

10.3.2**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 Tools to develop claims about all inquiry paths on the Research Frame.

Students begin by choosing the inquiry path that yielded the richest research and narrowing the focus down to a single inquiry question. Students then 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 inquiry questions and inquiry paths by completing at least two Forming Evidence-Based Claims Tools. These initial claims are the foundation for the Evidence-Based Perspective that students will develop in Lesson 13. For the lesson assessment, students turn in their Forming Evidence-Based Claims Tools, which are assessed using the Evidence-Based Claims Criteria Checklist.

For homework, students continue the process introduced in this lesson by analyzing and synthesizing their research and completing at least two Forming Evidence-Based Claims Tools for every inquiry path 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)	
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)
<p>Student learning in this lesson will be assessed via at least two completed Forming Evidence-Based Claims Tools, to develop claims about one inquiry path.</p> <p>① The Forming Evidence-Based Claims Tools will be assessed using the Evidence-Based Claims Criteria Checklist.</p>
High Performance Response(s)
<p>Individual student tools will vary by the individual's problem-based question. A High Performance Response should:</p> <ul style="list-style-type: none"> • Provide details that are important for answering the inquiry question (e.g., "Courts found that state law provided little basis for granting patients a property interest in their voluntarily donated, excised tissue."). • A brief analysis of the meaning of the details and an explanation of the connections between them (e.g., These details suggest that it is not the patient but the tissue banks that control human tissue samples.). • A claim based on the evidence and analysis (e.g., Tissue banks, not individuals, have control over tissue samples.). <p>① See the Model Forming Evidence-Based Claims Tools at the end of the lesson for detailed model student responses.</p>

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
<ul style="list-style-type: none"> • None.*
Vocabulary to teach (may include direct word work and/or questions)
<ul style="list-style-type: none"> • None.*

*In their research and reading, students will encounter domain-specific vocabulary related to their individual research questions/problems. Students will track some of this vocabulary in their vocabulary journals when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: <ul style="list-style-type: none"> Standards: W.9-10.7, W.9-10.9, W.9-10.8 Texts: “Body of Research—Ownership and Use of Human Tissue” by R. Alta Charo, “Tissue Banks Trigger Worry About Ownership Issues” by Charlie Schmidt 	
Learning Sequence: <ol style="list-style-type: none"> Introduction of Lesson Agenda Homework Accountability and Research Check-In Analyzing Research Synthesizing Research and Lesson Assessment Closing 	<ol style="list-style-type: none"> 5% 15% 50% 25% 5%

Materials

- Completed Research Tools (refer to 10.3.2 Lesson 9)
- Copies of the Forming Evidence-Based Claims Tool for each student (at least six per student)
- Research Portfolios (refer to 10.3.2 Lesson 1)
- 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 questions for the teacher to ask students.
	<i>Italicized text indicates a vocabulary word.</i>
►	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.9-10.7 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 review 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, and select details from the highlighted evidence to make claims about the inquiry questions and inquiry paths by completing the Forming Evidence-Based Claims Tools. These initial claims serve as the foundation for the Evidence-Based Perspective students develop in Lesson 13.

- ▶ Students look at the agenda.

Activity 2: Homework Accountability and Research Check-In

15%

Return to each student the previous lesson's completed research tools (with teacher feedback on criteria 5 and 6 of the Conducting Independent Searches Checklist). Instruct students to examine the materials.

- ▶ Students examine teacher feedback on the previous lesson's completed research tools.

- ① Criteria 5 and 6 of the Conducting Independent Searches Checklist were used to assess the completed research tools. Prepare for the lesson ahead of time by preparing feedback for each student on criteria 5 and 6 of the checklist, based on individual students' completed research tools.

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 the organized research from the Research Portfolio.

- ① The previous lesson's homework was to 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 to discuss the following question:

Which inquiry paths from your Research Frame yielded the richest information from the source materials?

- ▶ Students Turn-and-Talk in pairs about which inquiry paths yielded the richest information from the source materials.

- ① Consider providing students with the following definition: *yielded* means “gave forth or produced.”

🗣 Student responses may include:

- 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.
- 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.

① 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 write in their Research Journal about their research progress and next steps based on Part 2: Gathering Information. Instruct students to use the language of W.9-10.7 and W.9-10.8 that aligns to this section in their journal responses.

🗣 Student responses will vary by individual problem-based question but look for students to use the language of the Student Research Plan and evidence from their specific research.

① The Student Research Plan and Research Journal were introduced in Lesson 2.

① The language from W.9-10.7 that aligns with Part 2: Gathering Information includes “narrow or broaden the inquiry when appropriate.” The language from W.9-10.8 that aligns with Part 2: Gathering Information includes “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.”

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 researching and analyzing sources for the individual questions in their inquiry paths. In this next step, students take a more global perspective on their research by returning to the Research Frame and analyzing their evidence across multiple sources to see if they can answer some of their inquiry questions. Inform students that the goal of this activity is to understand what the research says about each inquiry path now that the research is mostly complete.

- ▶ Students listen.

- ① After this lesson's activities, some students may continue researching if they have not yet found enough evidence to directly support a claim about each inquiry path.

Instruct students to 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.
- 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 skim all the research associated with that one inquiry question, highlighting evidence and details that answer the chosen inquiry question. This step may include reading or skimming across multiple sources for one inquiry question.
- Alternative to Step 3: If five or more inquiry questions are circled within one inquiry path, an optional step is 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 as many questions as possible in 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 10.3.2 Lesson 6) for students to see.

- ▶ Students examine the Model Research Frame.

- ① 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. Remind students that Step 1 is to “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 the following two paths yielded the richest research: Inquiry Path 1 (What rights do patients have?) and Inquiry Path 2 (Who owns tissue, cells, organs and DNA?). Many of the resources addressed both of these paths. However, Inquiry Path 2's questions led to the most relevant and useful information, so Inquiry Path 2 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 2) and all the questions within it, and thinking about the

independent searches previously conducted. Explain to students that the many inquiry questions within Inquiry Path 2 that were answered through research include the following: What happens to parts of your body that are removed? What are the medical guidelines for how to treat patient tissue? If scientists base a discovery off of your tissue, do they have a right to it? How does payment for tissue, fluids and organs work?

Circle the questions for students to see.

- ▶ 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, 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 four of the 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, “Who owns tissue, cells and organs and DNA?”

- ▶ Students listen and follow along with the modeling.

Model for students how to use the inquiry path question itself (Who owns tissue, cells and organs and DNA?) to guide the research analysis. Demonstrate how to skim through a source to find, read, and highlight key evidence associated with the chosen inquiry question. Skim through Source 7, “Body of Research—Ownership and Use of Human Tissue,” and discuss which evidence to highlight for the chosen inquiry question.

- ▶ Students listen and follow along with the modeling.

🗨 Possible highlighted evidence to model from Source 7 “Body of Research—Ownership and Use of Human Tissue” is the following:

- “the question of whether we “own” our bodies must be answered soon: courts now face multiple controversies concerning the use of bits and pieces of bodies—and their derivatives—that are scattered among pathology laboratories, state hygiene laboratories, museums, archives, sperm banks, fertility clinics, and forensic DNA collections.”
- “But after the tissue has been properly excised, its use without the patient's consent may be permitted under federal research regulations, if the patient's identity is unknown or adequately obscured.”
- “Investigators and universities have argued that recognizing property rights in excised tissue would threaten their ability to use stored tissue samples effectively.”

① Prior to this lesson, students have annotated and recorded notes on all their sources; they do 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.

- ① The source “Body of Research—Ownership and Use of Human Tissue” 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.
- ① Again, students can choose the inquiry path question itself to guide their research analysis. It depends on how many inquiry questions were circled within one inquiry path. See the alternative to step 3 in the research analysis process above.
- ① Instruct students to use highlighters to highlight evidence and details that answer the chosen inquiry question. Remind students they are looking for how the multiple pieces of research answer the chosen inquiry question.
- ① Circulate while students are working to monitor their progress.
- ① **Differentiation Consideration:** 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 and Lesson Assessment

25%

Introduce students to the Forming Evidence-Based Claims Tool, which is used to synthesize (combine) the highlighted evidence for their focus inquiry question. Explain to students that it is important to think about how the pieces of research connect, and what the research says about the focus inquiry question. Explain that this work helps students develop a deeper understanding of the research itself and its connections to the problem-based question. Inform students that this work is the foundation for developing a perspective about their problem-based question in subsequent lessons.

- ▶ Students listen.
- ① Consider reminding students of the following definition: *synthesize* means “to combine into a single or unified entity.”

Distribute at least six copies of the Forming Evidence-Based Claims Tool to all students.

- ▶ Students examine the Forming Evidence-Based Claims Tool.

Display a Model Forming Evidence-Based Claims Tool for all students to see. Model for students how to complete the top portion of the tool by writing the model source numbers, 7 and 4, and the model Inquiry Question, “Who owns tissue, cells and organs and DNA?”

- ▶ Students follow along with the modeling.

Instruct students to complete the top portion of their blank Forming Evidence-Based Claims Tool, writing their chosen inquiry question and the numbers of the sources they analyzed in the previous activity.

- ▶ Students complete the top portion of their blank Forming Evidence-Based Claims Tool.

① The source numbers were labeled on the Potential Sources Tools and the Taking Notes Tools when students independently searched in 10.3.2 Lessons 7–9. These tools were introduced in 10.3.2 Lessons 3–5.

Model for students how to select details from the highlighted research analysis to complete the “Selecting Details” portion of the Forming Evidence-Based Claims Tool. Show students several highlighted pieces of evidence from Sources 7 and 4. 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 the highlighted evidence. Write these details on the Model Forming Evidence-Based Claims Tool for students to see. Explain to students that these specific examples all have to do with the ownership of tissue. These should include the following:

- “Courts found that state law provided little basis for granting patients a property interest in their voluntarily donated, excised tissue” (Source 7).
- “If left unregulated and to the whims of [donors], these highly prized biological materials would become nothing more than chattel going to the highest bidder” (Source 4).
- “As it stands now, tissue banks appear to have de facto ownership over sample inventories and the right to use them as they wish” (Source 4).

① Model Source 7 is “Body of Research—Ownership and Use of Human Tissue” and model Source 4 is “Tissue Banks Trigger Worry About Ownership Issues.”

- ▶ Students listen and follow along with the model.

① The sources “Body of Research—Ownership and Use of Human Tissue” and “Tissue Banks Trigger Worry About Ownership Issues” 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 in the “Selecting Details” section of the tool. 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 Evidence-Based Claims Tool.

① Circulate and monitor student progress during this guided practice.

Model for students how to complete the “Analyzing and Connecting Details” section of the tool. Ask students to consider what the details say about the chosen inquiry question, and the connections that can be made among the details.

Model this thinking and write the following on the Model Forming Evidence-Based Claims Tool in the “Analyzing and Connecting Details” section for students to see: “These details suggest that it is not the patient but the tissue banks that control human tissue samples. Although there have been court cases regarding who owns human tissue, it would seem like it is not entirely decided at this point who should have the final say over tissue. Scientists and researchers are definitely against having individuals control their own tissue samples.”

- ▶ Students follow along with the modeling.

Instruct students to practice on their own Forming Evidence-Based Claims 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 Evidence-Based Claims Tool.

- ▶ Students make connections between the important details and write these connections in the “Analyzing and Connecting Details” section on the tool.

Model for students how to develop a claim that answers the chosen inquiry question by completing the “Making a Claim” section of the Forming Evidence-Based Claims Tool. Ask students to think about what conclusions or answers they are developing based on their analysis. Write the following claim on the Model Forming Evidence-Based Claims Tool in the “Making a Claim” section for students to see: “Tissue banks, not individuals, have control over tissue samples.”

- ▶ Students follow along with the modeling.

Instruct students to develop their own claims and write them on their tools in the “Making a Claim” section.

- ▶ Students develop a claim in the “Making a Claim” section on the tool.

Explain to students that for the previous analysis, they chose only one inquiry question within the path, or the inquiry path question itself. They can now analyze the rest of their research evidence and develop more claims about their other inquiry questions.

- ▶ Students listen.

Instruct students to review their focused inquiry path with the circled inquiry questions, and to continue to use the Forming Evidence-Based Claims Tool to develop claims about all the circled questions. Instruct students to begin developing claims for their focus inquiry path.

- ▶ Students use the Forming Evidence-Based Claims Tool to develop claims about the circled inquiry questions within the chosen inquiry path.
- ① The Evidence-Based Claims Tool serves as the assessment for this lesson. Students must turn in at least two of them.
- ① Remind students to follow the steps of analyzing the research and the process of synthesis for each Forming Evidence-Based Claims Tool outlined in Activity 3 of this lesson.
- ① If students have chosen the inquiry path question itself, they should still be able to complete multiple Forming Evidence-Based Claims 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 Evidence-Based Claim Tool responses at the end of the lesson for an example of this.

Instruct students to turn in two completed Forming Evidence-Based Claims Tools for assessment purposes.

- ▶ Students turn in two completed Forming Evidence-Based Claims Tools.
- ① Assess the completed Forming Evidence-Based Claims Tools using the Evidence-Based Claims Criteria Checklist.

Activity 5: Closing

5%

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 Evidence-Based Claims Tools to develop claims about all inquiry paths on the Research Frame.

- ▶ Students follow along.
- ① 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 Evidence-Based Claims Tools to develop claims about all inquiry paths on the Research Frame.

I read the sources closely and mark words and phrases that help me answer my question.

[illegible][illegible]

My claim that answers my inquiry question:

=====

=====

=====

Name Model Response Source(s) # 4 and 7

Inquiry Question: Who owns tissue, cells and organs and DNA?

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.: 7)

"courts found that state law provided little basis for granting patients a property interest in their voluntarily donated, excised tissue."

Detail 2 (Ref.: 4)

" If left unregulated and to the whims of [donors], these highly prized biological materials would become nothing more than chattel going to the highest bidder"

Detail 3 (Ref.: 4)

"As it stands now, tissue banks appear to have de facto ownership over sample inventories and the right to use them as they wish."

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:

These details suggest that it is not the patient but the tissue banks that control human tissue samples. Although there has been court cases regarding who owns human tissue, it would seem like it is not entirely decided at this point who should have the final say over tissue. Scientists and researchers are definitely against having individuals control their own tissue samples.

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:

Tissue banks, not individuals, have control over tissue samples.

Name Model Response Source(s) # 5 and 6

Inquiry Question: What happens to parts of your body that are removed?

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.: 5)

"Patients undergoing surgery at these medical centers will be asked to sign permission forms that enable the medical center to send left-over pathology specimens to biotechnology companies."

Detail 2 (Ref.: 5)

"Whereas vital organs have a finite life span and must be transplanted within hours, tissues such skin, corneas, tendon, bone, and heart valves can be harvested later and cryopreserved. Thus, more tissues than organs are donated. A good proportion of these body parts are processed and sold for profit and become such items as bone putty and collagen."

Detail 3 (Ref.: 6)

"If you've ever had a blood test or biopsy at a hospital, that tissue was in a pipeline to research and commercialization. The result was a genetic gold rush."

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 once tissue is taken from the body that is goes into tissue banks or is sent to biotechnology companies. These details also suggest that once the tissues are taken from the body and sent to a company there is a potential for them to be made into products that can be sold. In particular, the "genetic gold rush" detail suggests there is a lot of money to be made in this industry.

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:

Once tissue is removed from the body it is sent to tissue banks or biotechnology companies.