considered key signs of higher mental abilities." This detail is important for addressing my inquiry question about measuring animal intelligence; researchers measure animal intelligence using these characteristics.
  - In Source # 1, the author points to the hard work that the researcher did in order to establish the credibility of the study. This is okay for establishing credibility of the source, but I need more about animal intelligence.

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Activity 4: Inquiry Paths and the Research Frame 35%

Introduce students to the Research Frame. Explain that based on what they learned about conducting independent searches (planning for searches, assessing sources, and annotating sources/recording notes), students will now construct a Research Frame to guide the independent searches they will do in the next three lessons (Lessons 7–9). The Research Frame is a formal plan or guide used to list potential inquiry paths and corresponding inquiry questions. Explain that before they can build the Research Frame, students need to refine the inquiry questions developed in Lesson 2 based on the research they have done thus far.

- Students listen.

Instruct students to take out their specific inquiry questions from Lesson 2.

ⓘ These are located in Section 1 of the Research Portfolio.

Ask students to reflect on the preliminary searches conducted in Lessons 3–5 by thinking about the search results in relation to the specific inquiry questions. Instruct students to consider the following questions:

How do the preliminary search results affect your current inquiry questions?

What new inquiry questions are emerging as a result of the preliminary searches? What inquiry questions might need to be eliminated already?

How can the inquiry questions be refined to reflect the search results?

- Students listen.

Instruct students to apply the guiding questions just discussed and refine the specific inquiry questions from Lesson 2.

- Students work independently to refine their inquiry questions from Lesson 2.

ⓘ Consider referring students back to the vetting process taught in Lesson 2 if students need more support.

Explain to students that the next step is to categorize the refined inquiry questions into inquiry paths. Explain that an inquiry path is an overarching problem or question that organizes your research questions.

- Students listen.

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Explain that inquiry questions can be grouped *thematically.* Ask students to define the word *thematically* using the root word. Remind students that they should look for common themes or patterns among the various inquiry questions.

ⓘ **Differentiation Consideration:** If students cannot define the word *thematically* using the root, consider providing them with the root *theme* and asking them how it helps define the word.

Explain to students that they must first group the questions thematically to create an inquiry path. Then they can label this inquiry path with an overarching question.

- Students listen.

Display the following model inquiry questions:

- What technology is used to measure animal intelligence?
- How is animal intelligence measured differently for various kinds of animals?
- To what extent are animal experiments valid if they do not take place in the animal's natural environment?
- What does animal intelligence tell us about human intelligence?
- Where does our perspective on animal intelligence come from?

- Students examine the model inquiry questions.

Model for students how to analyze the inquiry questions for common themes or patterns. Explain to students that the first three questions focus on experiments and measuring animal intelligence. The last two questions seem to focus on the human perspective of animal intelligence research. Suggest that the inquiry path for the first three questions might be: How is animal intelligence measured or researched? Explain to students that this is an aspect of the research question/problem because in order to compare animal intelligence to human intelligence it is important to know the animal intelligence is measured. Inform students that the inquiry path for the last two questions might be: Why research animal intelligence?

- Students follow along with the modeling.

Instruct students to determine themes or patterns among their inquiry questions and categorize them accordingly. Instruct students to write possible inquiry path questions/problems for the categorized inquiry questions.

- Students work independently to create and record inquiry paths from their inquiry questions.

- Student responses will vary by individual research question/problem and research conducted. See the Model Research Frame Tool at the end of the lesson for sample responses.

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ⓘ Students can do this by physically arranging questions on their desk or using paper to take notes.

Distribute blank Research Frame Tools to each student.

- Students examine the blank Research Frame Tool

Model for students how to complete the Research Frame Tool. On the top, under "Topic," write "animal intelligence" and under "Area of Investigation" write the question: "How does animal intelligence compare to human intelligence?"

- Students follow along with the modeling.

ⓘ The area of investigation is the same as the research question/problem.

Instruct students that the next step is to group their inquiry questions (areas of investigation) thematically and then create an inquiry path by giving the path a title that is expressed in the form of a question or a problem.

- Students listen.

Model how to begin completing the Research Frame Tool using the model inquiry questions and inquiry paths discussed above.

- Students follow along with the modeling.

Instruct students to label each Inquiry Path with a reference number once they have created a Research Frame. This reference number will be important in subsequent lessons for aligning various sources to one Inquiry Path.

- Students listen.

Activity 5: Research Frame Tool: Independent Work 40%

Instruct students to complete a Research Frame Tool independently by grouping or categorizing inquiry questions by themes or patterns, labeling each group with an Inquiry Path question or problem, and writing reference numbers for the Inquiry Paths. Inform students that they will submit the Research Frame for assessment today. When they get them back in the next lesson, they will file them in Section 2: Gathering and Analyzing Information of their Research Portfolios.

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- Students independently complete a Research Frame Tool.

ⓘ Circulate, offering students help with this task. Confirm that they grasp each step and that they are grouping their inquiry questions thematically. Some students may be tempted to first come up with the path and then group their questions accordingly. Point out that when they do that, they ignore their own research and their paths will not be motivated by their findings. Some students may still have problems organizing their questions; you may choose to group these students with classmates who are researching similar topics to work together to form inquiry paths.

ⓘ Consider reminding students that the Research Frame is not *static* ("showing little or no change; lacking movement"). The Research Frame will continue to evolve as the research evolves with future searches. Remind students this is the iterative and cyclical nature of inquiry-based research.

Activity 6: Closing 10%

Display and distribute the homework assignment. For homework, instruct students to select one to two of their strongest inquiry questions to begin pursuing through independent research by following the research steps outlined in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) using the appropriate tools for each of the search activities. Additionally, students should continue to add new vocabulary learned through the research process to the Vocabulary Journal.

- Students follow along.

ⓘ Consider drawing students' attention to their application of standard L.9-10.4.a, c, d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Distribute additional search tools (Potential Sources Tool, Assessing Sources Tool, Taking Notes Tool) for the homework.

Instruct students to select and copy one to two of their strongest inquiry questions from the Research Frame Tool and to record these on a separate sheet of paper to take home for homework purposes.

- Students select and copy one to two of their strongest inquiry questions from the Research Frame Tool.

Collect initial Research Frame for assessment purposes.

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Homework

Select one to two of your strongest inquiry questions to begin pursuing through independent research by following the research steps outlined in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) using the appropriate tools for each of the search activities. Additionally, continue to add new vocabulary learned through the research process to the Vocabulary Journal.

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Name ..... Topic .....

Area of Investigation .....

INQUIRY PATH	INQUIRY PATH	INQUIRY PATH
Reference: IP #	Reference: IP #	Reference: IP #
Name this Inquiry Path in the form of a brief description or question:	Name this Inquiry Path in the form of a brief description or question:	Name this Inquiry Path in the form of a brief description or question:
List all the questions in this Inquiry Path:	List all the questions in this Inquiry Path:	List all the questions in this Inquiry Path:

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RESEARCH FRAME

Name Sample Student Response **Topic** Animal Intelligence

Area of Investigation How does animal intelligence compare to human intelligence?

INQUIRY PATH	INQUIRY PATH	INQUIRY PATH
Reference: IP # 1	**Reference: IP #** 2	**Reference: IP #** 3
Name this Inquiry Path in the form of a brief description or question: How is animal intelligence measured?	**Name this Inquiry Path in the form of a brief description or question:** How do animals display intelligence?	**Name this Inquiry Path in the form of a brief description or question:** Why research animal intelligence?
List all the questions in this Inquiry Path:	**List all the questions in this Inquiry Path:**	**List all the questions in this Inquiry Path:**
What technology is used to measure animal intelligence? What experiments could be used to reveal animal intelligence? How is animal intelligence measured differently for various kinds of animals? How have our attempts to measure animal intelligence evolved over time? Is it possible to measure animal intelligence without anthrophormizing animals? How do animals show their "thinking" in experiments? To what extent are animal experiments valid if they do not take place in the animal's natural environment? How do we measure the difference between instincts and higher thinking?	How do we define animal intelligence? How are behavior and intelligence related? What animal is the most "intelligent"? What is the difference between instincts and thoughts? What are some ways that animals show they are making decisions? Does behavior imply thought? How do animals show they are thinking? What qualities of intelligence do animals share with humans? Do animals have the capacity for language? Is learning a sign of intelligence? What does animal intelligence look like and how is it different than human intelligence?	How can animal intelligence be used to benefit humans? How do humans view animal intelligence research? Where does our perspective on animal intelligence come from? How do humans use animal intelligence research? What does animal intelligence tell us about human intelligence? What can animal intelligence research tell us about humans with disabilities? How does of our understanding of animal intelligence affect the way we treat animals?

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9.3.2 Lesson 7

Introduction

In this lesson, students begin conducting searches independently using the **Research Frame** (created in Lesson 6) and associated search tools. This lesson is the first of three lessons in which students conduct sustained, independent research during class. While researching, students consider how to use inquiry questions to drive research and continually assess sources for credibility and usefulness in answering inquiry questions.

This lesson is the first of three independent search lessons that is assessed using a **Conducting Independent Searches Checklist**. The **Conducting Independent Searches Checklist** serves as an assessment tool for the teacher while also focusing students on specific aspects of the search process for each independent searches lesson. Two criteria serve as the focus for each independent searches lesson (Lessons 7–9). For Lesson 7, the focus is criteria #1 and #2, Lesson 8's focus is criteria #3 and #4, and Lesson 9's focus is criteria #5 and #6. The teacher provides feedback on the two specific criteria for each conducting independent searches lessons using the **Conducting Independent Searches Checklist**.

Students begin the lesson by engaging in a research process check-in during which they update their **Student Research Plan**. The teacher introduces students to the **Conducting Independent Searches Checklist**, and students conduct research using the steps that they were introduced to in previous lessons. For homework, students continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) and add to the Vocabulary Journal the new vocabulary learned through the research process.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry

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	when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
L.9-10.4 a, c, d	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson will be captured through individual students' completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame.
High Performance Response(s)
A High Performance Response may include the following: • See model tools in Lessons 3–5 for High Performance Responses. ⓘ Use Criteria #1 and #2 on the Conducting Independent Searches Checklist to assess and give feedback on the student's completed research tools.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• None.*
Vocabulary to teach (may include direct word work and/or text-dependent questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.8, W.9-10.7	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability and Research Check-In	2. 15%
3. Conducting Independent Searches Checklist	3. 15%
4. Independent Searches	4. 55%
5. Closing	5. 10%

Materials

- **Research Portfolios** (students have these)
- Student copies of the **Research Plan** (in their **Research Portfolio**)
- Copies of the **Conducting Independent Searches Checklist** for each student
- Student copies of the **Research Frame** (refer to 9.3.2 Lesson 6)
- Copies of the **Potential Sources Tool** for each student (refer to 9.3.1 Lesson 8)
- Student copies of the **Assessing Sources Handout** (refer to 9.3.2 Lesson 4)
- Copies of the **Taking Notes Tool** for each student (refer to 9.3.2 Lesson 5)
- Computers with Internet connection (one for each student)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.8. This lesson is the first of three independent search lessons that are assessed using a Conducting Independent Searches Checklist. This list serves as an assessment tool for the teacher while also focusing students on specific aspects of the search process for each independent searches lesson (Lessons 7–9). Two criteria serve as the focus for each independent searches lesson. Students begin the lesson by engaging in a research process check-in during which they update their Student Research Plan. Then the teacher introduces students to the Conducting Independent Searches Checklist and students conduct research using the steps that they learned in previous lessons.

- Students look at the agenda.

Activity 2: Homework Accountability and Research Check-In 15%

Instruct students to take out the Lesson 6 homework which was the following: Select one to two of your strongest inquiry questions to begin pursuing through independent research by following the research steps outlined in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) using the respective tools for each of the search activities. Additionally, continue to add new vocabulary learned through the research process to the Vocabulary Journal.

- Students take out the Lesson 6 homework.

Instruct students to Turn-and-Talk with a classmate, discussing one credible and useful source they found related to one of the inquiry questions and two new vocabulary words learned through the source.

- Student responses will vary by students' individual research question/problem. Student responses may include the following:
    - I found a new source called "Animal Minds: Minds Of Their Own" that was credible and useful in answering my inquiry question: How are behavior and intelligence related? I found a passage about chimpanzees that is interesting: "In the wild, a chimpanzee may use four sticks of different sizes to extract the honey from a bee's nest. And in captivity, they can figure out how to position several boxes so they can retrieve a banana hanging from a rope." This source shows me that chimpanzees create tools and can problem-solve or change their behavior based on the environment.
    - I have learned two new vocabulary words through the source: "Animal Minds: Minds of Their Own." One word is *primates*. I have heard this word before but never knew its

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meaning. I was able to figure out the meaning from the text where it describes chimpanzees and then uses the word *primates* to describe them.

ⓘ Consider circulating during the pair discussion to monitor student responses.

Instruct students to take out the Student Research Plan from the front of their Research Portfolio.

- Students take out their Student Research Plans.

Distribute the previous lesson's assessment, the Research Frames, with feedback, to each student and instruct students to examine the feedback.

- Students examine the feedback on the Research Frame.

Instruct students to review the Research Plan Part 2, where it discusses annotating and taking notes on sources (Lesson 5) and building a Research Frame (Lesson 6). Instruct students to use the previous lesson's homework and assessment (Research Frame) to journal about their research progress and next steps.

- Students review the Student Research Plan, Part 2 and use the previous lesson's homework and assessment to journal about their research progress and next steps.

- Student responses will vary by individual research question/problem but look for students to use the language of the Student Research Plan when reflecting on their research progress and next steps.

ⓘ Instruct students to continue the Research Journal started in Lesson 3. Students can write on separate sheets of paper or in a notebook and keep the Research Journal in the Research Portfolio.

Instruct students to file the Student Research Plan in the front section of the Research Portfolio and organize the materials from the previous lesson in Section 2: Gathering and Analyzing Information.

Activity 3: Conducting Independent Searches Checklist 15%

Share with students that this lesson begins a series of three lessons in which students will conduct independent searches during class time and for homework. Inform students that each independent searches lesson (Lessons 7–9) will have a different focus but will include all the steps of the research process taught in previous lessons.

- Students listen.

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Display and distribute the Conducting Independent Searches Checklist. Explain to students that the Conducting Independent Searches Checklist synthesizes all the criteria for an effective search in one list. Explain to students that for each independent searches lesson (Lessons 7–9), students will focus on two criteria to assess their research progress. Inform students that for this lesson, criteria 1 and 2 will be the focus. However, this does not mean that all the research steps should not be completed; all of the criteria are important in conducting effective research. Remind students that the skills inherent in the criteria were taught throughout the previous lessons.

- Students examine the Conducting Independent Searches Checklist.

Instruct students to read the criteria in the Conducting Independent Searches Checklist and then Turn-and-Talk in pairs about the criteria. Instruct the pairs to consider the criteria's specific actions and any questions or clarification needed.

- Student responses will vary but listen for students to use the language of the Conducting Independent Searches Checklist while discussing.

Lead a discussion of the criteria's specific actions and questions/clarification needed.

- Criterion #1: Uses inquiry questions to drive research and identify sources.
  - The criterion's action is that the inquiry questions should drive the research. We should be searching for sources that provide information related to our inquiry questions. The research is based on inquiry or answering questions to gain a deeper understanding of the research question/problem.
- Criterion #2: Continually assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.
  - This criterion is describing how to assess sources by using the Potential Sources and Assessing Sources Tools introduced in earlier lessons. It is important to quickly get rid of any sources that are not credible, accessible, or useful.
- Criterion #3: Determines if information is sufficient to address established inquiry paths and questions in the Research Frame and adjusts the search accordingly.
  - This criterion's action is describing how to assess the research and if there is enough to answer inquiry questions or address Inquiry Paths. Sometimes new questions will emerge and some questions will need to be eliminated based on the direction of the research. Sometimes additional sources will need to be explored.
- Criterion #4: Reads sources closely, analyzes details and ideas, and records notes for each source to determine how it addresses inquiry questions and paths.

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- This criterion's action is about selecting key sources to read closely for information that addresses select inquiry questions and paths.

- Criterion #5: Makes decisions about the research direction based on reviews of annotation and notes and relevance to inquiry questions/paths. This may include discontinuing inquiry paths and adding inquiry paths/questions.
  - This criterion's action is about deciding which inquiry paths and questions have been addressed by the research and making decisions about where to go with the research.
- Criterion #6: Marks key info in sources, takes notes of initial impressions, identifies additional research needs, and inserts codes to link to inquiry paths.
  - This criterion's action is about annotating and taking notes on key sources, but also beginning to analyze those sources for how they answer the selected inquiry question. This criterion also contributes to changes in research direction that might take place.

ⓘ These are responses to look for. Consider generating follow-up questions as necessary. Look for essential understanding of the criterion's action, its nonlinear nature, and the repetitive practices that research calls for.

ⓘ Students will not need to complete the Conducing Independent Searches Checklist; it is for teacher accountability purposes only.

Activity 4: Independent Searches 55%

Explain to students they will now transition to independent searches. Remind students they will be assessed on Criteria #1 and #2 on the Conducting Independent Searches Checklist. Remind students of the research steps (planning for searches, assessing sources, annotating, and taking notes).

Transition students to independent searches. Distribute extra tools as needed to each student.

- Students transition to independent searches.

ⓘ Consider displaying the search steps from Lessons 3–5 for students to see.

ⓘ Consider using the media center or library for this lesson so students have access to librarians or media center teachers.

ⓘ Students will need access to computers with Internet capacity for research purposes. Prepare for the lesson ahead of time by reserving space in rooms with technology access for all students.

Circulate around the room to support students as they engage in the research process. Ask students to consult the Conducting Independent Searches Checklist as a reminder of the various components of the research process.

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- Students independently search for sources using the Research Frame and the steps from earlier lessons (planning for searches, assessing sources, annotating, and taking notes).

ⓘ Place students in heterogeneous groups of four or five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own inquiry topics and questions.

Remind students to organize all search materials in their Research Portfolios, Section 2.

ⓘ Remind students to continue considering print and non-text media when researching and to think about how visuals or auditory media can provide information or demonstrate information in ways different from text.

Activity 5: Closing 10%

Inform students that the assessment will be based on Criteria #1 and #2 outlined in the Conducting Independent Searches Checklist.

- Students listen.

Collect the completed research tools from the lesson, including the Potential Sources Tools, Assessing Sources Tools, Taking Notes Tools, and a current Research Frame.

- Students turn-in the completed research tools from the lesson.

Display and distribute the homework assignment. For homework, instruct students to continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) and add to the Vocabulary Journal the new vocabulary they learned through the research process.

- Students follow along.

ⓘ Distribute additional tools as needed. Students should bring in annotated sources and completed research tools as evidence of their independent research.

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ⓘ Consider drawing students' attention to their application of standard L.9-10.4.a,c,d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Homework

Continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) and add to the Vocabulary Journal any new vocabulary you learn through the research process.

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Conducting Independent Searches Checklist

Name:		Class:		Date:	

Conducting Independent Searches Criteria	Teacher Feedback
1. Uses inquiry questions to drive research and identify sources.	
2. Continually assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.	
3. Determines if information is sufficient to address established inquiry paths and questions in the Research Frame and adjusts the search accordingly.	
4. Reads sources closely, analyzes details and ideas, and records notes for each source to determine how it addresses inquiry questions and paths.	
5. Makes decisions about the research direction based on reviews of annotation and notes and relevance to inquiry questions/paths. This may include discontinuing inquiry paths and adding inquiry paths/questions.	
6. Marks key info in sources, takes notes of initial impressions, identifies additional research needs, and inserts codes to link to inquiry paths.	

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9.3.2 Lesson 8

Introduction

In this lesson, students continue to conduct searches independently using the **Research Frame** as a guide, with the associated search tools. This is the second lesson of the independent search process and builds on the previous lesson by focusing students on determining if the research surfaced is sufficient to address established inquiry paths and questions while adjusting the search accordingly. Additionally, students are reading sources closely, analyzing details and ideas, and taking notes for each source to determine how it addresses inquiry questions and paths.

Students begin by using the previous lesson's assessment, with teacher feedback, to assess their current search process by making strategic decisions about changes, additions, and deletions to the **Research Frame**. As a result, students update their **Research Frame** as needed. Students continue to independently research, using the steps previously taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes). For the lesson assessment, students turn in all completed research tools, including **Potential Sources Tools**, **Taking Notes Tools**, and a current **Research Frame**. For homework, students continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes) and add to the **Vocabulary Journal** any new vocabulary learned through the research process.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
L.9-10.4.a,	Determine or clarify the meaning of unknown and multiple-meaning words and phrases

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c, d	based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The learning in this lesson is captured through individual student's completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame.
High Performance Response(s)
A high performance response may include the following: • See the tools in Lessons 3–5 for model responses. ⓘ The research tools will be assessed using the Conducting Independent Searches Checklist (refer to 9.3.2 Lesson 7). Complete feedback for Criteria #3 and #4 on the checklist for each student based on their research tools.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
o None.*
Vocabulary to teach (may include direct word work and/or questions)
o None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards: o Standards: W.9-10.8, W.9-10.7, L.9-10.a, c, d	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Research Check-In	3. 15%
4. Independent Searches	4. 60%
5. Closing	5. 10%

Materials

- **Research Portfolios** (students have these)
- Student copies of the current **Research Frame** (refer to 9.2.3 Lesson 6)
- Computers with Internet connection (one for each student)
- Student copies of the **Assessing Sources Handout** (refer to 9.3.2 Lesson 4)
- Student copies of the **Potential Sources Tool** (refer to 9.3.1 Lesson 8)
- Student copies of the **Taking Notes Tool** (refer to Lesson 9.3.2 Lesson 5)
- Student copies of the **Conducting Independent Searches Checklist** (refer to 9.3.2 Lesson 7)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and sharing the assessed standard for this lesson: W.9-10.8. in this lesson, students use the previous lesson's assessment, with teacher feedback, to assess their search process by making strategic decisions about changes, additions, and deletions to the Research Frame. Students continue to independently research, using the steps previously taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes). Additionally, students turn in all completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame to close the lesson.

- Students look at the agenda.

Activity 2: Homework Accountability 10%

Instruct students to take out the independent research completed for the previous lesson's homework and the Conducting Independent Searches Checklist from the previous lesson.

- Students take out their completed research and the Conducting Independent Searches Checklist.

Instruct students to Turn-and-Talk in pairs about Criteria #1 and #2 on the Conducting Independent Searches Checklist by discussing two examples from the homework (independent research) that best exemplify these criteria.

- Student responses will vary based on their individual research but listen for students to use the language of Criteria #1 and #2 from the Conducting Independent Searches Checklist.

ⓘ Criterion #1 on the Conducting Independent Searches Checklist is the following: Uses inquiry questions to drive research and identify sources. Criterion #2 on the Conducting Independent Searches Checklist is the following: Continually assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.

ⓘ Students were introduced to the Conducting Independent Searches Checklist in the previous lesson.

ⓘ Consider circulating during the partner discussion to monitor students' research progress and hold students accountable for homework completion.

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Activity 3: Research Check-In 15%

Distribute the previous lesson's completed research tools and Conducting Independent Searches Checklist (with teacher feedback on Criteria #1 and #2 only) to each student. Instruct students to examine the materials.

- Students examine the previous lesson's completed research tools and Conducting Independent Searches Checklist (with teacher feedback on Criteria #1 and #2 only).

ⓘ The Conducting Independent Searches Checklist (Criteria #1 and #2) was used to assess the completed research tools. Prepare for the lesson ahead of time by giving feedback on the checklist (Criteria #1 and #2) for each student, based on individual student's completed research tools.

Remind students that this type of inquiry-based research is cyclical and nonlinear. Sometimes new paths will develop and some paths will be abandoned depending on where the research takes you. Instruct students to reflect on their research from the previous lesson's homework and assessment by thinking about how their Research Frame should change or stay the same. Instruct students to Turn-and-Talk in pairs about the following questions:

What inquiry paths deserve more attention and further development?

Which inquiry paths need to be discontinued or abandoned?

What new inquiry questions are emerging?

What new inquiry paths are emerging?

- Students listen and Turn-and-Talk in pairs about the reflection questions.
- Student responses will vary based on the individual student's research question/problem. However, listen for students to discuss changes, additions, and deletions to inquiry questions/paths.

ⓘ Consider modeling changes, additions, and deletions to the model Research Frame that was developed in Lesson 6 if students need more support.

Instruct students to independently revise/refine their Research Frames based on the previous pair reflection.

- Students independently revise/refine their Research Frame.

ⓘ Students can write their revisions directly on their current Research Frame, on an additional Research Frame, or another sheet of paper.

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ⓘ Some students may not need to alter their Research Frame as a result of their research. This is okay as long as the research is sufficient in supporting the current Research Frame. Consider having these students peer review each other's Research Frames and research notes/tools to ensure no alterations are necessary.

Instruct students to organize and file all research and associated materials in the Research Portfolio (Section 2: Gathering and Analyzing Information).

- Students organize and file all research and associated materials in Section 2 of the Research Portfolio.

Activity 4: Independent Searches 60%

Remind students of the search steps from Lessons 3–5 (planning for searches, assessing sources, annotating sources, and taking notes). Also remind students that at the end of this lesson they will be assessed on Criteria #2 and #3 on the Conducting Independent Searches Checklist. Transition students to independent searches.

- Students listen and transition to independent searches.

ⓘ Consider displaying the search steps from Lessons 3–5 for students to see.

ⓘ Consider using the media center or library for this lesson so students have access to librarians or media center teachers.

ⓘ Students will need access to computers with Internet capacity for research purposes. Prepare for the lesson ahead of time by reserving space in rooms with technology access for all students.

Circulate around the room to support students as they engage in the research process. Consider using the Conducting Independent Searches Checklist to monitor students' progress as they research.

- Students independently search for sources using their current Research Frame and the steps from Lessons 3–5 (planning for searches, assessing sources, annotating sources, and recording notes).

ⓘ Place students in heterogeneous groups of four or five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own inquiry topics and questions.

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ⓘ Remind students to continue considering print and non-text media when researching and to think about how visuals or auditory media can provide information or demonstrate information in ways different from text.

Activity 5: Closing 10%

Collect the completed research tools, including Potential Sources Tools, Taking Notes Tools, and the current Research Frame.

- Students turn in all completed research tools along with their current Research Frames.

ⓘ Assess the completed research tools by completing a Conducting Independent Searches Checklist for each student (Criteria #3 and #4 only).

Instruct students to organize this lesson's research in the Research Portfolio.

- Students organize this lesson's research mainly in Section 2 of their Research Portfolios.

Display and distribute the homework assignment. For homework, instruct students to continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes). Additionally, instruct students to add new vocabulary to their Vocabulary Journal by writing about the following:

- Describe where you encountered the word/phrase in the research and why it is proving problematic.
- Discuss how you tried to figure out the meaning of the word/phrase.
- Confirm the word's meaning as it is used in the research text using a reference source (dictionary, encyclopedia, etc.).

ⓘ Consider reminding students to use any of the vocabulary strategies introduced in Unit 1: Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. Verify the meaning of the word or phrase (by checking the inferred meaning in context or in a dictionary). Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical). How do changes in prefixes and suffixes affect word meaning? Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses) to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

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ⓘ Students are expected to read a variety of texts, including appropriately challenging texts with some words they will not necessarily understand. At least one source should be challenging/above grade level in order to provide quality vocabulary for the vocabulary journaling process.

Homework

Continue conducting searches independently, following the steps taught in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes). Additionally, add new vocabulary to the Vocabulary Journal by writing about the following:

- Describe where you encountered the word/phrase in the research and why it is proving problematic.
- Discuss how you tried to figure out the meaning of the word/phrase.
- Confirm the word's meaning as it is used in the research text using a reference source (dictionary, encyclopedia, etc.).

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9.3.2 Lesson 9

Introduction

This lesson is the last in a series of three lessons focused on conducting searches independently. This lesson focuses on Criteria #5 and #6 of the research process addressed in the **Conducting Independent Searches Checklist**. As in Lesson 8, students use the previous lesson's assessment, with teacher feedback, to assess their current search process by making strategic decisions about changes, additions, and deletions to the **Research Frame**. As a result, students update the Research Frame as needed. Students continue to independently research, using the steps previously taught in Lessons 3–5 (plan searches, assess sources, annotate sources, and record notes).

For the lesson assessment, students turn in all completed research tools for the lesson, including **Potential Sources Tools**, **Taking Notes Tools**, and a current Research Frame. For homework, students continue conducting searches independently, following the steps outlined in Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes). Additionally, students organize their research by inquiry paths in the **Research Portfolio**.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
Addressed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

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Assessment

Assessment(s)
The learning in this lesson will be captured by the following: • Students turn in the lesson's completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame. ⓘ Assess the tools by completing a Conducting Independent Searches Checklist (refer to 9.3.2 Lesson 7) for each student using Criteria #5 and #6.
High Performance Response(s)
A high performance response may include the following: • See the tools in Lessons 3–5 for model responses.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• None.*
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.8, W.9-10.7	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability and Research Check-In	2. 20%
3. Independent Searches	3. 60%
4. Closing	4. 15%

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Materials

- Student copies of the **Conducting Independent Searches Checklist** (refer to 9.3.2 Lesson 7)
- **Research Portfolios** (students have these)
- Student copies of the **Research Frame** (refer to 9.3.2 Lesson 6)
- Student copies of the **Potential Sources Tool** for each student (refer to 9.3.1 Lesson 8)
- Student copies of the **Assessing Sources Handout** (refer to 9.3.2 Lesson 4)
- Student copies of the **Taking Notes Tool** (refer to 9.3.2 Lesson 5)
- Computers with Internet connection (one for each student)
- Copies of the **Independent Searches Self-Evaluation Tool** for each student (optional activity)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
❝	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and sharing the assessed standard for this lesson: W.9-10.8. In this lesson, students use the previous lesson's assessment, with teacher feedback, to assess their current search process by making strategic decisions about changes, additions, and deletions to the Research Frame. Students continue to independently research, using the steps previously taught in Lessons 3–5 (plan searches, assess sources, annotate sources, and record notes). Additionally, students turn in all completed research tools from the lesson, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame.

▸ Students look at the agenda.

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Activity 2: Homework Accountability and Research Check-In 20%

Instruct students to take out the independent research completed for the previous lesson's homework and the Conducting Independent Searches Checklist.

Instruct students to Turn-and-Talk with a classmate about Criteria #3 and #4 on the Conducting Independent Searches Checklist by discussing two examples from the homework (independent research) that best exemplify these criteria.

- Student responses will vary based on their individual research but listen for students to use the language of Criteria #3 and #4 from the Conducting Independent Searches Checklist while discussing.

ⓘ Criterion #3 on the Conducting Independent Searches Checklist is the following: Determines if information is sufficient to address established inquiry paths and questions in the Research Frame and adjusts the search accordingly. Criterion #4 is the following: Reads sources closely, analyzes details and ideas, and takes notes for each source to determine how it addresses inquiry questions and paths.

ⓘ Students were provided with a Conducting Independent Searches Checklist in Lessons 7 and 8.

ⓘ Consider circulating during the pair discussion to monitor students' research progress and to hold students accountable for homework completion.

Distribute the previous lesson's assessment (completed research tools) and the Conducting Independent Searches Checklist (with teacher feedback on Criteria #3 and #4 only) to each student. Instruct students to examine the materials.

- Students examine the previous lesson's assessment (completed research tools) and the Conducting Independent Searches Checklist (with teacher feedback on Criteria #3 and #4 only).

ⓘ The Conducting Independent Searches Checklist (Criteria #3 and #4) was used to assess the completed research tools. Prepare for the lesson ahead of time by giving feedback on the checklist (Criteria #3 and #4) for each student, based on individual students' completed research tools.

Inform students that today is the concluding lesson on independent searches. Remind students they will continue to research outside of class for homework. Share with students that they will be reflecting on the previous lesson's homework and assessment materials by thinking about how their Research Frame should change or stay the same before beginning to conduct more independent research in this lesson.

- Students listen.

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Instruct students to reflect on the following questions by revising/refining their Research Frame accordingly:

What inquiry paths deserve more attention and further development?

What inquiry paths need to be discontinued or abandoned?

What new inquiry questions are emerging?

What inquiry questions can be discontinued or abandoned?

- Students reflect on the previous questions by revising/refining their Research Frame accordingly.

ⓘ Consider reminding students to use their completed research and teacher feedback, based on the previous lessons' assessments (Lessons 7 and 8) to support their revisions.

ⓘ Students can write their revisions directly on the current Research Frame, on an additional Research Frame, or another sheet of paper.

ⓘ Some students may not need to alter the Research Frame as a result of their research. Consider having these students peer review each other's Research Frames and research notes/tools to ensure no alterations are necessary.

ⓘ If students need more support, consider modeling for students how to revise/refine the Research Frame by using the model Research Frame developed in Lesson 6.

Instruct students to organize and file their research materials from the previous lesson's homework and assessment in the Research Portfolio.

- Students organize and file their research materials in the Research Portfolio.

Activity 3: Independent Searches 60%

Remind students of the search steps from Lessons 3–5 (plan searches, assess sources, annotate sources, and take notes). Also, remind students that at the end of this lesson they will be assessed on Criteria #5 and #5 on the Conducting Independent Searches Checklist. Transition students to independent searches.

- Students listen and transition to independent searches.

ⓘ Consider displaying the search steps from Lessons 3–5 for students to see.

ⓘ Consider using the media center or library for this lesson so students have access to librarians or media center teachers.

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ⓘ Students will need access to computers with Internet capacity for research purposes. Prepare for the lesson ahead of time by reserving space in classrooms with technology access for all students.

Circulate around the room to support students as they engage in the research process. Consider using the Conducting Independent Searches Checklist to monitor student progress as they research.

- Students independently search for sources using a current Research Frame and the steps from Lessons 3–5 (plan for searches, assess sources, annotate sources, and record notes).

ⓘ Place students in heterogeneous groups of four to five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own inquiry topics and questions.

ⓘ Remind students to continue considering print and non-text media when researching and to think about how visuals or auditory media can provide or demonstrate information in ways different from text.

Activity 4: Closing 15%

Collect today's completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame.

- Students turn in today's completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame.

ⓘ Use Criteria #5 and #6 outlined in the Conducting Independent Searches Checklist to assess individual student's research progress, based on their completed research tools. See the High Performance Response for more information.

ⓘ Criteria #'s 1, 2, 3, and 4 have been previously assessed in the previous independent search lessons (Lessons 7 and 8). Criteria #'s 5 and 6 will be assessed for the first time in this lesson. All criteria may be self-assessed using the Independent Searches Self-Evaluation Tool.

ⓘ Optional Activity: Have students complete a self-evaluation using the criteria from the Conducting Independent Searches Checklist. Explain how to complete the Independent Searches Self-Evaluation by explaining to students that they rate their progress on each search criterion. Explain the following rating scale: 1 = Fails to meet criteria, 2 = Somewhat meets criteria, 3 = Meets criteria, and 4 = Exceeds criteria. Explain to students they can rate themselves however they deem appropriate but

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must provide an explanation for their rating with two examples (at least) from their research process. The examples provided should directly address the criterion's action. Copies of the Independent Searches Self-Evaluation Tool are provided at the end of the lesson.

Instruct students to organize this lesson's research in their Research Portfolios.

- Students organize this lesson's research mainly in Section 2 of their Research Portfolio.

Display and distribute the homework assignment. For homework, instruct students to continue conducting searches independently, following the steps taught in Lessons 3–5 (plan searches, assess sources, annotate sources, and record notes). Additionally, instruct students to organize the multiple sources and research tools by inquiry path in the Research Portfolio.

- Students follow along.

ⓘ Distribute additional tools as needed. Students should bring in annotated sources and completed research tools as evidence of their independent research.

Instruct students to examine their current Research Frames and Research Portfolios. Direct students to compile and organize all of their notes, annotated sources, and tools for each inquiry path by reorganizing Section 3 of the Research Portfolio by inquiry path, or by marking their notes, annotated sources, and tools by the inquiry path number that is located on the Research Frame. Remind students to put research information that is not useful or relevant in Section 4 of the Research Portfolio.

- Students follow along.

ⓘ Section 3 of the Research Portfolio is the Drawing Conclusions Section. Section 4 of the Research Portfolio is the Discarded Material Section.

ⓘ Students may have their own system for organizing their research materials by inquiry path. The goal is for students to organize their research materials by inquiry path so how that goal is achieved may look different for individual students.

ⓘ This homework requires students to take home the Research Portfolio.

Homework

Continue conducting searches independently, following the steps taught in Lessons 3–5 (plan searches, assess sources, annotate sources, and record notes). Additionally, organize the multiple sources and research tools by inquiry path in the Research Portfolio.

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Optional Activity: Independent Searches Self-Evaluation Tool

Name:		Class:		Date:	

Instructions: Complete the following self-evaluation of your research work from Lessons 7–9 by rating each criterion and explaining why you gave yourself that rating, including two specific examples from your research work that supports the explanation of each rating.

The ratings are as follows:

- 1 = Fails to meet criteria
- 2 = Somewhat meets criteria
- 3 = Meets criteria
- 4 = Exceeds criteria

Conducting Independent Searches Criteria	Rating	Explanation and Examples From Research Work
1. Uses inquiry questions to drive research and identify sources.		
2. Determines if information is sufficient to address established inquiry paths and questions in the Research Frame and adjusts the search accordingly.		

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Conducting Independent Searches Criteria	Rating	Explanation and Examples From Research Work
3. Makes decisions about the research direction based on reviews of annotation and notes and relevance to inquiry questions/paths. This may include discontinuing inquiry paths and adding inquiry paths/questions.		
4. Continually assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.		
5. Reads sources closely, analyzes details and ideas, and records notes for each source to determine how it addresses inquiry questions.		
6. Marks key info in sources, takes notes of initial impressions, identifies additional research needs, and inserts codes to link to inquiry paths.		

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Model Optional Activity: Independent Searches Self-Evaluation Tool

Name:		Class:		Date:	

Instructions: Complete the following self-evaluation of your research work from Lessons 7–9 by rating each criterion and explaining why you gave yourself that rating, including two specific examples from your research work that supports the explanation of each rating.

The ratings are as follows:

- 1 = Fails to meet criteria
- 2 = Somewhat meets criteria
- 3 = Meets criteria
- 4 = Exceeds criteria

Conducting Independent Searches Criteria	Rating	Explanation and Examples From Research Work
1. Uses inquiry questions to drive research and identify sources.	4	I have used inquiry questions to drive my research and identify several sources. Two specific questions I used are: Does behavior imply thought? and How do animals show they are thinking? I used the above questions to find a source, "Animal Minds: Minds of Their Own" that provided information for both of these questions, including discussion of how researchers are teaching animals language to show they are capable of higher mental abilities.
2. Determines if information is sufficient to address established inquiry paths and questions in the Research Frame and adjusts the search accordingly.	4	I have read at least five academic sources and determined that they will provide me with enough information to fully address Inquiry Paths #1 and #2. I was able to answer most of my Inquiry Questions within these Inquiry Paths or at least ask new questions that would fit into the Inquiry Paths, based on the Inquiry Path topic. (Examples = To what extent are animal experiments valid if they do not take place in the animal's natural environment? How do we measure the difference between instincts and higher thinking?) I was able to answer some of the questions in Inquiry Path #3, including: Where does our perspective on animal intelligence come from? And How do humans view animal

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		intelligence research? However, I had to abandon most of the questions because of lack of information. I was not able to find information on many questions including: How does our understanding of animal intelligence affect the way we treat animals? and What can animal intelligence research tell us about humans with disabilities?
3. Makes decisions about the research direction based on reviews of annotation and notes and relevance to inquiry questions/paths. This may include discontinuing inquiry paths and adding inquiry paths/questions.	4	I was able to eliminate an entire inquiry path (Inquiry Path #3) from my Research Frame when I realized it was not working and no information could be found (Why research animal intelligence?). I was able to add a new inquiry path in its place based on several Inquiry Questions that led to plentiful research. I changed Inquiry Path #3 to: How has animal intelligence research evolved over time? This question led to more information including a history of animal intelligence research.
4. Continually assesses sources for credibility; identifies the usefulness of a particular source and explains why a particular source does or does not help respond to an inquiry question.	4	See model tools in Lesson 4.
5. Reads sources closely, analyzes details and ideas, and records notes for each source to determine how it addresses inquiry questions.	4	See model tools in Lesson 5.
6. Marks key info in sources, takes notes of initial impressions, identifies additional research needs, and inserts codes to link to inquiry paths.	4	See model tools in Lesson 5.

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9.3.2 Lesson 10

Introduction

In this lesson, students analyze and synthesize their research to begin making claims about inquiry questions within an inquiry path. Students use at least two **Forming Evidence-Based Claims (EBC) Tools** to develop claims about all inquiry paths on the **Research Frame**.

Students begin by choosing the inquiry path that yielded the richest research. Then students narrow the focus down to a single inquiry question. Students then reread/skim their research associated with that inquiry question, including annotated sources and the **Taking Notes Tools**. Students highlight the pertinent evidence directly on the annotated sources or the **Taking Notes Tools**. Students then select details from the highlighted evidence to make claims about the inquiry path by completing **Forming Evidence-Based Claims Tools**. These initial claims serve as the foundation for the **Evidence-Based Perspective** students will develop in Lessons 11 and 12. At the end of this lesson, students are assessed on their **Forming Evidence-Based Claims Tools** using the **Evidence-Based Claims Criteria Checklist**. For homework, students continue the process introduced in the lesson by analyzing and synthesizing their research and completing at least two **Forming EBC Tools** for all inquiry paths on the **Research Frame**.

Standards

Assessed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Addressed Standard(s)	
RI.9-10.7	Analyze various accounts of a subject told in different mediums, determining which details are emphasized in each account.

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Assessment

Assessment(s)
The learning in this lesson will be captured on the Forming Evidence-Based Claims Tools: • Students use at least two Forming Evidence-Based Claims Tools to develop claims about one inquiry path. ⓘ Assess the tools using the Evidence-Based Claims Criteria Checklist.
High Performance Response(s)
A high performance response may include the following: • Individual student tools will vary by the individual's research question/problem. See the model Forming Evidence-Based Claims Tool at the end of the lesson for model student responses.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• yielded (v.) – gave forth or produced
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.7, W.9-10.9, RI.9-10.7	

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Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability and Research Check-In	2. 15%
3. Analyzing Research	3. 50%
4. Synthesizing Research (Lesson Assessment)	4. 25%
5. Closing	5. 5%

Materials

- At least six copies of **Forming Evidence-Based Claims Tools** for each student
- Copies of **Evidence-Based Claims Criteria Checklist** for each student
- **Research Portfolios** (students have these)
- Highlighters (one for every student)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and sharing the assessed standards for this lesson: W.9-10.7 and W.9-10.9. In this lesson, students choose an inquiry path that yielded rich research and then narrow down the focus to a single inquiry question. Students then reread/skim their research associated with that inquiry question, including annotated sources and the Taking Notes Tools. Students highlight the important evidence directly on the annotated sources or the Taking Notes Tools. Students then select details from the highlighted evidence to make claims about the inquiry path by completing Forming

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Evidence-Based Claims Tools. These initial claims serve as the foundation for the Evidence-Based Perspective students develop in Lessons 11 and 12.

- Students look at the agenda.

Activity 2: Homework Accountability and Research Check-In 15%

Inform students that they will discuss the previous lesson's assessment and homework. Distribute the previous lesson's assessment (completed research tools) to each student.

- Students examine the assessment from the previous lesson.

ⓘ The assessment for Lesson 9 was the following: Completed research tools, including Potential Sources Tools, Taking Notes Tools, and a current Research Frame. All of these materials should be redistributed to the students at this time. Prior to this lesson, all of these materials should be assessed using the Conducting Independent Searches Checklist (located in Lesson 8), focusing on Criteria #5 and #6 only.

Instruct students to take out the homework from the previous lesson, including their completed research and the organized research from their Research Portfolios.

- Students take out their completed research and organized research in the Research Portfolio.

ⓘ The previous lesson's homework was the following: Continue conducting searches independently, following the steps taught in Lessons 3–5 and organize all research notes, annotated sources, and tools by inquiry path.

Instruct students to examine the organized Research Portfolio and previous lesson's work and Turn-and-Talk in pairs about which inquiry paths from their Research Frame yielded the richest information from the source materials.

- Students Turn-and-Talk in pairs about which inquiry paths from their Research Frame yielded the richest information from the source materials.

ⓘ Consider defining the word *yielded* ("gave forth or produced"). Explain that students should be looking for inquiry paths that produced the most useful and ample information based on the searches.

- Student responses may include the following:
  - I noticed that I had several relevant and useful resources for Inquiry Path #1. These references provided some answers to each of the inquiry questions within this path. So, Inquiry Path #1 seems to be the richest path in terms of information across multiple sources.

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- I noticed that I was able to answer several questions within each inquiry path but not address all the inquiry questions within one path. My research is scattered across multiple paths.

ⓘ Circulate around the room to monitor student progress and hold students accountable for the previous lesson's homework by listening for students to use evidence from their research.

Instruct students to take out the Student Research Plan from the front of the Research Portfolio and examine Part 2: Gathering Information. Instruct students to journal about their research progress and next steps based on Part 2: Gathering Information in their Research Journal.

- Student responses will vary by individual research question/problem but look for students to use the language of the Student Research Plan and evidence from their specific research.

ⓘ The Student Research Plan and research journal was introduced in Lesson 2.

Instruct students to organize and file the Student Research Plan, Research Journal, and the other homework and assessment materials in the Research Portfolio.

- Students organize and file their materials in their Research Portfolios.

Activity 3: Analyzing Research 50%

Explain to students that they have been focused on gathering and analyzing specific research sources for the individual questions in their inquiry paths. Explain that students will now take a more global perspective on their research by returning to the Research Frame and rereading and analyzing evidence across multiple sources to see if they can answer some of their inquiry questions. Inform students the goal of this activity is to think about the understanding that is developing about each inquiry path now that the research is mostly complete.

- Students listen.

ⓘ After this lesson's activities, some students will continue researching if they have yet to find enough evidence to directly support a claim about each inquiry path.

Explain to students that they will follow specific steps to analyze the research in order to think about their developing understanding about each inquiry path. Display and explain each step:

- Step #1: Review the Research Frame and analyze each inquiry path. Choose an inquiry path that surfaced the richest research across multiple sources. This inquiry path will now become your focus inquiry path.

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- Step #2: Analyze the focus inquiry path and circle inquiry questions within the path that led to the most useful and relevant research.
- Step #3: Choose one of the circled inquiry questions and reread/skim all the research associated with that one inquiry question by highlighting evidence and details that answer the chosen inquiry question. This step may include reading/skimming across multiple sources for one inquiry question.
- Exception to Step #3: If five or more inquiry questions are circled within one inquiry path, then an optional step can be to choose the inquiry path question itself to reread and analyze the research associated with that path.
- Step #4: Continue to repeat this process for each inquiry path (even for inquiry paths that did not yield the most interesting or rich research).

  - Students listen and examine the steps.

Display the model Research Frame (from Lesson 6) for students to see.

  - Students examine the model Research Frame.

ⓘ The model Research Frame is located in Lesson 6 and has been used throughout the unit to model content for students.

Model for students how to follow the research analysis steps. Explain to students that Step #1 states: Review the Research Frame and analyze each inquiry path. Choose an inquiry path that surfaced the richest research across multiple sources. This inquiry path will now become your focus inquiry path. Explain to students that after examining all the inquiry paths, you decided that two paths yielded the richest research: Inquiry Path #1: How is animal intelligence measured? and Inquiry Path #2: How do animals display intelligence? Most of the resources addressed both of these paths. However, when looking at the questions within each path, Inquiry Path #1's questions led to the most relevant and useful information, so Inquiry Path #1 should be the focus path for this first analysis process.

  - Students listen and follow along with the modeling.

Model for students how to complete Step #2: Analyze the focus inquiry path and circle inquiry questions within the path that led to the most useful and relevant research. Explain to students that you are examining the focus inquiry path (Inquiry Path #1) and all the questions within it, and thinking about the independent searches previously conducted. Explain to students that many of the inquiry questions within Inquiry Path #1 were answered through research including the following: What experiments could be used to reveal animal intelligence? How is animal intelligence measured differently for various kinds of animals? How have our attempts to measure animal intelligence evolved over time? Is it possible to measure animal intelligence without anthropomorphizing animals? To what extent are animal experiments valid if they do not take place in the animal's natural environment? Circle the questions for students to see.

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- Students listen and follow along with the modeling.

Explain to students that Step #3 in the research analysis process is to choose one of the circled inquiry questions, reread/skim all the research associated with the chosen inquiry question, and highlight evidence and details that answer the chosen inquiry question. This step may include reading across multiple sources for one inquiry question. Explain to students that since more than five inquiry questions were circled on the model Research Frame, the inquiry path question itself can be used as the question to focus the rereading and analysis of the associated research. Circle the inquiry path question itself: How is animal intelligence measured?

- Students listen.

Model for students how to use the inquiry path question itself to guide the research analysis: How is animal intelligence measured? Demonstrate how to skim through a source to find, read, and highlight key evidence associated with the chosen inquiry question. Skim through Source #1 "The Brains of the Animal Kingdom" and discuss which evidence to highlight for the chosen inquiry question: How is animal intelligence measured?

- Students listen and follow along with the modeling.

ⓘ Possible highlighted evidence to model from Source #1 "The Brains of the Animal Kingdom" is the following: "Experiments with animals have long been handicapped by our anthropocentric attitude: We often test them in ways that work fine with humans but not so well with other species" and "Scientists are now finally meeting animals on their own terms instead of treating them like furry (or feathery) humans, and this shift is fundamentally reshaping our understanding."

ⓘ Prior to this lesson, students have annotated and recorded notes on all their sources; they will not need to read every source closely again but can skim through for key evidence and details associated with the chosen inquiry question. Consider modeling how to skim if students struggle with this skill.

ⓘ The source "The Brains of the Animal Kingdom" is used to model how to find evidence related to specific inquiry questions. Feel free to use any source to model this skill.

Instruct students to look at their individual Research Frames and follow the first three steps of the research analysis process by choosing one inquiry path to focus on, circling inquiry questions, and finally choosing one focus inquiry question. Remind students to circle questions within the inquiry path that led to relevant and useful research.

- Students look at their individual Research Frames and choose a rich inquiry path to focus on, circle inquiry question(s) within the path, and choose one focus inquiry question.

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ⓘ Again, students can choose the inquiry path question itself to guide their research analysis. It is dependent on how many inquiry questions were circled within one inquiry path. See the exception in the research analysis process steps above.

ⓘ Instruct students to highlight evidence and details that answer the chosen inquiry question using highlighters. Remind students they are looking for how the multiple pieces of research answer the chosen inquiry question.

ⓘ Circulate while students are working to monitor their progress. If students struggle with the analysis process, consider modeling with an individual student's chosen inquiry question to highlight evidence and details that answer the question.

Activity 4: Synthesizing Research (Lesson Assessment) 25%

Inform students they are now going to use a Forming Evidence-Based Claims Tool to synthesize or combine their highlighted evidence associated with their focus inquiry question. Explain to students that it is important to think about how the multiple pieces of research connect and what the research is saying about the focus inquiry question. Explain that this work will help students develop a deeper understanding of the research itself and its connections to the research question/problem (area of investigation). Inform students that this work will be the foundation for developing a perspective about their research question/problem in subsequent lessons.

- Students listen.

ⓘ Students were introduced to making claims in Module 9.2.

ⓘ **Differentiation Consideration:** Consider reminding students of the definition of *synthesize* ("to combine into a single or unified entity") for students.

Distribute several copies (at least six) of the Forming Evidence-Based Claims Tool to all students.

- Students examine the Forming EBC Tool.

Display a model Forming EBC Tool for all students to see. Model for students how to complete the top portion of the Forming EBC Tool by writing the model source numbers: 1 and 5, and the model Inquiry Question: How is animal intelligence measured?

- Students follow along with the modeling.

Instruct students to complete the top portion of their blank Forming EBC Tool, writing their chosen inquiry question and the numbers of the sources they analyzed in the previous activity.

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- Students complete the top portion of their blank Forming EBC Tool using the analysis work from the previous activity.

ⓘ The source numbers have been labeled on the Potential Sources Tools and the Taking Notes Tools as students independently searched in Lessons 7–9. These tools were introduced in Lessons 3–5.

Model for students how to select details from the highlighted research analysis to complete the "Selecting Details" portion of the Forming EBC Tool. Show students several highlighted pieces of evidence from Sources 1 and 5. Explain to students that they should choose the most important evidence that answers the focus inquiry question. Model for students how to choose the most important evidence from model highlighted evidence. Then write these details on the model Forming EBC Tool for students to see. Explain to students that these specific examples all have to do with how animal intelligence is measured now and why that makes it successful. These should include the following:

- "Experiments with animals have long been handicapped by our anthropocentric attitude: We often test them in ways that work fine with humans but not so well with other species" (Source #1).
- "We suggest a simple answer: by pursuing animal cognition with the methods of natural science." "… but careful and impartial experimentation alone can yield incontestable evidence of animal cognition" (Source #5).
- "Scientists are now finally meeting animals on their own terms instead of treating them like furry (or feathery) humans, and this shift is fundamentally reshaping our understanding" (Source #1).

ⓘ Model Source #1 is "The Brains of the Animal Kingdom" and model Source #5 is "Animal Intelligence: How We Discover How Smart Animals Really Are."

- Students listen and follow along with the model.

ⓘ The sources "The Brains of the Animal Kingdom" and "Animal Intelligence: How We Discover How Smart Animals Really Are" are used in the model Forming Evidence-Based Claims Tool. Feel free to use any source to model using the Forming Evidence-Based Claims Tool.

Instruct students to analyze the highlighted evidence from their research and select the most important details to answer their chosen inquiry question. Instruct students to write the selected details on the Forming EBC Tool in the "Selecting Details" section. Remind students to write the source's number on the reference line so they do not separate the resource from the evidence.

- Students analyze the highlighted evidence from their research and write the most important details on the Forming EBC Tool.

ⓘ Circulate and monitor student progress during this guided practice.

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Model for students how to complete the "Analyzing and Connecting Details" section of the Forming EBC Tool. Ask students to consider what the details say about the chosen inquiry question and how connections can be made among the details when considering the chosen inquiry question. Model this thinking and write on the model Forming EBC Tool in the "Analyzing and Connecting Details" section for students to see.

- The details suggest that past animal intelligence research has been limited because of human influence on the research experiments. In the past, human-designed animal experiments have not worked well for animals and may not show an animal's true intelligence potential. Animal research has shifted. The animal's perspective as well as their environment is considered as an integral part of successful experiments. This shift in thinking has produced more research that shows evidence of animal intelligence.

  - Students follow along with the modeling.

Instruct students to practice on their own Forming EBC Tool by thinking about their details and how they are connected in light of their chosen inquiry question. Instruct students to write their thinking in the "Analyzing and Connecting Details" section on the Forming EBC Tool.

  - Students make connections between the important details and write these connections in the "Analyzing and Connecting Details" section on the Forming EBC Tool.

Model for students how to develop a claim that answers the chosen inquiry question by completing the "Making a Claim" section on the Forming EBC Tool. Ask students to think about what conclusions or answers they are developing based on their detail analysis. Write the following claim on the model Forming EBC Tool in the "Making a Claim" section for students to see: The animal's perspective is essential to consider if experiments are going to accurately measure their intelligence.

  - Students follow along with the modeling.

Instruct students to develop their own claim and write it on their Forming EBC Tool in the "Making a Claim" section.

  - Students develop a claim in the "Making a Claim" section on the Forming EBC Tool.

Explain to students that for the previous analysis, they only chose one inquiry question within the path or the inquiry path question itself. Either way, they can analyze the rest of their research evidence and develop more claims about their other inquiry questions.

  - Students listen.

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Instruct students to review their focused inquiry path with the circled inquiry questions. Inform students that they will continue to use Forming EBC Tools to develop claims about all the circled questions within the inquiry path. Instruct students to begin developing claims for their focus inquiry path.

- Students use Forming EBC Tools to develop claims about the circled inquiry questions within the chosen inquiry path.

ⓘ This is the lesson assessment. Instruct students to turn in at least two completed Forming EBC Tools at the lesson's closing.

ⓘ If students have chosen the inquiry path question itself, they should still be able to complete multiple Forming EBC Tools, as they should have plenty of evidence to analyze and make a variety of claims about the inquiry path question itself. (See the model responses at the end of the lesson for an example of this.)

Activity 5: Closing 5%

Instruct students to turn in two completed Forming EBC Tools for assessment purposes.

- Students turn in two completed Forming EBC Tools.

ⓘ Assess the completed Forming EBC Tools using the EBC Criteria Checklist.

Display and distribute the homework assignment. For homework, instruct students to complete the process introduced in the lesson by organizing, analyzing, and synthesizing their research and using at least two Forming EBC Tools to develop claims about all inquiry paths on the Research Frame.

- Students follow along.

ⓘ This homework requires students to take home the Research Portfolio.

Homework

Continue to complete the process introduced in the lesson by organizing, analyzing, and synthesizing your research and using at least two Forming EBC Tools to develop claims about all inquiry paths on the Research Frame.

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Name ..... Source(s) #.....

Inquiry Question:

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.:)	Detail 2 (Ref.:)	Detail 3 (Ref.:)

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

CC BY-NC

FORMING EVIDENCE-BASED CLAIMS

Name Student Response **Source(s) #** 1 and 5

Inquiry Question: How is animal intelligence successfully measured?

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.: 1)

"Experiments with animals have long been handicapped by our anthropocentric attitude: We often test them in ways that work fine with humans but not so well with other species."

Detail 2 (Ref.: 5)

"We suggest a simple answer: by pursuing animal cognition with the methods of natural science." "...but careful and impartial experimentation alone can yield incontestable evidence of animal cognition."

Detail 3 (Ref.: 1)

"Scientists are now finally meeting animals on their own terms instead of treating them like furry (or feathery) humans, and this shift is fundamentally reshaping our understanding."

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

The details suggest that past animal intelligence research has been limited because of human influence on the research experiments. In the past, human-designed animal experiments have not worked well for animals and may not show an animal's true intelligence potential. Animal research has shifted. The animal's perspective as well as their environment is considered as an integral part of successful experiments. This shift in thinking has produced more research that shows evidence of animal intelligence.

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

The animal's perspective is essential to consider if experiments are going to accurately measure their intelligence.

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Name Student Response **Source(s) #** 3 and 2

Inquiry Question: How is animal intelligence measured?

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.: 3)

"The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing."

Detail 2 (Ref.: 2)

"A few recent research papers describe animal competence at social and cognitive tasks that humans often struggle with—mastering conversational etiquette..."

Detail 3 (Ref.: 2)

"Although imitation was once regarded as a simpleminded skill, in recent years cognitive scientists have revealed that it's extremely difficult...actions that imply an awareness of one's self."

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

The details suggest that animal intelligence research can assess animal intelligence by observing certain skills like social awareness and imitation. The chimp's "fake-laugh" is a great example of an animal following social codes and acting in a way that demonstrates intelligence. This is not mindless copying and also shows that the human perspective of the research is also important when studying animal intelligence.

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

Animal intelligence can be measured by observing social awareness skills.

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EVIDENCE-BASED CLAIMS CRITERIA CHECKLIST		✓	COMMENTS
I. CONTENT AND ANALYSIS ***An EBC is a clearly stated inference that arises from reading texts closely.***	**Clarity of the Claim:** States a conclusion that you have come to after reading and that you want others to think about.	☐	
	Conformity to the Text: Is based upon and linked to the ideas and details you have read.	☐	
	Understanding of the Topic: Demonstrates knowledge of and sound thinking about a text or topic that matters to you and others.	☐	
II. COMMAND OF EVIDENCE ***An EBC is supported by specific textual evidence and developed through valid reasoning.***	**Reasoning :** All parts of the claim are supported by specific evidence you can point to in the text(s).	☐	
	Use and Integration of Evidence: Uses direct quotations and examples from the text(s) to explain and prove its conclusion.	☐	
	Thoroughness and Objectivity: Is explained thoroughly and distinguishes your claim from other possible positions.	☐	
III. COHERENCE AND ORGANIZATION ***An EBC and its support are coherently organized into a unified explanation.***	**Relationship to Context:** States where your claim is coming from and why you think it is important.	☐	
	Relationships among Parts: Groups and presents supporting evidence in a clear way that helps others understand your claim.	☐	
	Relationship to Other Claims: Can be linked with other claims to make an argument.	☐	
IV. CONTROL OF LANGUAGE AND CONVENTIONS ***An EBC is communicated clearly and precisely, with responsible use/ citation of supporting evidence.***	**Clarity of Communication:** Is clearly and precisely stated, so that others understand your thinking.	☐	
	Responsible Use of Evidence: Quotes from the text accurately.	☐	

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9.3.2 Lesson 11

Introduction

In this lesson, students organize, analyze, and synthesize their claims (**Forming Evidence-Based Claims Tools**) from the previous lesson to develop comprehensive claims about each inquiry path in the **Research Frame**.

Students begin the lesson by organizing the claims they created in the previous lesson by physically arranging the **Forming Evidence-Based Claims (EBC) Tools** according to the inquiry paths they address. Students analyze and make connections between these specific claims and the research evidence to develop comprehensive claims about each inquiry path. Students use **Organizing Evidence-Based Claims Tools** to write the comprehensive claims about each inquiry path. Students then work in small groups to peer review one **Organizing Evidence-Based Claims Tool** using an **Evidence-Based Claims Criteria Checklist**. For the lesson assessment, students synthesize the information from an **Organizing Evidence-Based Claims Tool** into a paragraph explaining the claim and the evidence that supports it.

This work directly prepares students for developing and writing an Evidence-Based Perspective for the End-of-Unit Assessment in the next lesson. Students build on the claims created in the previous lesson to develop comprehensive claims that reflect a deeper understanding of the inquiry paths and the research question/problem itself. For homework, students review all of their **Organizing Evidence-Based Claims Tools** using the **Evidence-Based Claims Criteria Checklist**. Students will revise their claims, if necessary, to prepare for the next lesson's End-of-Unit Assessment.

Standards

Assessed Standard(s)	
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
Addressed Standard(s)	
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.

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SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.

Assessment

Assessment(s)
The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will craft a response to the following prompt using an Organizing Evidence-Based Claims Tool from the lesson. • Develop a claim about an inquiry path or your research question/problem and support it using specific evidence and details from your research. ⓘ The Quick Write will be assessed using the Evidence-Based Claims Criteria Checklist.
High Performance Response(s)
A high performance response may include the following: • Researchers can measure animal intelligence by observing qualities of intelligence that are shared by humans, but they must design experiments that consider the animal's perspective. Animals share traits of intelligence with humans, specifically social awareness skills. Scientists can also measure animal intelligence by observing social awareness skills—the same skills humans exhibit. For example, chimpanzees are able to "fake laugh," a skill that humans can also do. Researchers were able to show that chimpanzees "engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter." This shows that chimpanzees were engaging in fake laughing with fellow chimpanzees, a social awareness skill that demonstrates an advanced mental capacity. Even though researchers can measure animal intelligence by observing similar human-like skills or qualities, they must maintain the animal's perspective if they are to get accurate measurements or research. Animal intelligence researchers have shifted their attitudes and believe that "meeting animals on their own terms instead of treating them like furry (or feathery) humans" will result in the most accurate and relevant animal intelligence research. And, researchers are designing experiments that "provide other ways for animals to disclose their intelligence to us." Even though animals cannot speak, there may be other ways that show us how smart animals truly are. ⓘ *The evidence in this high performance response comes from the following model sources: Source #3 "Think You're Smarter Than Animals? Maybe Not," Source #2 "Animal Minds: Minds of Their Own," and Source #1 "The Brains of the Animal Kingdom."

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Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• comprehensive (adj.) – of large scope, covering or involving much, inclusive • clarity (n.) – the state of being clear or transparent • thoroughness (adj.) – complete, extremely attentive to accuracy and detail • objectivity (n.) – the state or quality of not being influenced by personal feelings or prejudice
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Because this is not a close reading or research lesson, there is no specified vocabulary. However, in the process of returning to the source texts, students may uncover unfamiliar words. Teachers can guide students to make meaning of these words by following the protocols described in 1E of this document http://www.engageny.org/sites/default/files/resource/attachments/9-12_ela_prefatory_material.pdf.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.4, W.9-10.7, W.9-10.9, SL.9-10.1	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability and Research Process Check-In	2. 10%
3. Organizing and Developing Comprehensive Claims	3. 40%
4. Peer Review: Assessing Claims	4. 25%
5. Quick Write	5. 15%
6. Closing	6. 5%

Materials

- Copies of **Organizing Evidence-Based Claims Tools** for each student (one point, two point and three point)
- Model **Research Frame** (refer to 9.3.2 Lesson 6)

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- Student copies of **Evidence-Based Claims Criteria Checklist** (refer to 9.3.2 Lesson 10)
- **Research Portfolios** (students have these)
- Student copies of **Forming Evidence-Based Claims Tools** (refer to 9.3.2 Lesson 10)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standards for this lesson: W.9-10.4 and W.9-10.7. Explain that in this lesson, students use the Organizing Evidence-Based Claims Tool to make comprehensive claims by identifying connections between the specific claims and evidence from the previous lesson (Forming Evidence-Based Claims Tools). Students then peer review one Organizing Evidence-Based Claims Tool using the Evidence-Based Claims Criteria Checklist. Finally, students synthesize the information from an Organizing Evidence-Based Claims Tool into a written paragraph. This work directly prepares students for developing and writing an Evidence-Based Perspective for the End-of-Unit Assessment in the next lesson.

- ▸ Students look at the agenda.

Activity 2: Homework Accountability and Research Process Check-In 10%

Distribute the lesson assessment from the previous lesson (use two Forming Evidence-Based Claims Tools to make claims about one inquiry question) and have students take out their homework from the previous lesson (use at least two Forming Evidence-Based Claims Tools to make claims about each inquiry path).

- ▸ Students examine the previous lesson's assessment and take out their homework.

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Instruct students to take out the Student Research Plan and journal about their research progress and next steps in the research journal, based on the work completed in the previous lesson (Lesson 10). Instruct students to look specifically at Part 3: Organizing and Synthesizing Research on the Student Research Plan to reflect on the research activity they did in the last lesson: forming evidence-based claims about inquiry paths.

- Students journal about their research progress and next steps.
- Student responses will vary by individual research question/problem. Look for students to use the language of the Student Research Plan and evidence from their research process for research journal responses.

ⓘ The lesson assessment from the previous lesson required students to use two Forming Evidence-Based Claims Tools. Hand these tools back to each student with feedback. This assessment was evaluated using the Evidence-Based Claims Criteria Checklist.

ⓘ While students are journaling about their research progress and next steps, circulate around the room to monitor students' homework completion.

ⓘ The research journal was started in Lesson 2 and will be completed in this lesson.

Instruct students to physically arrange all of their Forming EBC Tools by inquiry path on their desks.

ⓘ Students should have at least six Forming EBC Tools, two for each inquiry path.

ⓘ Students are not engaging in pair discussion for homework accountability because they will work together on their Forming EBC Tools later in the lesson.

Activity 3: Organizing and Developing Comprehensive Claims 40%

Explain that students will build on the claims-making process they started in the previous lesson by analyzing and synthesizing comprehensive claims about each inquiry path in the Research Frame. They will use the claims made in the previous lesson as a foundation to analyze and develop comprehensive claims for an entire inquiry path.

- Students listen.

Share the definition of the word *comprehensive* ("of large scope, covering or involving much, inclusive"). Explain that in this lesson students will combine the claims made in the previous lesson to create claims with a larger scope for each inquiry path. Explain that these new claims will be more global and inclusive of multiple pieces of evidence.

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- Students listen.

Distribute a blank Organizing Evidence-Based Claims Two Point Tool to each student. Display the model Research Frame for students to see. Instruct students to examine the Research Frame and read Inquiry Path #1: How is animal intelligence measured?

- Students examine the Organizing Evidence-Based Claims Two Point Tool and read Inquiry Path #1 on the Model Research Frame.

ⓘ The Model Research Frame was created in Lesson 6.

Explain to students that in the previous lesson, the class developed these two claims about this inquiry path:

- The animal's perspective is essential to consider if experiments are going to accurately measure their intelligence.
- Animal intelligence can be measured by observing social awareness skills.

- Students listen.

ⓘ The Model Forming EBC Tools used in this part of the lesson are located in Lesson 10, the previous lesson.

ⓘ The first claim was formally modeled in the previous lesson. The second claim was not formally modeled during the previous lesson, but was included as an additional example.

Explain that students will analyze and make connections between the claims they made about their inquiry questions (the work from the previous lesson). Students will organize, analyze, and make connections between the Forming EBC Tools completed for each inquiry path to create a comprehensive claim on an Organizing EBC Tool.

- Students listen.

Model how to complete an Organizing EBC Two Point Tool based on the model inquiry path discussed above (How is animal intelligence measured?) Display the tool, and explain to students that the Two Point Tool is the most appropriate one to use because in this case they are working with two points (claims).

Explain to students that they can make a larger claim by connecting these two claims.

Continue modeling by writing one of the claims in the Point One section and the other in the Point Two section, and writing the supporting evidence for each point (claim).

ⓘ See the Model Organizing EBC Two Point Tool at the end of the lesson.

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Explain that students can connect these two claims to create a new claim, and model it. Write the new claim at the top of the tool: Animal intelligence can be measured by observing qualities of intelligence that are shared by humans, but experiments must be designed considering the animal's perspective. Explain that the research evidence supports these two claims as well as the connection we just made between them.

- Students follow along with the modeling.

Distribute blank Organizing EBC Tools to each student, giving students the appropriate tool for the number of claims they have. Students should have one tool for each inquiry path.

ⓘ Some students might use a One, Two, or Three Point tool depending on how many claims they made about each inquiry path in the previous lesson. For example, if students completed three Forming EBC Tools for one inquiry path, they should use a Three Point Organizing EBC Tool to connect the three claims into one comprehensive claim about the inquiry path.

Instruct students to use an Organizing EBC Tool to develop a comprehensive claim about each inquiry path on their Research Frame. They should use the six Forming EBC Tools they completed in the previous lesson. Remind students they have completed at least two of these tools for each inquiry path.

- Students use their Organizing EBC Tools to form comprehensive claims about each inquiry path.

ⓘ Circulate around the room to monitor student progress.

ⓘ Some students may be able to use an Organizing EBC Tool to complete a comprehensive claim about the research question/problem, in addition to the inquiry paths.

Activity 4: Peer Review: Assessing Claims 25%

Explain that students will now assess one of their claims using the Evidence-Based Claims Criteria Checklist. Students will work in small groups to assess if one of the claims they developed on the Organizing EBC Tool is appropriately supported.

Distribute the Evidence-Based Claims Criteria Checklist to all students.

- Students examine the Evidence-Based Claims Criteria Checklist.

Model how to use the Evidence-Based Claims Criteria Checklist by using it to assess the Model Organizing EBC Tool created in the previous activity. Remind students of the model claim from the previous activity: Animal intelligence can be measured by observing qualities of intelligence that are shared by humans, but experiments must be designed considering the animal's perspective. Read

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through each criterion in the "Content and Analysis" section, check off boxes that apply, and write model comments. Explain the following:

- I can check off the first box for the "Content and Analysis" section, Clarity of the Claim, because the claim is clearly stated and understandable. *Clarity* means "the state of being clear or transparent."
- I can check off the second box for the "Content and Analysis" section, Conformity to the Text, because I created the claim directly from the textual evidence and ideas I read. For example, the quote "Experiments with animals have long been handicapped by our anthropocentric attitude" directly supports the part of the claim that says experiments must be designed with the animal's perspective in mind.
- I can check off the third box for the "Content and Analysis" section, Understanding of the Topic, because my claim demonstrates sound thinking about the topic of animal intelligence. The idea is not abstract and there is evidence to support it.

  - Students listen and follow along with the modeling.

ⓘ Display the Evidence-Based Claims Criteria Checklist for all students to see.

ⓘ **Differentiation Consideration:** Consider pointing out to students that the word *conformity* means that the claim is based upon the text, as indicated by the phrase "directly based upon" in the checklist.

Ask students to give their assessment of the Model Organizing EBC Tool for the next three sections of the Checklist: Command of Evidence, Coherence and Organization, and Thoroughness and Objectivity. Remind students to explain their thinking. Write students' thoughts on the Evidence-Based Claims Criteria Checklist that is displayed.

  - Students assess the Model Organizing EBC Tool as a whole class, using the next three sections of the Evidence-Based Claims Criteria Checklist as a guide.

  - Student responses may include the following:

    - Command of Evidence: The claim has specific evidence supporting it, as demonstrated by the text quotes on the tool itself. Each piece of evidence can be used to directly support the claim. For example, the quote "Scientists are now finally meeting animals on their own terms" shows that researchers understand they must design animal experiments with the animal perspective in mind.
    - Coherence and Organization: The specific points on the tool group the evidence; the evidence is easy to understand and follows a logical pattern, directly supporting each point and laying a clear foundation for the claim itself.
    - Thoroughness and Objectivity: There are eight quotes, and each quote aims to support the overall claim. For example, the quote "This is the larger lesson of animal cognition research:

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It humbles us. We are not alone in our ability to invent or plan or to contemplate ourselves—or even to plot and lie" demonstrates the major idea of the claim that animal intelligence can be measured by looking at qualities of intelligence that are shared by humans.

ⓘ **Differentiation Consideration:** If students struggle with responses for Thoroughness and Objectivity, consider explaining the definition of *thoroughness* ("complete; attentive to detail and accuracy") and *objectivity* ("the state or quality of not being influenced by personal feelings or prejudice"). Students will encounter the term *objective tone* in the next unit, Unit 3, when learning how to write objectively about research.

Instruct students to transition into small groups.

- Students form small groups.

ⓘ Place students in heterogeneous groups of four to five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own inquiry topics and questions.

Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

Explain to students that for this activity, each student will give one Organizing EBC Tool to a peer in the small group (each student should have one Organizing EBC Tool to review). Each student in the group will lead the group in an assessment of their peer's tool, using the Criteria Checklist.

- Students exchange Organizing EBC Tools within their group, and review them with the group using the Evidence-Based Claims Criteria Checklist.

Direct students to return the Organizing EBC Tool to their peers once the review is complete.

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Activity 5: Quick Write 15%

Instruct students to respond briefly in writing to the following prompt:

Develop a claim about an inquiry path or your research question/problem and support it using specific evidence and details from your research.

Instruct students to develop their written response from the Organizing EBC Tools. Remind students to use the Evidence-Based Claims Criteria Checklist to guide their response.

ⓘ Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt, using the Organizing EBC Tools and the Evidence-Based Claims Criteria Checklist to guide their response.

- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to review all of their Organizing EBC Tools using the Evidence-Based Claims Criteria Checklist. Students revise their claims, if necessary, to prepare for the next lesson's End-of-Unit Assessment.

Remind students that revising the Organizing Evidence-Based Claims Tool might lead to a final round of research and analysis of annotated sources and Taking Notes Tools to find the most relevant and useful evidence possible.

- Students follow along.

Homework

Review all of the Organizing Evidence-Based Claims Tools using the Evidence-Based Claims Criteria Checklist. Revise claims, if necessary, to prepare for the next lesson's End-of-Unit Assessment.

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Name ..... Inquiry Path .....

CLAIM:

A Supporting Evidence	B Supporting Evidence	C Supporting Evidence
(Reference:)	(Reference:)	(Reference:)
D Supporting Evidence	**E Supporting Evidence**	**F Supporting Evidence**
(Reference:)	(Reference:)	(Reference:)

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ORGANIZING EVIDENCE-BASED CLAIMS

Name ..... Inquiry Path .....

CLAIM:

Point 1		Point 2	
A Supporting Evidence (Reference:)	B Supporting Evidence (Reference:)	A Supporting Evidence (Reference:)	B Supporting Evidence (Reference:)
C Supporting Evidence (Reference:)	D Supporting Evidence (Reference:)	C Supporting Evidence (Reference:)	D Supporting Evidence (Reference:)

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ORGANIZING EVIDENCE-BASED CLAIMS

Name Student Response **Inquiry Path** How is animal intelligence measured?

CLAIM: Animal intelligence can be measured by observing qualities of intelligence that are shared by humans, but experiments must be designed considering the animal's perspective.

Point 1: The animal's perspective is essential to consider if experiments are going to accurately measure their intelligence.		Point 2: Animal intelligence can be measured by observing social awareness skills.	
A Supporting Evidence	**B Supporting Evidence**	**A Supporting Evidence**	**B Supporting Evidence**
"Experiments with animals have long been handicapped by our anthropocentric attitude: We often test them in ways that work fine with humans but not so well with other species."	"We suggest a simple answer: by pursuing animal cognition with the methods of natural science." "...but careful and impartial experimentation alone can yield incontestable evidence of animal cognition."	"The researchers discovered that when one chimp laughed others sometimes engaged in "laugh replications" that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing."	"A few recent research papers describe animal competence at social and cognitive tasks that humans often struggle with — mastering conversational etiquette..."
(Reference: 1)	(Reference: 5)	(Reference: 3)	(Reference: 3)
C Supporting Evidence	**D Supporting Evidence**	**C Supporting Evidence**	**D Supporting Evidence**
"Scientists are now finally meeting animals on their own terms instead of treating them like furry (or feathery) humans, and this shift is fundamentally reshaping our understanding."	Today's researchers are proceeding to fashion shrewd behavioral tests that provide other ways for animals to disclose their intelligence to us. Although animals may not use human words, we may be able to provide other ways for animals to disclose their intelligence to us.	"Although imitation was once regarded as a simpleminded skill, in recent years cognitive scientists have revealed that it's extremely difficult...actions that imply an awareness of one's self."	This is the larger lesson of animal cognition research: It humbles us. We are not alone in our ability to invent or plan or to contemplate ourselves - or even to plot and lie.
(Reference: 1)	(Reference:)	(Reference: 2)	(Reference: 2)

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Name ..... Inquiry Path .....

CLAIM:		
Point 1	Point 2	Point 3
A Supporting Evidence (Reference:)	A Supporting Evidence (Reference:)	A Supporting Evidence (Reference:)
B Supporting Evidence (Reference:)	B Supporting Evidence (Reference:)	B Supporting Evidence (Reference:)
C Supporting Evidence (Reference:)	C Supporting Evidence (Reference:)	C Supporting Evidence (Reference:)

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ORGANIZING EVIDENCE-BASED CLAIMS

9.3.2 Lesson 12

Introduction

In this final lesson of the unit, students complete the End-of-Unit Assessment by conducting a final review of the **Research Portfolio** and writing an **Evidence-Based Perspective** based on the research outcomes from the unit.

Students begin the lesson by finalizing the **Research Portfolio** for assessment purposes. Students review all of the **Organizing Evidence-Based Claims Tools** from the previous lesson and discuss their developing perspective of the research question/problem in small groups. Next, students write an **Evidence-Based Perspective** (one-page synthesis) using the **Organizing Evidence-Based Claims Tools** and supporting their perspective with relevant evidence from the research. Students submit the finalized **Research Portfolio** and the **Evidence-Based Perspective**. The **Evidence-Based Perspective** is assessed using a rubric based on the **Research Portfolio** content. For homework, students complete a vocabulary activity using the Vocabulary Journal work from the unit.

Standards

Assessed Standard(s)	
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Addressed Standard(s)	
W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.
L.9-10.4.	Determine or clarify the meaning of unknown and multiple-meaning words and phrases

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a,c,d	based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology. d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

Assessment

Assessment(s)
The assessment in this lesson is the End-of-Unit Assessment and consists of the following: • Completed Research Portfolio: Students submit a completed Research Portfolio with the four sections organized including 1. Defining an Area of Investigation, 2. Gathering and Analyzing Information, 3. Drawing Conclusions, 4. Discarded Material. • Evidence-Based Perspective: Students write a one-page synthesis of their personal conclusions and perspective derived from their research. Students draw on the research outcomes, as developed in the Organizing Evidence-Based Claims Tools to express their perspective on their respective research question/problem. • Research Journal: This item is located in the Research Portfolio. ⓘ This assessment will be evaluated using the Evidence-Based Perspective Rubric.
High Performance Response(s)
A high performance evidence-based perspective response may include the following: • I started out this research process thinking that humans were a lot smarter than animals and there was no way that animal intelligence could compare to human intelligence. When reading *Animals in Translation* during the first unit, I disagreed with Grandin that animals have "genius" qualities similar to autistic savants. I thought animals were too simple-minded to display thoughtful intelligence. So, I began the research journey wanting to know more about how animals display their intelligence and how it is possible for scientists and researchers to actually measure animal intelligence. I was interested in how scientists like Grandin create valid experiments to demonstrate animal intelligence. I found that there is historical basis for my point of view about animal intelligence in Waal's article "The Brains of the Animal Kingdom." He writes: "Aristotle's idea of the scala naturae, the ladder of nature, put all life forms in rank order, from low to high…" I was surprised to learn that people had been thinking about animal intelligence so far back in history.

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The research points out that animals can demonstrate a high capacity for intelligence if the experiments are designed correctly.

I discovered that animal intelligence can be measured by looking at the ways humans are intelligent, but experiments must be designed considering the animal's perspective to uncover their unique intelligence. I read on a blog by Edward A. Wasserman and Leyre Castro that "today's researchers are proceeding to fashion shrewd behavioral tests that provide other ways for animals to disclose their intelligence to us. Although animals may not use human words, we may be able to provide other ways for animals to disclose their intelligence to us." This article demonstrates how important it is to create animal intelligence experiments that take into account the way animals think.

Since the animal's perspective is more important for experimental design, it makes it more difficult to compare human and animal intelligence directly. I did find several examples that proved animals' intelligence is more advanced than humans: "A few recent research papers describe animal competence at social and cognitive tasks that humans often struggle with—mastering conversational etiquette..." I found this evidence from an article in *The New York Times* called "Think You're Smarter Than Animals? Maybe Not" by Alexandra Horowitz and Ammon Shea. Overall, it seems like humans are smarter, but there are a lot of instances where animals display remarkable intelligence. For example, birds prove to be smarter than humans when figuring out how to get water from a cup by using the scientific concept of displacement.

A remarkable animal I read about is Alex the parrot. In Virginia Morell's article "Animal Minds," she wrote about a parrot that was so smart he was able to learn how to talk far more than most parrots: "Under Pepperberg's patient tutelage, Alex learned how to use his vocal tract to imitate almost one hundred English words." Alex is an example of an animal that I read about who was taught to think and learn like a human, demonstrating animals' potential for higher order thinking and learning.

I learned that it is difficult to compare human and animal intelligence, but it is possible if humans design experiments from the animal's point of view. I do not know if there will ever be animals that are smart in the same way as humans, but I did learn that animals can display their intelligence in a variety of ways, including ways shared by humans.

*The evidence in this high performance response comes from the sources: Source #1 "The Brains of the Animal Kingdom," Source #2 "Animal Minds: Minds of their Own," Source #3 "Think You're Smarter Than Animals? Maybe Not," Source #5 "Animal Intelligence: How We Discover How Smart Animals Really Are."

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Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• perspective (n.) – a way of regarding facts or situations and judging their importance
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Because this is not a close reading or research lesson, there is no specified vocabulary. However, in the process of returning to the source texts, students may uncover unfamiliar words. Teachers can guide students to make meaning of these words by following the protocols described in 1E of this document http://www.engageny.org/sites/default/files/resource/attachments/9-12_ela_prefatory_material.pdf.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.7, W.9-10.9, W.9-10.2, SL.9-10.1, L.9-10.4.a, c, d	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Research Check-In	3. 15%
4. Discussion: Developing a Perspective	4. 30%
5. Writing an Evidence-Based Perspective	5. 35%
6. Closing	6. 5%

Materials

- Student copies of the **Organizing Evidence-Based Claims Tools** (refer to 9.3.2 Lesson 11)
- **Research Portfolios** (students have these)
- Copies of the **End-of-Unit Assessment** for each student
- Copies of the **Evidence-Based Perspective Rubric** for each student

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Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and sharing the assessed standards for this lesson: W.9-10.7 and W.9-10.9. In this lesson, students finalize the Research Portfolio for assessment purposes. Then students discuss their developing perspective concerning their research question/problem using the Organizing Evidence-Based Claims Tools from the previous lesson. Finally, students write an Evidence-Based Perspective (one-page synthesis) using the Organizing Evidence-Based Claims developed in the previous lesson and supporting the perspective with relevant evidence and reasoning from the research.

- ▸ Students look at the agenda.

Activity 2: Homework Accountability 10%

Instruct students to take out the revised Organizing Evidence-Based Claims Tools (EBC) from the previous lesson's homework.

Instruct students to Turn-and-Talk with a classmate about revisions they made to the Organizing EBC Tools and how the EBC Criteria Checklist guided their review.

- 🗨 Student responses may include the following:
    - I had to choose better evidence to support some of my claims. My evidence did not always directly address the claims I made. For example, some of my evidence underneath the point "Animal Intelligence can be measured by observing social awareness skills" did not always address social awareness skills, so the claim was weaker as a result.
    - I have to improve my claim and make it more comprehensive to incorporate all the written evidence. For example, my claim that "Animal intelligence can be measured by observing qualities of intelligence that are shared by humans" did not include the evidence from Point

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1 about the animal's perspective and how important it is to research. I needed to refine the claim to give it a larger scope and to make it more inclusive of all the evidence.

ⓘ Consider circulating during the pair discussion to monitor students' homework completion.

Activity 3: Research Check-In 15%

Inform students that they will be completing a final review of their Research Portfolios by rereading the Student Research Plan and conducting a final check of all the documents and sections of the portfolio. Instruct students to take out the Research Portfolio.

Instruct students to review the Student Research Plan for all research activities.

Inform students that in this lesson, they will complete the last step in the Student Research Plan: Reviews and synthesizes the research to develop a written Evidence-Based Perspective (Part 3: Organizing and Synthesizing Inquiry).

- Students listen.

Instruct students to use the Student Research Plan as a guide to finalize all sections of the Research Portfolio. Direct students to file all sources, annotated copies, notes, tools, and assessments in the Research Portfolio. Instruct students to keep out the Organizing Evidence-Based Claims Tools from the previous homework activity.

ⓘ The Research Portfolio sections are the following: 1. Defining an Area of Investigation, 2. Gathering and Analyzing Information, 3. Drawing Conclusions, 4. Discarded Material.

Instruct students to finalize the Research Portfolio by placing the Student Research Plan in the front of the portfolio. Direct students to keep the Research Portfolio accessible because they may return to it during the following discussion activity or while writing of the Evidence-Based Perspective.

ⓘ Inform students that they will submit the Research Journal at the end of the lesson as part of the completed Research Portfolio.

Activity 4: Discussion: Developing a Perspective 30%

Remind students that through the research process they were instructed to find information to deepen their understanding about a topic through questioning and developing ideas about various sources. Students were conducting inquiry for exploration and not to prove an established perspective about a topic. Now that the research has been conducted, it is time to think about what ideas or opinions have developed as a result of the research outcomes. Explain to students that in the following discussion,

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they will have an opportunity to look at the claims made in the previous lesson and discuss their developing perspective about their research question/problem.

- Students listen.

Ask students the following question:

What is a perspective?

- Student responses may include a viewpoint or an opinion.

Define the word *perspective* ("a way of regarding facts or situations and judging their importance") and display the definition for students to see. Explain to students that a perspective is the mindset or way of thinking about a topic. It could be considered a viewpoint or opinion on a topic.

- Students listen.

Inform students they have already begun to develop a perspective by analyzing the research and developing claims about it.

- Students listen.

Display the following guiding questions for students:

How has your understanding of the research question/problem developed or deepened as a result of the research?

Based on your claims, what ideas can you connect and what do those connections tell you about the research question/problem?

Based on your claims, what is your overall view or opinion about the research question/problem? How did the research lead you to these views or opinions?

- Students examine the guiding questions.

Instruct students to reflect on their claims from the previous lesson (Organizing Evidence-Based Claims Tools) using the guiding questions. Ask students to take notes on a separate sheet of paper about each guiding question, as they reflect on the claims and the research process as a whole.

Explain to students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

- Students listen.

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ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

Instruct students to form small groups and discuss the guiding questions regarding their respective research questions/problems. Remind students to use specific evidence to support their conclusions or reflections about the research work.

- Student responses will vary based on individual student's research question/problem. Examples of student responses may include the following:
  - I now understand that animal intelligence is real and that it is comparative to human intelligence. The research demonstrates that animals can learn language and advanced concepts like Alex, the parrot, who could understand the concept of same and different and who labeled colors and shapes.
  - How animals display their intelligence is closely linked to how their intelligence is measured. Animals are unlikely to show their true cognitive potential if the experiment is designed with humans and not animals in mind. For example, the elephant and the mirror example shows elephants are aware of themselves but the mirror has to be the right size. Humans have to consider animals' perspectives when designing animal intelligence experiments.

ⓘ Circulate while student groups are discussing to monitor student progress.

ⓘ Place students in heterogeneous groups of four to five that will remain consistent throughout the module. Consider forming groups ahead of time to maximize the range of different research topics and questions within each group. The goal of these groups is to create small communities of inquiry/research teams that provide support and accountability to each other. Students should know about their teammates' topics, research questions, central claims, etc. Students should share claims and evidence that arise from their individual inquiry and learn from each other's research processes, which they may use to potentially refine their own inquiry topics and questions.

Activity 5: Writing an Evidence-Based Perspective 35%

Inform students they will now write about their Evidence-Based Perspective in a one-page synthesis using their research evidence and details for support.

- Students listen.

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Instruct students to use their Organizing Evidence-Based Claims Tools from the previous lesson and their discussion notes from the previous activity to write a cohesive perspective about their research question/problem. Remind students that their perspectives must be supported with evidence and reasoning elicited from the research, so they should use specific research from the Research Portfolio. Remind students of the focus for this writing: to develop a perspective on the research and not summarize all the research outcomes.

ⓘ Consider providing students the Evidence-Based Perspective Rubric to guide their writing.

Remind students to paraphrase and quote the evidence correctly when crafting the perspective.

- Students listen.

ⓘ Students were taught paraphrasing and quoting evidence correctly in Module 9.1.1.

Transition students to writing the Evidence-Based Perspective.

- Students independently write an Evidence-Based Perspective.

ⓘ See the High Performance Response at the beginning of the lesson.

Collect the Evidence-Based Perspective.

Activity 6: Closing 5%

Instruct students to file the Organizing Evidence-Based Claims Tools from the previous activity in Section 3 of the Research Portfolio. Instruct students to remove the Vocabulary Journal from the Research Portfolio.

Collect the Research Portfolio.

ⓘ Make sure students have the Research Journal in the Research Portfolio for assessment purposes.

Display and distribute the homework assignment. For homework, instruct students to complete the following vocabulary activity using the Vocabulary Journal from this unit.

Choose three to five words or phrases from the research (sources) that were important in deepening your understanding of the research question/problem. In a paragraph, discuss how the three to five words helped you better understand the research question/problem.

- Students follow along.

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ⓘ See a sample student response of the homework in 9.3.2 Lesson 1 (Homework Accountability).

ⓘ Direct students to keep the Vocabulary Journal for more vocabulary work in Unit 3.

ⓘ Students will have the Research Portfolio redistributed in Unit 3 in order to write the research paper.

ⓘ Consider drawing students' attention to their application of standard L.9-10.4.a, c, d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

Homework

Complete the following vocabulary activity using the Vocabulary Journal from this unit.

- Choose three to five words or phrases from the research (sources) that were important in deepening your understanding of the research question/problem. In a paragraph, discuss how the three to five words helped you better understand the research question/problem.

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End-of-Unit Assessment (9.3.2 Lesson 12)

Evidence-Based Perspective

Your Task: Write a one-page synthesis of your personal conclusions and perspective derived from your research. Draw on your research outcomes, as developed in the Organizing Evidence-Based Claims Tools to express your perspective on your research question/problem.

Your writing will be assessed using the Evidence-Based Perspective Rubric.

Guidelines

Be sure to:

- Develop a perspective on the research, and not summary all the research outcomes.
- Support your perspective with relevant evidence from your research.
- Organize your perspective using the claims you developed on your Organizing Evidence-Based Claims Tools (based on your inquiry paths).
- Use specific research from your Research Portfolio to support your claim(s).
- Organize your ideas in a cohesive and coherent manner.
- Use precise language appropriate for your task.
- Follow the conventions of standard written English.

CCLS: W.9-10.7; W.9-10.9

Commentary on the Task:

This task measures W.9-10.7 because it demands that students:

- Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem
- Narrow or broaden the inquiry when appropriate
- Synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation

This task measures W.9-10.9 because it demands that students:

- Draw evidence from literary or informational texts to support analysis, reflection, and research

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Evidence Based Perspective Rubric (9.3.2 End-of-Unit Assessment)

CCSS.ELA-Literacy.W.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

CCSS.ELA-Literacy.W.9-10.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

Criteria	4 – Writing at this Level:	3 – Writing at this Level:	2 – Writing at this Level:	1 – Writing at this Level:
CCSS.ELA-Literacy.W.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem.	Clearly states a question or problem; writer demonstrates substantial evidence of sustained research addressing a question or a problem.	Includes a clear question or a problem; writer demonstrates some evidence of sustained research in response to a question or a problem.	Includes a question or a problem; writer's research is limited and a question or a problem has a limited response.	Does not include a clear question or a problem and demonstrate almost no evidence of research.
Narrow or broaden the inquiry when appropriate.	Clearly narrows or broadens the inquiry while conducting research.	Some evidence of narrowing or broadening the inquiry while conducting research.	Demonstrates limited narrowing or broadening of inquiry while conducting research.	Conducts very little inquiry.
Synthesize multiple sources on the subject.	Successfully synthesizes multiple sources while addressing a question or a problem.	Provides some synthesis of sources while addressing a question or a problem.	Synthesis of sources is limited while addressing a question or a problem.	Does not synthesize sources or address a question or a problem.
Demonstrate understanding of the subject under investigation.	Demonstrates a deep understanding of the subject of research.	Demonstrates some understanding of the subject.	Demonstrates limited understanding of the subject.	Demonstrates vague understanding of the subject.

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Criteria	4 – Writing at this Level:	3 – Writing at this Level:	2 – Writing at this Level:	1 – Writing at this Level:
CCSS.ELA-Literacy.W.9-10.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.	Extensively draws evidence from the informational texts that were read; uses the information to support analysis, reflection, and research.	Draws some evidence from informational texts that were read; uses the some of the information to support analysis, reflection, and research.	Draws limited evidence from informational texts that were read; analysis limited.	Does not draw evidence from informational texts.

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9.3.3 Unit Overview

Synthesizing Research through the Writing Process

Text(s)	*Student texts (research sources) will vary** *By Unit 3, students will have chosen texts for research based on their individual research question/problem.
Number of Lessons in Unit	8

Introduction

In this unit, students engage in the writing process with the goal of synthesizing and articulating their evidence-based research perspective in writing. The end product of this unit is a final draft of a research paper that articulates the conclusions gleaned from research throughout Module 9.3. In order to do this, students must synthesize and draw independent conclusions from information across multiple texts and articulate their research findings in an organized, cogent, and formal informational essay. As part of this process, students engage in a writing cycle in which they self-edit, provide peer reviews, and continually revise their work. Students receive direct instruction on a myriad of topics related to the writing process, including:

- Creating outlines
- Organizing topics and claims in a logical manner
- Drafting effective introductions, body paragraphs, and conclusions
- Creating cohesion within and between paragraphs
- Using colons and semicolons
- Adhering to MLA citation conventions
- Writing in a formal, objective tone

No new texts are introduced in this unit, which breaks from the pattern established in previous units. Instead, students will focus on analyzing the sources they collected for their Research Portfolio in Unit 9.3.2, delving more deeply into them as needed throughout the writing process.

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The formal assessment for this unit is the final draft of the research paper. In the final lesson of this unit—after students have had the opportunity to outline, draft, revise, and edit their paper—students submit their final papers for assessment against the Research Paper Writing Rubric as well as the Informative and Explanatory Writing Checklists: Module 9.3.3, which students used throughout the unit to guide their writing.

Literacy Skills and Habits

- Collect and organize evidence from research to support analysis in writing
- Analyze, synthesize, and organize evidence-based claims
- Write effective introduction, body, and conclusion paragraphs for an informational/explanatory research paper
- Use proper citation methods in writing
- Edit for a variety of purposes, including using semi-colons, colons, and correct spelling
- Use formal style and objective tone in writing
- Write coherently and cohesively

Standards for This Unit

CCS Standards: Writing	
W.9-10.2.a-f	**Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.** **a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.** **b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.** **c. Use appropriate and varied transitions to link the major sections of the text,**

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	create cohesion, and clarify the relationships among complex ideas and concepts. **d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.** **e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.** **f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).**
W.9-10.4	**Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.**
W.9-10.5	**Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 55.)**
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.9-10.8	**Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.**
W.9-10.9	**Draw evidence from literary or informational texts to support analysis, reflection, and research.**

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CCS Standards: Speaking & Listening	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CCS Standards: Language	
L.9-10.2.a-c	**Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.** **a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.** **b. Use a colon to introduce a list or quotation.** **c. Spell correctly.**
L.9-10.3.a	**Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.** **a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *A Manual for Writers*) appropriate for the discipline and writing type.**
L.9-10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Note: Bold text indicates targeted standards that will be assessed in the unit.

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Unit Assessments

Ongoing Assessment	
Standards Assessed	W.9-10.2.a-f, W.9-10.4, W.9-10.5, W.9-10.8, W.9-10.9, L.9-10.2.a-c, L.9-10.3.a
Description of Assessment	Varies by lesson but may include drafted portions of the essay with a focus on the specific goal of individual lessons—e.g., introduction development, cohesion within and between paragraphs, proper citation methods, and incorporation of peer and teacher feedback.

End-of-Unit Assessment	
Standards Assessed	W.9-10.2.a-f
Description of Assessment	Students will be assessed on the final draft of their research paper and its alignment to the criteria of an informative/explanatory text. The final draft should examine and convey complex ideas and clearly incorporate students' evidence-based claims as well as appropriately cite sources. The final draft should accurately organize and demonstrate thoughtful analysis of the evidence gathered through research.

Unit-at-a-Glance Calendar

Lesson	Text	Learning Outcomes/Goals
1	Research Portfolio Texts	Students determine a central claim from their **Research Frame** and Evidence Based-Perspective writing assignment and begin to construct an outline for their research paper. Students organize their claims and supporting evidence for each claim. Students also analyze the evidence that supports each claim to complete their **Outline Tool**.

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2	Research Portfolio Texts	Students participate in a peer review of their outlines to ensure readiness to begin drafting their research paper. Students learn the components of an effective introduction. Students write the first draft of the introduction of the research paper.
3	Research Portfolio Texts	Students learn how to effectively integrate information into writing selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. Students learn MLA conventions for in-text citation as well as for the works cited page. Students draft their works cited page and integrate proper citations into their papers.
4	Research Portfolio Texts	Students continue to draft their research paper while focusing on cohesion—both within and between paragraphs. Students receive instruction around topic development and writing conclusion paragraphs.
5	Research Portfolio Texts	Students learn how to identify and incorporate formal style and objective tone into their writing. Students use their first drafts to participate in peer review and teacher conferences.
6	Research Portfolio Texts	Students continue to refine and revise their research papers. Students will focus on editing for flow and cohesiveness of the entire research paper. Students continue to provide peer feedback and conference with the teacher.
7	Research Portfolio Texts	Students continue to edit and revise their research papers. Students are introduced to a new language standard, L.9-10.2, and practice incorporating semi-colons and colons into their writing. Students continue the peer review process for grammar and spelling.
8	Research Portfolio Texts	Students work in-class to finalize their research papers—editing, polishing, and rewriting as necessary. Students are evaluated on the final draft's alignment to the criteria established in the Research Paper Writing Rubric: Informative/Explanatory.

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Preparation, Materials, and Resources

Preparation

- Review the Research Paper Writing Rubric: Informative/Explanatory.
- Review the Informative/Explanatory Writing Checklists (refer to 9.3. Unit 3).
- Review all unit standards and post in classroom.
- Consider creating a word wall of the vocabulary provided in all lessons.

Materials/Resources

- Chart paper
- Writing utensils including pencils, pens, markers, and highlighters
- Methods for collecting student work: student notebooks, folders, etc.
- Access to technology (if possible): interactive whiteboard, document camera, LCD projector, computers for individual students (for word processing)
- Copies of the Research Paper Writing Rubric: Informative/Explanatory
- Copies of the Informative and Explanatory Writing Checklists: Module 9.3 Unit 3

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9.3.3 Lesson 1

Introduction

In this lesson, students are introduced to the process of drafting a research paper. Students draft, revise, and edit this research paper over the course of the entire unit. Students learn how to develop their research paper from the Evidence-Based Perspective writing assignment they completed in the previous lesson. Students determine a central claim from their **Research Frame** and Evidence Based-Perspective writing assignment and construct an outline for their research paper. Students organize their claims and supporting evidence for each claim. Students also analyze the evidence that supports each claim to complete their **Outline Tool**. Students are assessed on the central claim as well as the organization of two Evidence-Based Claims from their outline. For homework, students find an additional piece of evidence for each of their claims and analyze how this evidence further supports their claim. Then they record their evidence and analysis on the **Additional Evidence Outline Tool**.

Standards

Assessed Standard(s)	
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Addressed Standard(s)	
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

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Assessment

Assessment(s)
This learning in this lesson is captured through the Outline Tool. The tool is assessed on the strength of organization of claims and evidence to support the central claim and the analysis of the connections between evidence. ⓘ This assessment will be evaluated using the Evidence-Based Claims Criteria Checklist.
High Performance Response(s)
A high performance response may include the following: • See Model Outline Tool for a high performance response.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• iterative (adj.) – repetitious • drafting (v.) – drawing up in written form • revising (v.) – altering something already written or printed, in order to make corrections, improve, or update
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.9, W.9-10.5, W.9-10.7	

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Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Introduction to the Writing Process	3. 15%
4. Evidence Organization	4. 35%
5. Lesson Assessment	5. 30%
6. Closing	6. 5%

Materials

- Copies of **Outline Tool** for each student
- Copies of **Additional Evidence Outline Tool** for each student
- Student copies of **Evidence-Based Claims Criteria Checklist** (refer to 9.3.2 Lesson 10)
- **Research Portfolio** (students have these)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by introducing the agenda and assessed standard for this lesson: W.9-10.9. Explain that in this lesson students are introduced to the writing process, a research paper, and drafting an outline using an Outline Tool. Students determine a central claim from their Research Frame and Evidence Based-Perspective writing assignment and construct an outline for their research paper. Students organize their claims and supporting evidence for each claim. Students also analyze the evidence that supports each claim to complete their Outline Tool.

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- Students follow along and read the agenda.

Activity 2: Homework Accountability 10%

Instruct students to form pairs to share their three to five vocabulary words as well as their paragraph explaining how these words helped deepen their understanding of their research question.

- Students form pairs for a Turn-and-Talk and discuss their vocabulary homework.

- Student responses will vary based on their individual research: In the article, "Think You're Smarter than Animals? Maybe Not," Alexandra Horowitz and Ammon Shea write about comparing "our own cognitive faculties" with animals. I didn't know what cognitive faculties meant but because of the context I thought it might have something to do with thinking or intelligence. When I looked up the both of the words, I learned that *cognitive* means "the act or process of knowing" and *faculties* are "powers of the mind, as memory, reason, or speech." So cognitive faculties must mean "knowing powers" or intelligence. Knowing the terms helped deepen my understanding of the comparison Horowitz and Shea are making between animal and human intelligence. Further vocabulary words I defined and recorded in my journal were *etiquette* and *replications*. Knowing the meaning of these words helped deepen my understanding of the first study present in the *New York Times* article. The authors write about the chimps using social etiquette, which means "polite social behavior." The chimps display the etiquette by "laugh replications" and *replications* means "a copy." Knowing these words helped reinforce my understanding that the chimps are intelligent because they want to get along socially and be polite with other monkeys.

Activity 3: Introduction to the Writing Process 15%

Share with students that the writing process is *iterative*, much like the research process in Unit 2. Remind students that *iterative* means "repeating," which means students will frequently reassess their work or their thinking, and improve it. In this unit students compose a formal research paper. Explain that writing is a process that takes many forms and students can accomplish it through a variety of methods. Though there are many different ways to approach the writing process, they all involve multiple drafts and revisions. Inform students they will be *drafting*, *revising*, peer reviewing, and editing throughout this unit to create a well-crafted research paper.

ⓘ Remind students that *drafting* is "drawing up in written form" and *revising* is "altering something already written or printed, in order to make corrections, improve, or update." Consider asking students why they might need to revise a draft. Remind students to record the definitions of *iterative, drafting, and revising* in their Vocabulary Journals.

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- Students listen.

Explain that the research paper they complete in this unit is informative and expository, and is meant to clearly present the information gathered from their research. Advise students to keep in mind that the purpose of writing an analytical research paper is to convey complex ideas, concepts, and information clearly and accurately. Explain that students must also develop a central claim and support that claim using evidence.

ⓘ For clarity, it may be helpful to refer to the explanation of the difference between informational and argumentative writing in the CCSS Appendix A (p. 23): "Although information is provided in both arguments and explanations, the two types of writing have different aims. Arguments seek to make people believe that something is true or to persuade people to change their beliefs or behavior. Explanations, on the other hand, start with the assumption of truthfulness and answer questions about why or how. Their aim is to make the reader understand rather than to persuade him or her to accept a certain point of view. In short, arguments are used for persuasion and explanations for clarification."

Explain that the Evidence-Based Perspective they developed at the end of the last unit, Unit 2, is the foundation for their research paper. Return to students their Evidence-Based Perspective written assignments as well as their Research Portfolios. Inform them that they will be using their Evidence-Based Perspective to guide the claims and evidence they will express in their paper. The Evidence-Based Perspective encompasses the personal conclusions and insights students drew from their research to help guide their writing. The research paper is a logical, well-organized and coherent synthesis of students' research and their personal conclusions and perspectives on their research so far.

Explain that a research paper has a formal structure: introduction, body paragraphs, conclusion, and works cited page. Inform students that they will be focusing on each of these parts in lessons throughout this unit in order to produce a final research paper for the End-of-Unit Assessment.

- Students listen.

Activity 4: Evidence Organization 35%

Explain that the focus of this lesson is properly organizing their evidence and claims. This gives them a clear structure to follow when they begin writing. Explain that they will use their research question to form the central claim in their research paper. Instruct students to take out their Evidence-Based Perspective writing assignment and their Research Frame, and briefly discuss in pairs the strongest or most interesting possible central claim that has emerged from their research.

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- Students form pairs to discuss possible central claims for their research paper.

Distribute the Outline Tool. Instruct students to write down their chosen research question or inquiry path. Remind students that they have answered the research question in their Evidence-Based Perspective writing assignment, and they will need to distill this answer on their Outline Tool into one sentence: a central claim. For instance, if their research question was: "How does animal intelligence compare with human intelligence?" then they would write the answer to this question based on conclusions expressed in the Evidence-Based Perspective writing assignment: "Animals and humans have different kinds of intelligence, and there are many instances where animals display remarkable intelligence, but they cannot always be tested in the same way as people."

- Students write down their research question and central claim on the Outline Tool.

- Student responses will vary depending on the research.

Explain that there are a variety of ways to organize a research paper. Explain that students should organize their claims and evidence in a logical, sequential manner that clearly supports their analysis. For instance, if a research paper is about how animal intelligence compares to human intelligence these are some claims that have been developed by research. Display the following claims for students:

- Claim: Research has shown that some animals can actually learn human language.
- Claim: Researchers can measure animal intelligence by observing qualities of intelligence that are shared by humans, but they must design their experiments considering the animal's perspective.
- Claim: Historically there has been an idea that humans are smarter than animals.

Explain to students that of these three examples, the claim about the historical ideas around animal intelligence is the most logical claim to begin with because it informs the way we think about animal intelligence today. Ask students:

What is the next logical claim in this sequence and why?

- The next logical claim would be the one that measures animal intelligence because we need to measure animal intelligence before coming to the conclusion that they can learn a language or test their intelligence.

Instruct students to retrieve all of the Organizing Evidence-Based Claims Tools they have in their Research Portfolio that align with their central claim. Display some potential questions for students to guide their organization of the tools from their portfolio*:*

If I have these three Organizing Evidence-Based Claims Tools, which one would be most effective at the beginning of the research paper?

Which one would be most effective at the end?

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Are my Evidence-Based Claims in a logical order?

- Students follow along and read the guiding questions.

Instruct students to physically arrange their Organizing EBC Tools on their workspace in an order that reflects where each claim would appear in the research paper.

ⓘ **Differentiation Consideration**: The organizational structure in this lesson is not meant to be prescriptive, but rather model a way to potentially organize a research paper. If students require more explicit modeling or instruction around organization of research papers, consider providing additional resources and graphic organizers to help students organize and structure their claims and evidence.

ⓘ All Organizing EBC Tools were created in 9.3.2 Lesson 11.

- Students organize their Organizing EBC Tools on their workspace.

Instruct students to do a brief Turn-and-Talk in pairs. Specifically, ask students to discuss their answers to this question:

How does this order effectively support your central claim?

- Students do a Turn-and-Talk in pairs.

ⓘ **Differentiation Consideration:** Students can also work with their pre-established research groups for this activity.

Instruct student pairs to briefly share the results of their discussion. Ask students if anyone has changed their plan based on their classmate's suggestions.

Instruct students to independently copy onto their Outline Tool the order of their Evidence Based Claims and the evidence from the Organizing EBC Tools. Remind students that the purpose of this outline is to have a clear plan for their research paper and to consolidate all of their information. Instruct students to select the strongest evidence to support their claim.

- Students work independently on their Outline Tool.

- See the Model Outline Tool for potential student responses.

Explain that the portion of the outline they have completed is the frame for the paper's introduction (which will introduce the central claim) and the body (which presents the claims and evidence that support the central claim). Instruct students to look at their first claim on the Outline Tool. Explain that they need evidence to support each claim in the body of their paper and must briefly write how this

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evidence supports each claim. Inform students that this analysis is the starting point for each body paragraph.

- Students follow along.

Instruct students to form pairs to discuss their ideas about how their evidence supports the claim. Then students can complete the "analysis" portion of the Outline Tool.

- Students discuss their ideas in pairs and fill in the Outline Tool.
- See the Model Outline Tool for examples of analysis of the evidence and how it supports the claim.

Activity 5: Lesson Assessment 30%

Inform students that they will submit their Outline Tool for this lesson's assessment. They will be assessed on the central claim, four Evidence-Based Claims with one piece of evidence for each claim, a brief analysis of that evidence, and connections between the evidence. Inform students that the Evidence-Based Claims Criteria Checklist will guide the evaluation of this assessment, and students should refer to their checklists while completing their Outline Tool.

ⓘ Evaluate the assessment using the Evidence-Based Claims Criteria Checklist.

- Students work on their Outline Tool.

Distribute the Additional Evidence Outline Tool and instruct students to record their claims on this tool, as they will need this information for homework.

- Students turn in their Outline Tool after recording their claims on the Additional Evidence Outline Tool.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to find an additional piece of evidence for each of their claims and analyze how this evidence further supports their claim. Instruct students to then record their evidence and analysis on the Additional Evidence Outline Tool.

- Students follow along.

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Homework

For homework, record an additional piece of evidence for each claim. Be sure to analyze the additional evidence and how it supports the claims. Record your evidence and analysis on the Additional Evidence Outline Tool. Be sure to use your Organizing Evidence-Based Claims Tools from the Research Portfolio to support the analysis.

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Outline Tool

Name:		Class:		Date:	

[Introduction] **Research Question:** **Central Claim:**	
[Body] **Claim**:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*

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Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
[Conclusion]	

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Model Outline Tool

Name:		Class:		Date:	

[Introduction] **Research Question: How does animal intelligence compare with human intelligence?** **Central Claim:** The question still has no clear answer; ultimately, it depends on the standards we use to measure intelligence, and whether or not it is fair (or even possible) to compare humans to animals**.**	
[Body] **Claim**: Historically there has been an idea that humans are smarter than animals.	
Evidence: "Animals might be capable of learning, they argued, but surely not of thinking and feeling" (Waal).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence demonstrates that there has historically been a view that animals are not as intelligent as humans. Thinking like this goes at least as far back as the time of ancient Greece.
Claim: Researchers can measure animal intelligence by observing qualities of intelligence that are shared by humans, but they must design their experiments considering the animal's perspective.	
Evidence: "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing" (Horowitz and Shea).	**Analysis of Evidence:** How does the evidence support your claim? This evidence demonstrates that there can be other ways of measuring intelligence. Animals behave in a variety of ways and though there are times human qualities can be measured, the animal's perspective should be considered in order to truly measure their intelligence.

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Claim: Sometimes animals possess an intelligence that we must uncover.	
Evidence: "Current evidence has shown that both humans and animals have the ability to mentally represent and compare numbers" (Duke).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence shows that there are types of intelligence that animals possess that scientists need to research and uncover. A lot of scientists knew that animals could recognize amounts, but it takes more analysis and tests to figure out that a monkey could actually do mathematical problems.
Claim: Some animals can actually learn human language.	
Evidence: "Under Pepperberg's patient tutelage, Alex learned how to use his vocal tract to imitate almost one hundred English words" (Morell).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence supports the claim that some animals can even learn language. Alex the parrot is an example of an animal that was taught to imitate human sounds and also can form small sentences. This is another way that animals display their intelligence.
[Conclusion] **Restate central claim:** All of these examples prove that animals are often more intelligent than we can see at first. But there is still an unanswered question: How do they compare to humans?	

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Additional Evidence Outline Tool

Name:		Class:		Date:	

[Body] **Claim**:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*
Claim:	
Evidence:	**Analysis of Evidence:** *How does the evidence support your claim?*

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Model Additional Evidence Outline Tool

Name:		Class:		Date:	

[Body] **Claim**: Historically there has been an idea that humans are smarter than animals.	
Evidence: "Aristotle's idea of the scala naturae, the ladder of nature, put all life-forms in rank order, from low to high" (Waal).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence demonstrates that there has historically been a view that animals are not as intelligent as humans. Thinking like this goes at least as far back as the time of ancient Greece.
Claim: Researchers can measure animal intelligence by observing qualities of intelligence that are shared by humans, but they must design their experiments considering the animal's perspective.	
Evidence: "A few recent research papers describe animal competence at social and cognitive tasks that humans often struggle with—mastering conversational etiquette" (Horowitz and Shea).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence demonstrates that there can be other ways of measuring intelligence. Animals behave in a variety of ways and though there are times human qualities can be measured, the animal's perspective should be considered in order to truly measure their intelligence.
Claim: Sometimes animals possess an intelligence that we must uncover.	
Evidence: "We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition…Our study shows that they can" (Duke).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence shows that there are types of intelligence that animals possess that scientists need to research and uncover. A lot of scientists knew that animals could recognize amounts, but it takes more analysis and tests to figure out that a monkey could actually do mathematical problems.

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Claim: Some animals can actually learn human language.	
Evidence: "Pepperberg walked to the back of the room, where Alex sat on top of his cage preening his pearl gray feathers. He stopped at her approach and opened his beak. 'Want grape,' Alex said" (Morell).	**Analysis of Evidence:** *How does the evidence support your claim?* This evidence supports the claim that some animals can even learn language. Alex the parrot is an example of an animal that was taught to imitate human sounds and also form short sentences. This is another way that animals display their intelligence.

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9.3.3 Lesson 2

Introduction

In this lesson, students participate in a peer review of their outlines to ensure they are ready to begin drafting their research paper. Students then learn the components of an effective introduction. The assessment in this lesson is the first draft of the introduction of the research paper. For homework, students begin drafting the body of their research paper.

Standards

Assessed Standard(s)	
W.9-10.2.a	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
Addressed Standard(s)	
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Assessment

Assessment(s)
The learning in this lesson is captured by the student's first draft of their introduction for their research paper. This introduction should be engaging and include the central claim of the research paper. ⓘ This assessment will be evaluated using the W.9-10.2.a portion of the Research Paper Writing Rubric: Informative/Explanatory (located in the 9.3.3 Rubric and Checklist Packet).
High Performance Response(s)
A high performance response may include the following:

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- Plenty of people say their pets are intelligent, emotional creatures. Some people might even argue that their dog is smarter than their neighbor. But how smart are animals really? Over the centuries, people have offered many ways of thinking about animal cognition—that is, the mental capacities of animals. In the seventeenth century, René Descartes claimed that animals do not think at all, and that is why they are not able to speak (Castro and Wasserman). Recently, though, many researchers have begun to observe extraordinary signs of intelligence in dolphins, chimps, dogs, and even parrots—from following instructions and using tools, to being able to speak and do math. But while some animals may show signs of intelligence, a question remains: How does animal intelligence compare to human intelligence? That is to say, while we think that humans are smarter, how much smarter are we, exactly? The question still has no clear answer; it depends on how we measure intelligence and whether or not it is fair (or even possible) to compare humans to animals.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• multimedia (n.) – multimedia is the combined use of several media (means of communication) e.g., a presentation that incorporates video and sound • formatting (n.) – the organization, plan, style, or type of something
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.2.a, W.9-10.5 • Text: Sources from research **Learning Sequence:**	

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1. Introduction of Lesson Agenda	1. 10%
2. Homework Accountability	2. 20%
3. Drafting Introductions	3. 30%
4. Lesson Assessment	4. 30%
5. Closing	5. 10%

Materials

- Student copies of the **9.3 Common Core Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- Copies of the **9.3.3 Rubric and Checklist Packet** for each student
- Student copies of the **Outline Tool** (refer to 9.3.3 Lesson 1)
- Student copies of the **Additional Evidence Outline Tool** (refer to 9.3.3 Lesson 1)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the lesson agenda and assessed standard for this lesson: W.9-10.2.a. Inform students that in this lesson, they finalize their outline and draft an introduction.

▸ Students follow along and read the agenda.

Ask students to read standard W.9-10.2.a on their 9.3 Common Core Learning Standards Tool and assess their familiarity with and mastery of it.

ⓘ If students are unfamiliar with the language of this standard, explain that *formatting* is the organization, plan, style, or type of something. Also, *multimedia* is the combined use of several

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media (means of communication) e.g., a presentation that incorporates video and sound. Remind students to record the definitions of *multimedia* and *formatting* in their vocabulary journals.

Display and distribute the 9.3.3 Rubric and Checklist Packet. Inform students their research papers will be evaluated using the Research Paper Writing Rubric: Informative/Explanatory. Explain to students that each part of this rubric is aligned to specific Common Core Standards that are targeted to assess components of informative and explanatory writing as well as relevant language standards.

Inform students that the 9.3.3 Rubric and Checklist Packet is a resource they will refer to as they engage in the writing process throughout this unit. At the front of the packet is the Research Paper Writing Rubric: Informative/Explanatory. The rest of the packet contains excerpted portions of the rubric aligned to specific targeted standards. Each excerpted standard rubric row also contains space for feedback and a corresponding checklist that will be used to guide peer review, teacher feedback, and assessment in this unit. Instruct students to briefly review the 9.3.3 Rubric and Checklist Packet.

- Students follow along and review the 9.3.3 Rubric and Checklist Packet.

Activity 2: Homework Accountability 20%

Instruct students to form pairs and take out their Additional Evidence Outline Tool. Inform students that they need to make sure they have a strong outline and central claim to direct their writing before they start to draft their research paper. Remind students that a purposeful and clear outline will assist them throughout the process of drafting their research paper.

Instruct students to share their Additional Evidence Outline Tool with a classmate to do a peer review of their organizational plan for their research paper. Remind students that a fully planned outline will include the central claim, all sub-claims, evidence supporting the central claim, and analysis of the evidence.

- Students form pairs and do a peer review of their Additional Evidence Outline Tools.
- Student responses will vary according to their individual research and outline.

ⓘ Consider sharing with students the Model Additional Evidence Outline Tool as a reminder of what an exemplar response looks like.

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Activity 3: Drafting an Introduction 30%

Explain that students will begin the first draft of their research paper. Once the outline is complete, there are many ways to begin writing a paper. Inform students the focus of this lesson is writing the introduction of the research paper.

What do you know about an introduction based on the work you have done in the past?

- Students share their understanding of an introduction.
- An introduction is the first part of a paper or essay. The introduction should tell the reader the central claim of the paper. It can also be the "hook" that grabs readers' attention. The introduction should be a high-level overview of the paper and not include all of the smaller details in the paper.

ⓘ Potential student responses are drawn from the previous instruction of introductions in this curriculum. Refer to 9.1.1 Lesson 15.

Explain that an introduction is the first part of the research paper. An introduction should be interesting and get the reader's attention, give context for what will be covered in the research paper, preview what will follow, and include the central claim of the research paper. A good introduction should be one to two paragraphs long. Typically, the central claim should be the last sentence of the introduction. Explain to students that they should include their strongest claims in the introduction in a clear, organized fashion, but they do not need to include all the evidence that supports the claims—that will come in the body of the research paper. However, if it makes sense to do so, students can choose to put into the introduction one or two pieces of evidence that support the strongest claims in their paper.

- Students follow along.

Display an exemplar introduction for students and ask them to read the introduction and then form pairs for a Turn-and-Talk to briefly discuss their understanding of the introduction.

- Exemplar Introduction: Plenty of people say their pets are intelligent, emotional creatures. Some people might even argue that their dog is smarter than their neighbor. But how smart are animals really? Over the centuries, people have offered many ways of thinking about animal cognition—that is, the mental capacities of animals. In the seventeenth century, René Descartes claimed that animals do not think at all, and that is why they are not able to speak (Castro and Wasserman). Recently, though, many researchers have begun to observe extraordinary signs of intelligence in dolphins, chimps, dogs, and even parrots—from following instructions and using tools, to being able to speak and do math. But while some animals may show signs of intelligence, a question remains: How does animal intelligence compare to human intelligence? That is to say, while we think that humans are smarter, how much smarter are we, exactly? The question still has no clear answer; it

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depends on how we measure intelligence, and whether or not it is fair (or even possible) to compare humans to animals.

- Students read the example introduction and form pairs to discuss it in a Turn-and-Talk.

Explain that there are a lot of different methods for creating an interesting introduction that will grab the reader's attention. Explain that students could present a problem, question, or interesting fact associated with their research. They could also retell an interesting story they came across in the course of their research. Using descriptive words that will bring the reader into the context of the topic is also a great way to begin a research paper. Instruct students to discuss the following questions in pairs before sharing with the entire class.

What method did the author of the introduction use to get the attention of the reader? Is this an effective method?

- The author started their introduction writing about pets to get the reader's attention. This is an effective method because a lot of people have pets and think their pets are smart.

What is the author going to be writing about in the paper? What is the central claim of this research paper?

- The author is going to write about animal intelligence compared to human intelligence. They mention dolphins, monkeys, dogs, and parrots and experiments associated with these animals. The central claim of this research paper is that there are different ways to measure intelligence, and it may not be possible to fairly compare animals and humans.

ⓘ **Differentiation Consideration:** Consider forming student research groups and have them brainstorm interesting ways to introduce their research paper. Allow each student to write a sample, and then instruct students to have a round-robin style discussion wherein each student passes their sample to a member of their group and the group discusses each sample and which sample interested them the most and why.

Activity 4: Lesson Assessment 30%

Explain that students will now independently draft their own introductions for the lesson assessment. Remind students that this is a first draft, and while they should be focusing on the conventions established for an effective introduction, they will be working to edit and refine their writing in later lessons. Inform students that the assessment will be evaluated using the W.9-10.2.a portion of the Research Paper Writing Rubric: Informative/Explanatory. Remind students to refer to the W.9-10.2.a checklist in the 9.3.3 Rubric and Checklist Packet as they are writing their introductions.

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ⓘ The process of writing a research paper will involve drafting, peer review, editing, and revising. If access to technology is available, consider using a cloud or electronic storage system (MS Word, Google Drive, etc.) that allows each student to write and track changes using a word processing program. If technological resources are not available, use the established classroom protocols for drafting, editing, and revising hard copies.

- Students independently draft the opening paragraph of their paper.

ⓘ Consider having students email their introductions to the teacher, uploading them to a cloud for teacher access, or handing in a copy on paper for assessment.

- See the High Performance Response at the beginning of this lesson.

Activity 5: Closing 10%

Display and distribute the homework assignment. For homework, instruct students to draft the first paragraph of the body of their research paper using their Outline Tool and Additional Evidence Outline Tool to guide their writing. Inform students that they will receive instruction on crafting strong body paragraphs in the following lessons. This body paragraph is a first draft and should be a full paragraph using complete sentences. It should clearly articulate all the relevant information about the first claim that students have collected on their Outline Tool and Additional Evidence Outline Tool.

- Students follow along with the homework assignment.

Homework

For homework, draft the first paragraph of the body of your research paper. Be sure to clearly articulate all of the relevant information from your Outline Tool and Additional Evidence Outline Tool while you are drafting your paragraph.

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9.3.3 Lesson 3

Introduction

In this lesson, students learn how to effectively integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism, and following a standard format for citation. Students learn MLA conventions for in-text citation as well as for a works-cited page. Drafting their works-cited page—which is integral to the creation of any research paper—will help students avoid plagiarism. For the lesson assessment, students are asked to complete a words cited page, referencing all research in the research paper while also inserting in-text citation into a sample body paragraph. For homework, students are asked to draft the remaining body paragraphs of their paper using the in-text citation methods learned in class.

Standards

Assessed Standard(s)	
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
L.9-10.3.a	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.
Addressed Standard(s)	
W.9-10.2.b, c	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create

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	cohesion, and clarify the relationships among complex ideas and concepts.
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Assessment

Assessment(s)
Students are assessed on adherence to the organization structure in their outline as well as how well they followed the citation methods discussed in class to avoid plagiarism.
High Performance Response(s)
A high performance response may include the following: • See attached works-cited page. • Sample body paragraph: Consider Alex the parrot. Animal scientist Irene Pepperberg spent 30 years teaching Alex, an African gray parrot, to speak (Morell). At first Alex would simply reproduce noises, but Irene also taught him the *meaning* of those sounds using simple patterns, like counting from one to ten. Eventually, Alex could differentiate between shapes and colors, and even communicated desires like, "Want grape," or "Wanna go tree" (Morell). Pepperberg still works with a number of other parrots to teach them similar skills. ⓘ Use the MLA Citation Handout (at the end of the lesson) as well as the W.9-10.8 and L.9-10.3.a portions of the Research Paper Writing Rubric: Informative/Explanatory to evaluate this assessment. Make sure students are properly citing references using the MLA guidelines.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• citation (n.) – a quotation from or reference to a book, paper, or author
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Because this is not a close reading or research lesson, there is no specified vocabulary. However, in the process of returning to the source texts, students may uncover unfamiliar words. Teachers can guide students to make meaning of these words by following the protocols described in 1E of this document http://www.engageny.org/sites/default/files/resource/attachments/9-12_ela_prefatory_material.pdf.

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ⓘ Students should use their Vocabulary Journal to incorporate domain-specific vocabulary from Unit 9.3.2 into their research paper, as well as to record process-oriented vocabulary defined in the lesson.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
Standards: W.9-10.8, L.9-10.3.a, W.9-10.2.b, c, W.9-10.4	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 10%
2. Homework Accountability	2. 10%
3. Citation Methods	3. 35%
4. Assessment: Works Cited Page and Body Paragraph	4. 40%
5. Closing	5. 5%

Materials

- Student copies of the **9.3 Common Core Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- Copies of the **MLA Citation Handout** for each student
- Student copies of the **9.3.3 Rubric and Checklist Packet**

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the agenda and the assessed standards for this lesson: W.9-10.8 and L.9-10.3.a. Inform students that in this lesson, they will focus on proper citation methods in a research paper. Post or project the L.9-10.3.a standard for students. Ask students to get out their 9.3 Common Core Learning Standards Tool, read the new standard, and discuss their understanding in pairs. Inform students they will be learning to incorporate MLA style citations into their writing in this unit.

- Students listen and discuss their understanding of the new standard, L.9-10.3.a in pairs.

Activity 2: Homework Accountability 10%

Instruct students to form small groups. Ask students to share the first body paragraph they drafted for homework as well as their introduction paragraph assessed by the teacher with the small group. Ask students to discuss how drafting the introduction has helped them further clarify the direction of their research papers.

- Students form small groups and share their opening paragraphs with one another.
- Possible student discussion responses may include:
  - Drafting the opening paragraphs of my research paper helped me articulate what I wanted to say in the rest of the paper. It steered the direction and helped me think through the organization of my body paragraphs.

Activity 3: Citation Methods 35%

Share with students that they will now learn how to cite information correctly within their paper. Inform students they have gathered information about their topic and have begun to organize it in a way that supports their claim. Explain to students that although they are the authors of their own paper, they are drawing on multiple other authors in order to make their point. Remind students that if they do not give those other authors credit for the work they reference, it is called *plagiarism*. Remind students that *plagiarism* is taking someone else's work or ideas and passing them off as one's own. Inform students that *plagiarism* is an ethical offense, and can often result in serious consequences. Explain to students that in addition to disciplinary consequences, *plagiarism* is counter-productive to the learning process, as stealing someone else's ideas will not result in the deep understanding that results from learning on one's own.

- Students listen.

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Explain to students that someone can plagiarize by copying and pasting the exact words from a source without quoting it, but also by using different words to express the same idea as another author (e.g., if someone takes the central claim and evidence from another paper and writes it with different words, it is still *plagiarism* if it is not cited).

Inform students they can avoid plagiarism by always *citing* works properly. Proper *citation* gives credit to the author one is quoting, paraphrasing, or referencing. Explain to students that *citation* is quoting or referencing a book, paper, or author. Explain to students that there is a specific format for doing this, called MLA citation. Distribute the MLA Citation Handout. Ask students to look at the in-text citation portion of the handout first.

- Students listen and examine the in-text citation portion of the Citation Handout.

ⓘ Remind students to record the definition of *citation* in their Vocabulary Journals.

Remind students that the information needed for proper citation is in their Potential Sources Tool, which they received in Unit 9.3.2, Lesson 3. Inform students that within their essays, they should cite authors by providing, in parentheses, an author's last name as well as a page number after a quote, paraphrase, or use of idea (e.g., "People and animals are supposed to be together" (Grandin 5).) Explain to students that if the author's name already appears in the sentence, the parentheses can simply include a page number (e.g., Grandin says that "People and animals are supposed to be together" (5).) Instruct students that if the name of the author is unknown, they should provide a shortened version of the title instead (e.g., "People and animals are supposed to be together" ("*Animals*" 5).) This is useful for Internet articles and other sources where the author may not be given direct credit.

- Students listen.

ⓘ **Differentiation Consideration:** The specific formatting of in-text citations may require additional hands-on practice. Consider expanding this into a longer activity where students practice pulling quotes from and paraphrasing their sources.

ⓘ **Differentiation Consideration:** Consider telling students that web tools exist (like Easybib.com) to assist with citation formatting.

Explain to students that all of this information informs the reader where the source of the information provided in the paper derived from (e.g., "on page 5 of a book by Grandin"). This book will be listed on the works-cited page. Explain to students that a works-cited page comes as the final page in a research paper and is a list of all the sources used to write the paper. Ask students to look at the example on their handout and notice the formatting differences between different media. A book, for example, is cited like this:

Last Name, First Name. *Title of Book*. City of Publication. Publisher, Year of

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Publication. Medium of Publication.

Instruct students to notice the difference between this format and that of a website:

Editor, Author or Compiler Name (if available). *Name of Site*. Version Number. Name of Institution/Organization Affiliated with the Site (Sponsor or Publisher), Date of Resource Creation (if available). Medium of Publication. Date of Access.

ⓘ Given the wide variety of source types students may have compiled over the course of their research, citation instruction for each and every medium may require extensive work. Consider focusing primarily on books or web publications and provide students with the following URL for reference when citing sources: https://owl.english.purdue.edu/owl/resource/747/1/. Alternatively, depending on the size of the class, consider providing individual instruction for students with atypical sources (e.g., radio interviews).

- Students listen and observe differences between various sources.

ⓘ Information in this section adheres to MLA style and is modeled after instruction on https://owl.english.purdue.edu/owl/resource/747/1/ .

Activity 4: Assessment: Works Cited Page and Body Paragraph 40%

Ask students to gather all the sources they intend to use to write their research paper. Inform students that they will work individually to create a works cited page for their research paper, using the Citation Handout and/or https://owl.english.purdue.edu/owl/resource/747/1/ as a guide. Instruct students to also refer to the W.9-10.8 & L.9-10.3.a checklist in the 9.3.3 Rubric and Checklist Packet.

- Students independently create their works cited pages.

ⓘ Check in with students individually as they work, assisting as needed.

Ask students to take out the body paragraph they wrote for homework and insert proper in-text citation methods as needed.

ⓘ Assess students on their adherence to MLA conventions learned in class by using the MLA Citation Handout for reference (see the end of the lesson) as well as the W.9-10.8 and L.9-10.3.a portions of the Research Paper Writing Rubric: Informative/Explanatory.

- A High Performance Response may resemble:

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- Consider Alex the parrot. Animal scientist Irene Pepperberg spent 30 years teaching Alex, an African gray parrot, to speak (Morell). At first Alex would simply reproduce noises, but Irene also taught him the *meaning* of those sounds using simple patterns, like counting from one to ten. Eventually, Alex could differentiate between shapes and colors, and even communicated desires like, "Want grape" or "Wanna go tree" (Morell). Pepperberg still works with a number of other parrots to teach them similar skills.

Activity 5: Closing 5%

Display and distribute the homework assignment. For homework, ask students to draft their remaining body paragraphs using the in-text citation methods learned in class.

- Students follow along.

Homework

Draft the remaining body paragraphs of the research paper using the in-text citation methods learned in class.

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MLA Citation Handout

Name:		Class:		Date:	

In-Text Citations

For in-text citations, use the following as examples:

"People and animals are supposed to be together" (Grandin 5).

Grandin says, "People and animals are supposed to be together" (5).

Works-Cited Page

Here are the different citation methods for various forms of media.

Book

Basic format:

Last Name, First Name. *Title of Book*. Place of Publication: Publisher, Year of Publication. Medium of Publication.

Example:

Smith, Joe. *Joe Smith's Theory of the Universe*. New York: Books Limited, 2013. Print.

Magazine/Journal

Basic Format:

Author(s). "Title of Article." *Title of Periodical* Day Month Year: Pages. Medium of Publication.

Example:

Smith, Joe. "Joe Smith's Theory of the Universe." *Universe Theories*. 20 Apr. 1989: pp. 100–109. Print.

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Website

Basic Format:

Editor, Author or Compiler Name (if available). *Name of Site*. Version Number. Name of Institution/Organization Affiliated with the Site (Sponsor or Publisher), Date of Resource Creation (if available). Medium of Publication. Date of Access.

Example:

Smith, Joe. *Guide to My Theory of the Universe*. UniverseBlogs. 16 Apr. 2001. Web. 19 Dec 2013.

Motion Picture

Basic Format:

Title of Motion Picture. Director. If relevant, list performers using 'perf.' to distinguish them from director. Distributor. Date of Release. Medium.

Example:

Theories of the Universe. Dir. Joe Smith. Perf. Joe Smith, Jane Smith, Robert Smith. Touchstone. 2012. DVD.

Adapted from The Purdue OWL Family of Sites. The Writing Lab and OWL at Purdue and Purdue University, 2008. Web. 1 Dec. 2013.

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9.3.3 Lesson 4

Introduction

In this lesson, students continue to draft their research papers while focusing on cohesion—both within and between paragraphs. Students will also receive instruction around topic development and writing conclusion paragraphs. Students are assessed based on the coherence of their drafts. For homework, students draft their conclusion paragraph using the W.9-10.2.f checklist as a guide. Students also choose one of their sources to read, circling words and phrases from the **Connecting Ideas Handout** and making a note of how those words and phrases help to connect their ideas.

Standards

Assessed Standard(s)	
W.9-10.2.b, c	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Addressed Standard(s)	
W.9-10.2.f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.9-10.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

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Assessment

Assessment(s)
• The learning in this lesson will be captured through the strength of inter- and intra-paragraph cohesion and development of a topic. ⓘ This assessment is evaluated using the W.9-10.b and c portions of the Informative/Explanatory Research Paper Writing Rubric and Checklist (refer to 9.3.3 Rubric and Checklist Packet in 9.3.3 Lesson 2).
High Performance Response(s)
A High Performance Response may include the following: • Thus, modern researchers claim that language is not the only sign of intelligence. Sometimes, very bright animals do not express their intelligence in ways that we can immediately see or notice. For example, a recent study of 59 chimpanzees concluded that the animals "fake laugh" in response to others' laughter. According to Horowitz and Shea, "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away. • Sometimes animals possess an intelligence that we must uncover. A recent study by researchers at Duke University revealed something about rhesus macaque monkeys: They can "mentally represent and compare numbers," as well as do simple math problems (Duke). "We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition," said graduate student Jessica Cantlon. "Our study shows that they can" (Duke). The monkeys were offered a "variable number of dots" on a touch screen. The dots disappeared, and a new screen appeared with two boxes, one with the sum of the first two sets of dots and one with a different number. When the monkeys tapped the box with the sum of the first two sets, they were rewarded with food. The same test was given to a group of college students. While the college students got the answer correct more often (94% vs. 76%), both the students and the monkeys responded at the same rate. Similarly, both groups' number of correct answers declined equally when the two sets of numbers were close together (e.g., 11 and 12) (Duke). This study proves that the monkeys already had this ability, and were simply using it in ways we did not notice; we only had to construct the right test for them to show us this intelligence.

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Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• cohesion (n.) – the action or fact of forming a united whole • transition (n.) – a passage in a piece of writing that smoothly connects two topics or sections to each other
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students should be using their Vocabulary Journal to incorporate domain-specific vocabulary from Unit 9.3.2 into their research paper, as well as to record process-oriented vocabulary defined in the lesson.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: W.9-10.2b, c, W.9-10.4, W.9-10.2.f, W.9-10.8	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 10%
3. Cohesion in Writing and Topic Development	3. 25%
4. Drafting	4. 40%
5. Conclusion Instruction	5. 15%
6. Closing	6. 5%

Materials

- Copies of the **Connecting Ideas Handout** for each student
- Student copies of the **9.3.3 Rubric and Checklist Packet**
- Students copies of the **MLA Citation Handout** (refer to 9.3.3 Lesson 3)

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Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
❍	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.2b, c and W.9-10.4. Inform students that today's topic is cohesion in writing, as well as how to properly develop a topic.

- ▸ Students listen.

Activity 2: Homework Accountability 10%

Place students in pairs and instruct them to briefly look over one another's citation strategies in the paragraphs they drafted for homework. Students should provide positive feedback and highlight any errors in citation. To guide their feedback, students should reference the MLA Citation Handout they received in the previous lesson, comparing their peers' work to the examples in the handout.

- ▸ In pairs, students look over the paragraphs they drafted for homework. An example critique would be:
- ❍ MLA guidelines require that you name the publication the article appeared in, but you forgot to add the publication.

Activity 3: Cohesion in Writing and Topic Development 25%

Instruct students to finish drafting their paragraphs if they have not already and then work to organize the paragraphs to create *cohesion* throughout the paper. Explain to students that *cohesion* in writing refers to how well the paragraphs and sentences flow into one another to create a whole that is clear and logical to the reader. Explain to students that to create *cohesion*, they must do two things: organize the information logically and use correct *transition* words between sentences and paragraphs. Explain to

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students that a *transition* is passage in a piece of writing that smoothly connects two topics or sections to each other. Explain to students that arriving at a point of *cohesion* is the result of a process that involves revision and editing.

ⓘ Remind students to record the definitions of *cohesion* and *transition* in their Vocabulary Journals.

Distribute the Connecting Ideas Handout.

Provide students with the following two examples, and ask them to consider which they think is more cohesive and logical.

- Much of her work has revolved around creating less stressful environments for animals in the meatpacking industry, in turn helping businesses prosper. Temple Grandin is an animal scientist who argues that untrained handlers and poor systems design often cause stress in the meatpacking industry. Grandin says that, "Stress is bad for human growth, too" (p. 21). "…stressed animals gain less weight, which means less meat to sell. Dairy cattle who've been handled with prods give less milk" (p. 21).
- Temple Grandin, an animal scientist, argues that untrained handlers and poor systems design often cause stress in the meatpacking industry. She claims that "stressed animals gain less weight, which means less meat to sell. Dairy cattle who've been handled with prods give less milk," (p. 21). For this reason, much of her work has revolved around creating less stressful environments for animals in the meatpacking industry, in turn helping businesses prosper.

Once students have read the examples, ask pairs to discuss which one is more cohesive. Ask volunteers to explain their answer.

- The second paragraph is more cohesive. The first paragraph is confusing to read.

Ask students:

What about the first paragraph makes it less cohesive?

- It jumps around and has unnecessary information. It seems like this information belongs in multiple paragraphs.

What about the second paragraph makes it more cohesive?

- The second paragraph provides only relevant information and presents it logically, so the reader can follow along without becoming confused.

What specific words and phrases in the more cohesive paragraph contribute to its success?

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- Temple Grandin is introduced in the first sentence as "an animal scientist," so the reader is introduced to her just before we learn about her arguments. The phrase "for this reason" helps the reader see the connection between the previous sentence and the following one.

Explain to students that cohesion should also exist between paragraphs. In both cases, transitional words and phrases can help link their ideas and support the logic of the paper. Direct students to look at their **Connecting Ideas** Handout for transitional words to use in specific cases. To show how ideas are similar, students might use phrases like, "in the same way," or "similarly." For example: "Grandin argues that, 'stressed animals gain less weight' (p. 21). Similarly, she claims that "stress is bad for human growth." Show students that these words can be used within a paragraph but also to connect two different paragraphs.

- Students listen and look over the words on their handout.

Present student pairs with the following two paragraphs and examine how they cohere from sentence to sentence and between paragraphs:

- Many people would say this is unfair. For example, what if someone held a book up to a dolphin and asked the dolphin to read it aloud? Even if a researcher spent years trying to teach a dolphin to read aloud, he will never be able to do it. When the dolphin inevitably fails this task, is it fair to assume it is because he is dumb? Perhaps it is more correct to say that dolphins do not have the physical ability to read text aloud than it is to claim that they cannot do it because they are unintelligent. Dolphins do not have the correct vocal chords or jaw structure to read aloud. Similarly, one could never teach a dolphin to have a thumb. Would a dolphin be considered unintelligent if it could not hold a hammer?
- Thus, modern researchers claim that language is not the only sign of intelligence. Sometimes, very bright animals do not express their intelligence in ways that we can immediately see or notice. For example, a recent study of 59 chimpanzees concluded that the animals "fake laugh" in response to others' laughter. According to Horowitz and Shae, "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away.

Ask student volunteers to identify words that help with transition and cohesion, using their Connecting Ideas Handout as a reference.

- Student responses should include words like "for example," "similarly," and "thus."

Inform students that the Connecting Ideas Handout is a good resource to have as they write this research paper and beyond this unit as they continue to write formally. Ask students to use the categories column to direct their choice of transitional words and phrases as they write. For example, if

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they are looking to add more information about what they are talking about, they can look in the "Add Related Information" section and choose the word "furthermore" to help them connect their ideas.

- Students listen and examine the handout.

Inform students that cohesion and the logical presentation of information are both crucial to effectively developing a topic. In addition to having concrete details and relevant examples to support a claim, the information has to be presented in a way that is appropriate to the audience's knowledge of the topic. Share with students that, in a way, writing a paper is like teaching: writers are teaching the reader what they know about a topic. To do this, students must start slowly and build up to an understanding, working logically as they progress through information to ensure that the reader understands the topic and research. Remind students that arriving at a point of cohesion is the result of a process that involves revision and editing.

- Students listen.

Activity 4: Drafting 40%

Ask students to take out the 9.3.3 Rubric and Checklist Packet, and turn to the checklists for sub-standard W.9-10.2.b, c.

- Students turn to the checklists for sub-standards W.9-10.2.b, c.

Instruct students to use both checklists as they are drafting, organizing, and adjusting their paragraphs for cohesion and development of a topic. Inform students that they will be assessed according to this document when they submit their final paper.

- Students listen.

Ask students to organize their paragraphs and make any adjustments to what they have written to ensure:

1. There is cohesion and logic to their paragraphs.

2. The information is presented in a way that effectively develops a topic for the reader. Remind students that they may need to add concrete details, transition words, or delete sentences/passages to polish their paper.

- Students work independently on their drafts to ensure cohesion, logic, and appropriate topic development.

ⓘ As students work, walk around the class and address individual concerns.

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Ask students to submit two paragraphs they worked on in class, and assess them on their use of transitional words/phrases and logical presentation of information.

- Students submit two paragraphs they worked on in class.

Activity 5: Conclusion Instruction 15%

Once students have finished drafting for the day, inform them that they will begin drafting their conclusions tonight for homework. Direct students to turn to the checklist for sub-standard W.9-10.2.f in their 9.3.3 Rubric and Checklist Packet. Remind students to reference this checklist as they are drafting their conclusions.

- Students examine the checklist for sub-standard W.9-10.2.f.

Explain to students that an effective conclusion restates the claim of the paper and briefly summarizes some of the evidence presented in the paper to reinforce that claim. Explain that a conclusion is somewhat like the introduction paragraph in reverse: The first sentence of the conclusion paragraph should generally state the central claim of the paper, and the following sentences should open out and possibly offer a new way of thinking.

- Students listen.

Present students with the following example of a conclusion:

- All of these examples prove that animals are often more intelligent than we can see at first. But there is still an unanswered question: How do they compare to humans? One answer is that animals, while often smarter than we think, are not nearly as smart as us. It would not take the average human 30 years to learn to count to seven or learn to say, "Want grape." By the same token, animals seem to have no interest in studying humans, but our desire to know about them highlights our superior intelligence. However, there is another possibility: What if we are only measuring the intelligence we humans can see? What if there is something brilliant going on that we have not learned to measure and analyze? We have learned to teach parrots English, and perhaps it is only a matter of time before we begin to learn some complex language of the animal kingdom previously unknown to us.

Ask students what they notice about the conclusion, discussing the following questions as a class:

What elements of the paragraph conclude the essay, and in what direction does the conclusion lead the reader?

- The conclusion briefly states what the research in the paper implies and returns to the question introduced at the beginning of the essay: "Who is smarter, animals or humans?"

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What is similar about the conclusion and the introduction? What's different?

ⓘ If needed, present students with the model introduction and have them re-read it.

- The conclusion restates the introduction's claim that it is not an easy question to answer. Unlike the introduction, the conclusion then offers that there is so much we have yet to learn. It leads the reader to be interested in reading more about the topic.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to draft their conclusions, using the W.9-10.2.f checklist as a guide. Instruct students to also choose one of their sources and read through it, circling words and phrases from the Connecting Ideas Handout and briefly explaining how those words and phrases connect ideas.

Homework

For homework, draft your conclusion paragraph using the W.9-10.2.f checklist as a guide. Also, choose one of your sources and read through it, circling words and phrases from the Connecting Ideas Handout and briefly explain how those words and phrases connect ideas.

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CONNECTING IDEAS

USING TRANSITIONAL WORDS AND PHRASES

Transitional words and phrases create links between your ideas when you are speaking and writing. They help your audience understand the logic of your thoughts. When using transitional words, make sure that it is the right match for what you want to express. And remember, transition words work best when they are connecting two or more strong ideas that are clearly stated. Here

ADD RELATED INFORMATION	GIVE AN EXAMPLE OR ILLUSTRATE AN IDEA	MAKE SURE YOUR THINKING IS CLEARLY UNDERSTOOD	COMPARE IDEAS OR SHOW HOW IDEAS ARE SIMILAR	CONTRAST IDEAS OR SHOW HOW THEY ARE DIFFERENT
• furthermore • moreover • too • also • again • in addition • next • further • finally • and, or, nor	• to illustrate • to demonstrate • specifically • for instance • as an illustration • for example	• that is to say • in other words • to explain • i.e., (that is) • to clarify • to rephrase it • to put it another way	• in the same way • by the same token • similarly • in like manner • likewise • in similar fashion	• nevertheless • but • however • otherwise • on the contrary • in contrast • on the other hand
EXPLAIN HOW ONE THING CAUSES ANOTHER	**EXPLAIN THE EFFECT OR RESULT OF SOMETHING**	**EXPLAIN YOUR PURPOSE**	**LIST RELATED INFORMATION**	**QUALIFY SOMETHING**
• because • since • on account of • for that reason	• therefore • consequently • accordingly • thus • hence • as a result	• in order that • so that • to that end, to this end • for this purpose • for this reason	• First, second, third... • First, then, also, finally	• almost • nearly • probably • never • always • frequently • perhaps • maybe • although

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9.3.3 Lesson 5

Introduction

In this lesson, students learn how to identify and use formal style and objective tone. After receiving instruction on formal style and objective tone, students use their first drafts to participate in peer review and teacher conferences. In this lesson, students are assessed on the effective integration of peer and teacher editing for formal style, objective tone, and topic development in two body paragraphs. For homework, students continue to self-edit the remainder of their research paper for formal style, objective tone, and topic development.

Standards

Assessed Standard(s)	
W.9-10.2 b, e	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 55.)
Addressed Standard(s)	
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.
L.9-10.3	Apply knowledge of language to understand how language functions in different

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	contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Assessment

Assessment(s)
The learning in this lesson will be captured through incorporation of peer and teacher feedback, regarding formal style and objective tone in two body paragraphs. ⓘ This assessment will be evaluated using the W.9-10.2.b, e portion of the Informative/Explanatory Research Paper Writing Rubric and Checklist (located in the 9.3.3 Rubric and Checklist Packet).
High Performance Response(s)
A high performance response may include the following: **Pre-Revision:** For some reason, the ancient Greeks thought that there was a ladder of intelligence or something. And humans were super close to angels but animals weren't as close (Waal). For a while most scientists and philosophers thought things like that, saying stuff like animals had no souls, and that they could "learn" but not "think" or "feel." I think that a lot of people who made these claims didn't try so hard to discover signs of animal thinking. They would always test the animals in ways that were appropriate for human subjects and everything, but not for the animals themselves. **Post-Revision:** The ancient Greeks thought that there was a ladder of intelligence, with all life forms ranking from low to high, and humans were the closest things to angels on earth (Waal). From then until somewhat recently, many scientists and philosophers followed this idea in one way or another, claiming that animals had no souls, and that they could potentially "learn" but not "think" or "feel" (Waal). Most people who made these claims did not try very hard to discover signs of animal cognition, and would often test the animals in ways that were appropriate for human subjects, but not for the animals themselves.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• objective tone (n.) – a style of writing not influenced by personal feelings or opinions that is based on fact and makes use of the third-person point-of-view • subjective tone (n.) – a style of writing that involves personal opinion and expression

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• norms (n.) – standards, models, or patterns • discipline (n.) – branch of learning or instruction • colloquial (adj.) – used in conversation
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students should be using their Vocabulary Journal to incorporate domain-specific vocabulary from Unit 9.3.2 into their research paper, as well as to record process-oriented vocabulary defined in the lesson.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.2.b, e, W.9-10.5, W.9-10.4, SL.9-10.1, L.9-10.3	
• Text: Sources from research	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 10%
2. Homework Accountability	2. 10%
3. Objective and Formal Tone	3. 15%
4. Peer Review and Teacher Conference	4. 40%
5. Lesson Assessment	5. 20%
6. Closing	6. 5%

Materials

- Student copies of the **9.3 Core Curriculum Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- Student copies of the **9.3.3 Rubric and Checklist Packet**
- Student copies of the **Connecting Ideas Handout** (refer to 9.3.3 Lesson 4)

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.

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no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the agenda for the lesson and the assessed standards: W.9-10.2.b, e and W.9-10.5. Inform students that this lesson guides them in using formal style and objective tone for a research paper. Students engage in peer-review and teacher conferences for the purpose of editing their first drafts.

Ask students to take out their 9.3 Core Curriculum Learning Standards Tool and read standard W.9-10.2.b, e, focusing on substandard e. Explain to students that *norms* means standards or patterns and *discipline* means the branch of learning. In other words, students should use patterns of writing appropriate for the ELA *discipline*. Instruct students to assess their familiarity with and mastery of this substandard.

- Students read standard W.9-10.2.e, assessing their familiarity with and mastery of it.

ⓘ Remind students to record the definitions of *norms* and *discipline* in their Vocabulary Journals.

Activity 2: Homework Accountability 10%

Instruct students to work in pairs and exchange their concluding paragraphs. Remind students to offer supportive feedback if they notice areas in need of improvement and refer to the 9.3.3 Rubric and Checklist to guide their review.

- Students form pairs and exchange their concluding paragraphs for peer review.

Request that student pairs briefly share the transitional words and phrases they found in their sources, explaining how those words help to connect ideas. Remind students to refer to their Connecting Ideas Handout as a resource for transitional words and phrases.

- Student pairs briefly share the transitional words and phrases they found in their sources, explaining how those words help to connect ideas.

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Activity 3: Formal Style and Objective Tone 15%

Share with students the importance in academic writing of maintaining a formal style. Inform students that a formal style is used for writing academic papers as well as in college and the workplace. It is important when writing a research paper to use a formal style because it makes a research paper appealing and accessible to a wide audience. A formal style uses correct and specific language, correct grammar, and complete sentences. Remind students to avoid contractions (e.g., don't), abbreviations (e.g., gov't), or slang (e.g., ain't).

- Students listen.

Display two sentences for students:

- I think that a lot of people who made these claims didn't try so hard to discover signs of animal thinking. They would always test the animals in ways that were, like, cool for human subjects and everything. But not for the animals themselves.
- Even if a researcher spent years trying to teach a dolphin to read aloud, the dolphin will never be able to read. This example illustrates an important point: although animals do not display their intelligence in the same way as humans, it does not mean they do not have intelligence.

Ask student pairs to complete a brief Turn-and-Talk discussing which sentence is formal and which is informal.

- The first sentence is casual: it sounds like someone is talking, and it also uses contractions such as "didn't." There is also an incomplete sentence. The sentence: "But not for the animals themselves" does not have a subject. The second sentence is written in a formal style because it has complete sentences and does not include abbreviations.

ⓘ **Differentiation Consideration:** Instead of these examples consider providing students with guidelines for informal and formal style. Informal style is defined as being *colloquial* (i.e., used in conversation). The prose is simple, without contractions and abbreviations, and can use empathy and emotion. Formal style is often complex and objective. It is written using full words and in the third person. *Source: http://blog.ezinearticles.com/2011/03/formal-vs-informal.html

ⓘ Consider drawing students' attention to their application of standard L.9-10.3 through the process of applying appropriate knowledge of language to making more effective choices for meaning and style.

Explain to students that along with using a formal tone in their paper, it is equally important to use an *objective tone*. When writing with an *objective tone*, writers should avoid expressing their personal opinions and focus on presenting the information and conclusions gathered from the research. Remind students the purpose of this research paper is not to present opinion; it is to present information about a topic. Writing with an *objective tone* also means using the third-person point-of-view (i.e., *he*, *she*, *it*,

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they, *one*) instead of the first-person point-of-view (i.e., *I*, *we*) or the second-person point-of-view (i.e., *you*).

ⓘ Remind students to record the definition of *objective tone* in their Vocabulary Journals.

Display the following examples for students:

- You might think that dolphins are smart, and just because you cannot teach them to read, the research I found shows that this doesn't mean they are unintelligent.
- Perhaps it is more correct to say that dolphins do not have the physical ability to read text aloud than it is to claim that dolphins cannot learn to read because they are unintelligent.

Ask student pairs to complete a brief Turn-and-Talk to discuss which sentence uses an *objective tone*.

- ▸ Students complete a Turn-and-Talk with a partner.
- 🗨 The second sentence uses *objective tone* because it doesn't have "I" or "we" in the sentence. It also clearly presents information gathered in the research.

ⓘ Teachers may choose to create their own examples tailored to students' degree of experience and fluency with *objective tone*. Share with students the definition of *subjective tone* as "the style of writing that involves personal opinion and expression" and ask students to record the definition in their Vocabulary Journals.

ⓘ Consider using the evidence-based perspective writing assignment as an example of an informal written assignment that uses the first-person point-of-view.

Activity 4: Peer Review and Teacher Conference 40%

Inform students that this portion of the lesson is for both peer review and a conference with the teacher. Assign students an individual time to meet with the teacher to receive feedback on their research paper. Then instruct students to form pairs to read the W.9-10.2.b, e checklists in the 9.3.3 Rubric and Checklist Packet to guide their peer review. Remind students that in this lesson, they will continue the work on collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

ⓘ Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

ⓘ The peer review and teacher conference will continue in the following lesson.

- ▸ Students read the W.9-10.2.b, e checklists and discuss in pairs before beginning the peer review of their peer's body paragraphs.

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Instruct students who are scheduled for individual conferences to meet with the teacher to discuss their research paper.

ⓘ In order to maximize work time, consider having students meet in their pre-established research groups for peer review while students have their independent teacher conferences.

Activity 5: Lesson Assessment 20%

Instruct students to independently begin revising the two body paragraphs based on peer and teacher feedback. Inform students that the assessment is based on their editing and incorporation of peer and teacher feedback. Remind students to refer to the 9.3.3 Rubric and Checklist Packet. Remind students that the assessment will be evaluated using the W.9-10.2.b, e portion of the Informative/Explanatory Research Paper Writing Rubric**.**

- Students revise two of the body paragraphs of their research paper based on peer and teacher feedback.

- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to review and revise all of the body of their research paper to ensure they are using formal style, objective tone, and sufficiently developing their topic throughout the paper. Remind students to use the W.9-10.2.b, e checklists in the 9.3.3 Rubric and Checklist Packet to guide their review and revisions.

- Students follow along.

Homework

Review and revise your entire research paper for formal style, objective tone, and topic development. Use the W.9-10.2.b, e checklists in the 9.3.3 Rubric and Checklist Packet to guide your review and revisions.

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9.3.3 Lesson 6

Introduction

In this lesson, students continue to refine and revise their research papers. The instruction in this lesson focuses on editing for flow and the cohesiveness of the entire research paper. Students continue to provide peer feedback as well as conference with the teacher. Students use a peer feedback rubric and checklist to guide their peer review and make revisions to their research papers. At the end of the lesson, students are assessed on their revisions for overall flow and cohesiveness, using the W.9-10.2.c portion of the **Research Paper Writing Rubric: Informative/Explanatory**. For homework, students revise their introductions and conclusions.

Standards

Assessed Standard(s)	
W.9-10.2.c	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 55.)
Addressed Standard(s)	
W.9-10.2.a, f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

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SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grades 9–10 topics, texts, and issues*, building on others' ideas and expressing their own clearly and persuasively.

Assessment

Assessment(s)
The learning in this lesson will be captured through student revisions based on peer and teacher feedback of the overall cohesiveness and flow of their research paper. ⓘ This assessment will be evaluated using the W.9-10.2.c portion of the Research Paper Writing Rubric: Informative/Explanatory (located in the 9.3 Unit 3 Rubric and Checklist Packet).
High Performance Response(s)
A high performance response may include the following: **Pre-Revision:** **Are the different colors correct? Are the correct words/sentences highlighted?** Modern researchers claim that language is not the only sign of intelligence. A recent study of 59 chimpanzees concluded that the animals "fake laugh" in response to others' laughter. Sometimes, very bright animals do not express their intelligence in ways that we can immediately see or notice. This behavior exhibits chimps' social etiquette. According to Horowitz and Shae, "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." Rhesus macaque monkeys: They can "mentally represent and compare numbers," as well as do simple math problems (Duke). The monkeys were offered a "variable number of dots" on a touch screen. The dots disappeared, and a new screen appeared with two boxes, one with the sum of the first two sets of dots and one with a different number. When the monkeys tapped the box with the sum of the first two sets, they were rewarded with food. The same test was given to a group of college students. While the college students got the answer correct more often (94% vs. 76%), both they and the monkeys responded at the same rate. Both groups' number of correct answers declined equally when the two sets of numbers were close together (e.g., 11 and 12), (Duke). "We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition," said graduate student Jessica Cantlon. "Our study shows that they can" (Duke). **Post-Revision:** Thus, modern researchers claim that language is not the only sign of intelligence. Sometimes, very bright animals do not express their intelligence in ways that we can immediately see or notice. For example, a recent study of 59 chimpanzees concluded that the animals "fake laugh" in response to others' laughter. According to Horowitz and Shea, "The researchers discovered that when one chimp

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laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away.

Sometimes animals possess an intelligence that we must uncover. A recent study by researchers at Duke University revealed something about rhesus macaque monkeys: They can "mentally represent and compare numbers," as well as do simple math problems (Duke). "We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition," said graduate student Jessica Cantlon. "Our study shows that they can" (Duke). The monkeys were offered a "variable number of dots" on a touch screen. The dots disappeared, and a new screen appeared with two boxes, one with the sum of the first two sets of dots and one with a different number. When the monkeys tapped the box with the sum of the first two sets, they were rewarded with food. The same test was given to a group of college students. While the college students got the answer correct more often (94% vs. 76%), both they and the monkeys responded at the same rate. Similarly, both groups' number of correct answers declined equally when the two sets of numbers were close together (e.g. 11 and 12), (Duke). This study proves that the monkeys already had this ability, and were simply using it in ways we did not notice; we only had to construct the right test for them to show us this intelligence.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• flow (n.) – in written work, flow is a logical, smooth progression of words and ideas • climactic (adj.) – consisting of a series of related ideas so arranged that each surpasses the preceding in force or intensity • chronological (adj.) – arranged in the order of time
Vocabulary to teach (may include direct word work and/or questions)
• None.*

*Students should be using their Vocabulary Journal to incorporate domain-specific vocabulary from Unit 9.3.2 into their research paper, as well as to record process-oriented vocabulary defined in the lesson.

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Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.2.c, W.9-10.5, W.9-10.2.a, f, SL.9-10.1	
• Text: Sources from research	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 15%
3. Flow and Cohesiveness of the Research Paper	3. 20%
4. Peer Review and Teacher Conference	4. 35%
5. Revision and Lesson Assessment	5. 20%
6. Closing	6. 5%

Materials

- Student copies of the **9.3 Core Curriculum Learning Standards Tool** (refer to 9.3.1 Lesson 1)
- Student copies of the **9.3.3 Rubric and Checklist Packet**

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions. (In other lessons it says '…indicates questions for the teacher to ask students.' Which is correct?
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

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Activity 1: Introduction of Lesson Agenda 5%

Begin by introducing the agenda and assessed standards for this lesson: W9-10.2.c and W.9-10.5. Inform students that in this lesson, they are focusing on revising for cohesiveness and flow for the entire research paper.

- Students look at the agenda.

Ask students to read standard W.9-10.2.a, c, and f on their Common Core Learning Standards Tool. Inform students that these three sub-standards are the focus for the editing in this lesson, although only W.9-10.2.c will be assessed. Ask students to assess their familiarity with and mastery of these sub-standards.

- Students assess their familiarity with and mastery of W.9-10.2.a, c, and f.

Activity 2: Homework Accountability 15%

Ask students to briefly Turn-and-Talk in pairs and discuss the revisions to their research paper based on the feedback for formal style, objective tone, and topic development in the previous lesson. Ask students to use the W.9-10.2.b, e checklists from the previous lesson to guide their discussion.

- Students Turn-and-Talk in pairs and discuss the revisions they completed for homework.

Activity 3: Flow and Cohesiveness of the Research Paper 20%

Inform students that they will be reviewing and expanding on the process of cohesion and *flow* of a paper. Explain to students in written work, *flow* is: "a logical, smooth progression of words and ideas to clearly communicate and support a central claim or idea." Remind students they have already learned about writing logically and using transitional words to aid cohesion. In this lesson they will be looking at their entire paper for cohesion as well as consistency between the introduction and conclusion. Explain to students that it is possible to use transitional words and phrases correctly, especially between paragraphs, but still not have a paper that flows well.

- Students listen.

ⓘ Remind students to record the definition of *flow* in their Vocabulary Journals.

Display the following example of one paragraph leading into another paragraph for students:

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- Example: "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away.

  Furthermore, a recent study by researchers at Duke University revealed something about rhesus macaque monkeys: They can "mentally represent and compare numbers," as well as do simple math problems (Duke).

  - Students follow along and read the example.

Ask students:

What transitional word is being used in this example?

- The word "furthermore."

Explain to students that even though these two paragraphs are linked by a transitional word, the ideas are not flowing together. It is important that a paper's ideas flow together and that the cohesion goes beyond just inputting appropriate words that link paragraphs together. This can be achieved by reiterating a small portion of the idea expressed in the previous paragraph as a way of introducing and leading into the next paragraph. This is an example of a transitional phrase. Explain to students that transitional phrases help sub-claims work together and connect within the paper. It is important for the overall cohesion of the paper that these sub-claims strongly connect to support the central claim of the paper. Display the revised example for students:

- Revised: "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away.

  Sometimes animals possess an intelligence that we must uncover. A recent study by researchers at Duke University revealed something about rhesus macaque monkeys: They can "mentally represent and compare numbers," as well as do simple math problems (Duke).

  - Students follow along and read the example.

ⓘ **Differentiation Consideration:** Consider providing students with more examples of effective cohesion from the pre-revision and post-revision in the High Performance Response in this lesson. For example, ending a paragraph with: *"We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition," said graduate student Jessica Cantlon. "Our study shows that they can" (Duke)* doesn't provide a logical and cohesive flow into the following paragraph. The following example qualifies the ideas in this paragraph and provides a cohesive transition: *This study proves that the monkeys already had this*

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ability, and were simply using it in ways we did not notice; we only had to construct the right test for them to show us this intelligence.

Explain to students that along with transitional phrases, they should also ensure they have a logical sequence of claims. The organizational sequence they developed on their outline may have changed, but students should make sure that their claims are logically ordered. Inform students the principle of organization may vary depending on the content of their research paper. One type of organizational structure is *climactic* order, which builds so the strongest claim comes at the end to support the central claim. Another type of organizational structure is *chronological* order, which orders the information based on time.

- Students follow along.

ⓘ Remind students that they have done this thinking when they developed their outline and ordered their claims in a logical sequence.

ⓘ Remind students to record the definitions of *climatic* and *chronological* in their Vocabulary Journals.

ⓘ **Differentiation Consideration:** If students are struggling with the concepts of *climactic* and *chronological* order, consider reviewing the sample research paper in this unit as a strong example of *climactic* order.

Explain to students that another aspect of cohesion and *flow* is making certain the introduction and conclusion fit well together. Remind students that they have learned the structure of an introduction as well as a conclusion in previous lessons in this unit. When they are reviewing, students should ensure that the central claim is present in both the introduction and conclusion. Students should ensure the introduction is interesting and engaging, and the conclusion opens out at the end to offer a new way of thinking.

- Students follow along.

Activity 4: Peer Review and Teacher Conference 35%

Inform students that they will continue to peer review as well as conference with the teacher. Review the individual assigned times to meet with students to provide feedback for their research paper. Then, instruct students to form pairs to continue peer review. Ask students to refer to the W.9-10.2.c checklist in the 9.3.3 Rubric and Checklist Packet to guide their peer review.

ⓘ Suggest to students that an effective strategy for review is to read a paper aloud as it will help highlight any areas that may not flow very well.

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ⓘ Inform students that in this lesson, students will continue the work of collaborative discussion outlined in SL.9-10.1 to which they were previously introduced. Remind students these discussion strategies have been taught in previous modules. Consider reminding students of the skills inherent in the sub-standards of Standard SL.9-10.1, to which students were previously introduced.

- Students continue the peer review of their partner's body paragraphs as well as conference with the teacher.

Instruct students who are scheduled to conference with the teacher to individually meet at their assigned time. Remind students that this is a continuation of teacher conferencing from the previous lesson.

- Students who are scheduled for a teacher conference meet with the teacher to discuss their research paper.

ⓘ Depending on class size, this could be a chance to continue peer review from the previous lesson or give the teacher a chance to meet with students a second time. Consider having students form pairs for review or meeting in their pre-established research teams.

Activity 5: Revision and Lesson Assessment 20%

Ask students to independently revise their drafts by focusing on the entire paper and using the W.9-10.2.c checklist from the Research Paper Writing Rubric: Informative/Explanatory. Students will be assessed on their consistency of a flow and cohesiveness throughout their draft.

ⓘ The conventions established in previous modules, as well as in Lesson 4, will be used to evaluate students in this lesson. The established protocols for a hard-copy writing, editing, and drafting process should be implemented. Otherwise instruct students to use track changes on a digital version of their research paper.

- Students independently revise their drafts based on peer and teacher feedback.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to continue to revise their drafts based on feedback on the cohesion and consistency of their introduction and conclusion. Refer students to the W.9-10.2.a, f checklists in the 9.3.3 Rubric and Checklist Packet to guide their revisions and review. Ask students to come to class prepared to discuss the revisions to the introduction and conclusion.

- Students follow along.

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Homework

Revise your introductions and conclusions based on feedback on the cohesion and consistency of your introduction and conclusion. Refer to the W.9-10.2.a, f checklists to guide your revisions. Be prepared to discuss your revisions in the following lesson.

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9.3.3 Lesson 7

Introduction

In this lesson, students continue to edit and revise their research papers. Students are introduced to a new language standard, L.9-10.2. They are also introduced to semicolons as a way to join independent clauses and colons as a means of introducing a quote or list through the **Colon and Semicolon Handout**. Students continue the peer review process for grammar and spelling. The assessment in this lesson is based on student revisions based on peer feedback. For homework, students continue to revise their drafts in preparation for the End-of-Unit Assessment.

Standards

Assessed Standard(s)	
W.9-10.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 55.)
L.9-10.2. a, b, c	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.
Addressed Standard(s)	
W.9-10.2.d	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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L.9-10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Assessment

Assessment(s)
The learning in this lesson should be captured through students' revision of their research paper based on the instruction of L.9-10.2—writing conventions (capitalization, punctuation, and spelling). ⓘ This assessment is evaluated with the L.9-10.2 portion of the Research Paper Writing Rubric: Informative/Explanatory (located in the 9.3.3 Rubric and Checklist Packet).
High Performance Response(s)
A High Performance Response may include the following: **Pre-Revision:** Plenty of people say there pets are intelligent. Some people think that they're dog is more smart than their neighbor. But how smart are animals really? over the centuries, people offered many ways of thinking about animal cognition. in the 17 century, rene descarte said animals don't think at all, and that is why they are not able to speak. Recently, many researchers began to observe extrordinairy signs of intelligence in dolphins, chimps, dogs, and even parrots from following instructions and using tools, to being able to speak and do math. But while some animals: may show signs of intelligence, a remaining question is; How do animal intelligence compare to human intelligence? while we think that humans are smarter, how, much smarter, are we, exactly? The question still has no clear answer… it depends on how we measure intelligence, and weather or not it is fare (or even possible) to compare us to them. **Post-Revision:** Plenty of people say their pets are intelligent, emotional creatures. Some people might even argue that their dog is smarter than their neighbor. But how smart are animals really? Over the centuries, people have offered many ways of thinking about animal cognition—that is, the mental capacities of animals. In the 17th Century, René Descartes claimed that animals do not think at all, and that is why they are not able to speak, (Castro and Wasserman). Recently, though, many researchers have begun to observe extraordinary signs of intelligence in dolphins, chimps, dogs, and even parrots—from following instructions and using tools, to being able to speak and do math. But while some animals may show signs of intelligence, a remaining question is: How does animal intelligence compare to human

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intelligence? While we think that humans are smarter, how much smarter are we exactly? The question still has no clear answer; it depends on how we measure intelligence, and whether or not it is fair (or even possible) to compare us to them.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• Independent clause (n.) – a clause that can stand alone as a sentence, containing a subject and a predicate with a finite verb. • Conventions (n.) – The way in which something is usually done, especially within a particular area or activity (in this case, grammar).
Vocabulary to teach (may include direct word work and/or questions)
• None.*

ⓘ Students should be using their Vocabulary Journal to incorporate domain-specific vocabulary from Unit 9.3.2 into their research paper, as well as to record process-oriented vocabulary defined in the lesson.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text:	
• Standards: W.9-10.5, L.9-10.2.a, b, c, W.9-10.2.d, SL.9-10.1, L.9-10.6	
• Text: Sources from research	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 10%
2. Homework Accountability	2. 10%
3. Editing Instruction	3. 20%
4. Peer Review	4. 30%
5. Lesson Assessment	5. 25%
6. Closing	6. 5%

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Materials

- Student copies of the **9.3.3 Rubric and Checklist Packet** for each student
- Copies of **Colon and Semicolon Handout** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
❍	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 10%

Begin by reviewing the agenda and assessed standards of this lesson: W.9-10.5, L.9-10.2. Inform students that they are focusing on grammar and spelling in this lesson and doing peer review in preparation for the End-of-Unit Assessment. Inform students that they are working with a new standard: L.9-10.2. Display the language of the standard: *Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses. b. Use a colon to introduce a list or quotation. c. Spell correctly.* Ask students to put this standard in their own words.

▸ Students follow along and read the agenda.

Explain that students are assessed on this new standard: L.9-10.2. Ask students to individually reread standard L.9-10.2 and assess their familiarity with and mastery of the standard on the 9.3 Common Core Learning Standards Tool. Ask students to write down what they think are the large ideas in the standard and discuss with a classmate.

ⓘ The 9.3 Common Core Learning Standards Tool was distributed in Unit 1 Lesson 1.

Lead a share out of the standard's large ideas.

❍ Student responses may include: This standard is about spelling words, using correct grammar, and using semicolons and colons properly.

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Activity 2: Homework Accountability 10%

Instruct students to Turn-and-Talk with a classmate about the revisions they completed for homework based on the feedback around cohesion, their introductions, and conclusions from the previous lesson.

- Student responses vary based on their individual revisions.

Activity 3: Editing Instruction 20%

Explain to students that editing for grammar is an important part of writing and should always be completed prior to writing their final draft. Inform students that they should always incorporate proper capitalization and punctuation into their writing, and remind them that these *conventions* have been addressed in previous modules.

ⓘ If students require more direct instruction around conventions of standard English capitalization, the aspects most pertinent to this unit are the capitalization of proper nouns and the first word in a sentence.

Inform students that they are focusing on how to use semicolons and colons to strengthen their writing and communicate complex ideas and that there are *conventions* for using these types of punctuation, which you can review with them.

ⓘ Inform students that a *convention* is the way in which something is usually done. For punctuation, a *convention* would be the way(s) a punctuation mark is most often used. Remind students to record the definition of *conventions* in their Vocabulary Journals.

- Students follow along.

Distribute the Colon and Semicolon Handout to students and ask them to follow along while learning about punctuation conventions.

- Students look over the Colon and Semicolon Handout.

Explain to students that semicolons are a type of punctuation that can be used to connect two *independent clauses.* Offer students a definition of *independent clause* as a clause that can stand alone as a sentence, containing a subject and a predicate with a finite verb. This means that an *independent clause* communicates a complete thought and it is usually a simple sentence. Display the following example for students: "The table was long." This is an example of an independent clause.

ⓘ Remind students to record the definition of *independent clause* in their Vocabulary Journals.

ⓘ If needed, provide further instruction around independent clauses. For example, "I am," is technically an independent clause. "The red house in Florida," is not an independent clause. If time

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allows, help students differentiate between independent and dependent clauses. (e.g., "I work at the grocery store, which is red," the former clause being independent, the latter being dependent.)

In order to join a related independent clause and show they are related, use a semicolon. Display the following example for students: *The table was long. It could seat 15 people*. Now display the joined clauses: *The table was long; it could seat 15 people.* Explain to students that it is not incorrect to use two sentences instead of conjoining the clauses with a semicolon, but since the ideas are linked, it makes sense to conjoin them. Display the following examples for students to explain situations where a semicolon would not be appropriate: *The table was long; very long*. and T*he table was long; and wooden.*

- Students follow along.

Inform students that colons are a type of punctuation that are very important in a research paper because a colon is used when introducing a quotation after an independent clause.

Display the following example for students: *It has been documented that pigeons would be much better at a game show than humans: "After training in the game, the pigeons switched 96 percent of the time" (Horowitz and Shea).* Display the following example to explain a situation where a colon would not be appropriate: *After training: "the pigeons switched 96 percent of the time" (Horowitz and Shea).*

- Students follow along.

Another use of colons is to introduce a list. Display the following example for students: *Monkeys have plenty of skills, including: climbing trees, using tools to get food, communicating with hand gestures, and even finger-painting.*"

ⓘ Some students may have trouble immediately grasping the proper use of colons and semicolons. If students are struggling, work with them individually to write out 5–10 examples of the proper use of each type of punctuation.

Instruct students to keep the Colon and Semicolon Handout and use it as a reference as needed.

Remind students to be mindful of their spelling as well as their use of specific domain vocabulary they have identified from the text and recorded in their Vocabulary Journals.

ⓘ Instruction around independently identifying and addressing vocabulary has been established in Unit 2 of this module.

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Activity 4: Peer Review 30%

Inform students that they will work in pairs to continue to peer review their drafts for correct use of grammar (capitalization, punctuation), spelling, and use of domain specific vocabulary. Instruct students to look for instances in their partner's paper where a semicolon or colon should be used. Ask students to take out their 9.3.3 Rubric and Checklist Packet, and turn to the checklist for standard L.9-10.2. Ask students to use this checklist as a guide during their peer review. Remind students they should be finalizing their draft in the next lesson. Inform students that in this lesson, they will continue the work of collaborative discussion outlined in SL.9-10.1, to which students were previously introduced. Remind students these discussion strategies have been taught in previous modules.

ⓘ Consider reminding students of the skills inherent in the sub-standards of standard SL.9-10.1, to which students were previously introduced.

ⓘ Consider completing any outstanding teacher conferences with students.

Activity 5: Lesson Assessment 25%

Inform students that they should independently review and revise their draft based on the peer review. Remind students they are assessed using the checklist aligned to W.9-10.2.d and L.9-10.2 and to refer to the 9.3 Unit 3 Rubric and Checklist Packet for further guidance.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, ask students to make further grammatical edits and spelling in preparation for the End-of-Unit Assessment and be prepared to discuss one or two of their edits in the following lesson. Ask students to review their paper and make note of any evidence or information that would be well suited to present in a visual format.

ⓘ Remind students that the performance assessment in this module should be a multimedia presentation of their research paper.

Homework

Continue to edit your research papers for grammar and spelling. To guide your edits, use the checklists aligned to W.9-10.2.d and L.9-10.2 and be prepared to discuss one or two edits in the following lesson. Additionally, review your research paper and identify information that would benefit from being presented in a visual or multimedia format. Capture this information in the form of a list to be reviewed in the following lesson.

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Colon and Semicolon Handout

Name:		Class:		Date:	

Common and Proper Uses of the Colon:

- Use a colon when introducing a quotation after an *independent clause.*
  - For example, it has been documented that pigeons would be much better at a game show than humans: "After training in the game, the pigeons switched 96 percent of the time" (Horowitz and Shea).
- Use a colon when introducing a list.
  - For example, monkeys have plenty of skills, including: climbing trees, using tools to get food, communicating with hand gestures, and even finger-painting.

Common and Proper Uses of the Semicolon:

- Use a semicolon to connect two *independent clauses* that are related to one another.
  - For example, the monkey could read; he enjoyed short books.

Further reference: The Purdue OWL Family of Sites. The Writing Lab and OWL at Purdue and Purdue U, 2008. Web. 1 Dec. 2013. https://owl.english.purdue.edu/engagement/2/1/44/

ⓘ Remember: An *independent clause* contains both a subject and a verb, and can stand alone as a complete sentence. (e.g., "The boy runs," is an independent clause; "The boy down the street," is not independent.)

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9.3.3 Lesson 8

Introduction

In this lesson, the End-of-Unit Assessment, students work in class to finalize their research papers, editing, polishing, and rewriting as necessary. Students are evaluated on the final draft's alignment to the criteria of **Research Paper Writing Rubric: Informative/Explanatory**. The final draft should demonstrate thoughtful analysis of the evidence gathered through research as well as the organizational structure of the chosen research paper. For homework, students should prepare for the Module Performance Assessment.

Standards

Assessed Standard(s)	
W.9-10.2.a-f	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
Addressed Standard(s)	
W.9-10.4	Produce clear and coherent writing in which the development, organization, and style

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	are appropriate to task, purpose, and audience.
W.9-10.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.

Assessment

Assessment(s)
• Students are assessed on the final draft's alignment to the criteria of an informative/explanatory text (W.9-10.2). The final draft should examine and convey complex ideas and clearly incorporate their evidence-based claims as well as appropriately citing sources. The final draft should demonstrate thoughtful analysis of the evidence gathered through research as well as the organizational structure of the chosen research paper. ⓘ This assessment is evaluated using the Research Paper Writing Rubric: Informative/Explanatory (located in the 9.3 Unit 3 Rubric and Checklist Packet).
High Performance Response(s)
A high performance response may include the following: • See attached sample student research paper.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• None.*
Vocabulary to teach (may include direct word work and/or questions)
• None.*

* Students will encounter domain-specific vocabulary related to their individual research question/problem by reading, annotating, and recording notes on various sources. Students will track some of this vocabulary in their Vocabulary Journal when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson

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Standards & Text: • Standards: W.9-10.2.a-f, W.9-10.4, W.9-10.9 • Text: None. **Learning Sequence:** 1. Introduction of Lesson Agenda 2. Homework Accountability 3. End-of-Unit Assessment: Final Draft 4. Closing	 1. 5% 2. 10% 3. 80% 4. 5%

Materials

- Student Copies of the **9.3.3 Rubric and Checklist Packet**
- Copies of the **End-of-Unit Assessment** for each student
- Copies of the **Research Paper** for each student

Learning Sequence

How to Use the Learning Sequence	
Symbol	**Type of Text & Interpretation of the Symbol**
10%	**Percentage indicates the percentage of lesson time each activity should take.**
no symbol	Plain text indicates teacher action.
	Bold text indicates text dependent questions.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
💬	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by introducing the lesson agenda and assessed standard in this lesson: W.9-10.2.a-f. Inform students that today they are completing their final draft of their research paper to be evaluated for the End-of-Unit Assessment. Instruct students to work independently and hand in the final product at the end of class.

▸ Students listen.

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Activity 2: Homework Accountability 10%

Ask student volunteers to briefly share one or two grammatical edits they made for homework and to explain their decisions by referencing the checklists aligned to W.9-10.2.d and L.9-10.2 in their 9.3.3 Rubric and Checklist Packet.

ⓘ Students may have grammatical questions, which, if time allows, can be addressed during Homework Accountability.

Ask student volunteers to also share two items from the list they created, detailing any evidence that would be effective to use in a multimedia format.

- Possible student responses might resemble:
  - One area I thought would benefit from multimedia is the portion in my essay where I discuss monkeys and students taking the same test. Because there are so many numbers, a visual graph of this might help many people understand the point more clearly.

Activity 3: End-of-Unit Assessment: Final Draft 80%

Instruct students that they should spend the remaining portion of the class completing the final draft of their research paper. Inform them that they can use their Research Portfolios, all checklists and rubrics used in this unit, and previous versions of their research paper with peer comments to guide their creation of the final draft. Advise students they should use this time to edit, polish, and/or rewrite as they see fit, using all the skills they have learned over the course of this unit. Students should also finalize their works cited and format their paper according to MLA standards. Remind them to hand in their paper at the end of class and that their final draft is evaluated on its alignment to the conventions of an informative/explanatory text. It is assessed using the Research Paper Writing Rubric: Informative/Explanatory, including reference to citations as well as proof that the evidence-based perspective has developed from research and is supported by sufficient evidence.

- Students listen and begin finalizing their research papers.

Activity 6: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to prepare for the module performance task by reviewing their research paper and identifying evidence and claims that would be enhanced by forms of multimedia.

- Students follow along.

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Homework

Prepare for the Module Performance Assessment by reviewing your research paper and identifying evidence and claims that would be enhanced by forms of multimedia. Capture these pieces of evidence and claims in a list to be used during the module performance task.

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End-of-Unit Assessment (9.3.3 Lesson 8)

Final Research Paper

Your Task: Rely on the evidence you have gathered to write the final draft of your research paper. Use the evidence-based perspective developed from your research and supported by textual evidence in crafting your final paper. Use your Research Portfolios, checklists and rubrics, and previous versions of your research paper with peer comments to guide the creation of your final draft.

Your writing will be assessed using the Research Paper Writing Rubric: Informative/Explanatory.

Guidelines

Be sure to:

- Review your writing for alignment with all parts of W.9-10.2
- Make clear, evidence-based claims about your research topic
- Paraphrase, quote, and reference relevant evidence to support your claim(s)
- Organize your ideas in a cohesive and coherent manner
- Use precise language appropriate for your task
- Follow the conventions of standard written English
- Correctly cite all evidence, finalize your bibliography and format the paper according to MLA standards

CCLS: W.9-10.2(a-f)

Commentary on the Task:

This task measures W.9-10.2 because it demands that students:

- Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
  - Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
  - Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
  - Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
  - Use precise language and domain-specific vocabulary to manage the complexity of the topic.

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Sample Student

Sample Teacher

Sample Class

Sample Date

Us or Them: Research on Animal Intelligence

Plenty of people say their pets are intelligent, emotional creatures. Some people might even argue that their dog is smarter than their neighbor. But how smart are animals really? Over the centuries, people have offered many ways of thinking about animal cognition—that is, the mental capacities of animals. In the 17th Century, René Descartes claimed that animals do not think at all, and that is why they are not able to speak, (Wasserman and Castro). Recently, though, many researchers have begun to observe extraordinary signs of intelligence in dolphins, chimps, dogs, and even parrots—from following instructions and using tools, to being able to speak and do math. But while some animals may show signs of intelligence, a remaining question is: How does animal intelligence compare to human intelligence? That is to say, while we think that humans are smarter, how much smarter are we, exactly? The question still has no clear answer; it depends on how we measure intelligence, and whether or not it is fair (or even possible) to compare us to them.

The ancient Greeks thought that there was a ladder of intelligence, with all life forms ranking from low to high, and humans were the closest things to angels on earth, (Waal). From then until somewhat recently, many scientists and philosophers followed this idea in one way or another, claiming

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that animals had no souls, and that they could potentially "learn," but not "think" or "feel," (Waal). Most people who made these claims did not try so hard to discover signs of animal cognition, and would often test the animals in ways that were appropriate for human subjects, but not for the animals themselves.

Many people would say this is unfair. For example, what if someone held a book up to a dolphin and asked the dolphin to read it aloud? Even if a researcher spent years trying to teach a dolphin to read aloud, he will never be able to do it. When the dolphin inevitably fails this task, is it fair to assume it is because he is unintelligent? Perhaps it is more correct to say that dolphins do not have the physical ability to read text aloud than it is to claim that they cannot do it because they are unintelligent. Dolphins do not have the correct vocal chords or jaw structure to read aloud. Similarly, one could never teach a dolphin to have a thumb. Would a dolphin be considered unintelligent if it could not hold a hammer?

Thus, modern researchers claim that language is not the only sign of intelligence. Sometimes, very bright animals do not express their intelligence in ways that we can immediately see or notice. For example, a recent study of 59 chimpanzees concluded that the animals "fake laugh" in response to others' laughter. According to Horowitz and Shea, "The researchers discovered that when one chimp laughed others sometimes engaged in 'laugh replications' that lacked the full acoustic structure of spontaneous laughter. In other words, they were fake-laughing." This behavior exhibits chimps' social etiquette. It is spontaneous and untaught, but humans would not notice it right away.

Sometimes animals possess an intelligence that we must uncover. A recent study by researchers at Duke University revealed something about rhesus macaque monkeys: They can "mentally represent

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and compare numbers," as well as do simple math problems, (Duke). "We know that animals can recognize quantities, but there is less evidence for their ability to carry out explicit mathematical tasks, such as addition," said graduate student Jessica Cantlon. "Our study shows that they can," (Duke). The monkeys were offered a "variable number of dots" on a touch screen. The dots disappeared, and a new screen appeared with two boxes, one with the sum of the first two sets of dots and one with a different number. When the monkeys tapped the box with the sum of the first two sets, they were rewarded with food. The same test was given to a group of college students. While the college students got the answer correct more often (94% vs. 76%), both they and the monkeys responded at the same rate. Similarly, both groups' number of correct answers declined equally when the two sets of numbers were close together (e.g., 11 and 12), (Duke). This study proves that the monkeys already had this ability, and were simply using it in ways we did not notice; we only had to construct the right test for them to show us this intelligence.

Finally, consider Alex the parrot. Animal scientist Irene Pepperberg spent 30 years teaching Alex, an African gray parrot, to speak, (Morell). At first Alex would simply reproduce noises, but Irene also taught him the *meaning* of those sounds using simple patterns, like counting from one to ten. Eventually, Alex could differentiate between shapes and colors, and even communicated desires like, "Want grape," or "Wanna go tree," (Morell). Pepperberg still works with a number of other parrots to teach them similar skills.

All of these examples prove that animals are often more intelligent than we can see at first. But there is still an unanswered question: How do they compare to humans? One answer is that animals, while often smarter than we think, are not nearly as smart as us. It would not take the average human 30 years to learn to count to seven or learn to say, "Want grape." By the same token, animals seem to

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have no interest in studying humans, but our desire to know about them highlights our superior intelligence. But there is another possibility: What if we are only measuring the intelligence we humans can see? What if there is something brilliant going on that we have not learned to measure and analyze? We have learned to teach parrots English, and perhaps it is only a matter of time before we begin to learn some complex language of the animal kingdom previously unknown to us.

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Works Cited

Duke University Medical Center. "Monkeys Can Perform Mental Addition." *ScienceDaily*, 20 Dec. 2007. Web. 16 Dec. 2013.

Horowitz, Alexandra, and Ammon Shae. "Think You're Smarter Than Animals? Maybe Not." *The New York Times*, 20 Aug. 2011. Web. 16 Dec. 2013

Morell, V. "Minds of Their Own: Animals Are Smarter Than You Think." *National Geographic*, Mar. 2008. Web. 16 Dec. 2013.

Waal, F. "The Brains of the Animal Kingdom." *The Wall Street Journal*, 22 Mar. 2013. Web. 16 Dec. 2013.

Wasserman, Edward. A and Leyre Castro. "Animal Intelligence: How We Discover How Smart Animals Really Are." *Encyclopedia Britannica Blog*. Encyclopedia Britannica, 19 Oct. 2012. Web. 16 Dec. 2013.

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