

9.3.2

Unit Overview

Engaging in an Inquiry-Based, Iterative Research Process

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| Text(s) | <p>Students choose texts for research based on their research question/problem.</p> <p><i>Model Research Sources:</i></p> <ul style="list-style-type: none"> • “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

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 | |
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| RI.9-10.1.a | <p>Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</p> <p>a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).</p> |

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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. |
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| CCS Standards: Writing | |
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| 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 | |
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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 <i>grades 9–10 topics, texts,</i> |

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| | <i>and issues</i> , building on others' ideas and expressing their own clearly and persuasively. |
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| CCS Standards: Language | |
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| L.9-10.4. a,c,d | <p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on <i>grades 9–10 reading and content</i>, choosing flexibly from a range of strategies.</p> <p>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.</p> <p>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.</p> <p>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).</p> |

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

Unit Assessments

| Ongoing Assessment | |
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| 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. |

| End-of-Unit Assessment | |
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| Standards Assessed | W.9-10.7, W.9-10.9 |
| Description of Assessment | <ul style="list-style-type: none"> 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 |
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| 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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| | <p>their individual research question/problem.</p> <p>Model Source: “Animal Minds: Minds of Their Own”</p> | <p>and efficient research. Additionally, students learn how to formally assess sources by analyzing a source’s relevance to the inquiry question and its credibility.</p> |
| 4 | <p>Students choose texts for research based on their individual research question/problem.</p> <p>Model Source: “Animal Minds: Minds of Their Own”</p> | <p>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.</p> |
| 5 | <p>Students choose texts for research based on their individual research question/problem.</p> <p>Model Source: “Animal Minds: Minds of Their Own”</p> | <p>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.</p> |
| 6 | <p>Students choose texts for research based on their individual research question/problem.</p> | <p>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.</p> |
| 7 | <p>Students choose texts for research based on their individual research question/problem.</p> | <p>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</p> |

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| | | <p>answering inquiry questions.</p> <p>This lesson is the first of three independent search lessons that will be assessed using a Conducting Independent Searches Checklist.</p> |
| 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