



Final Assessment

Setting the Stage

Students used the information gathered through the “Exploring the New and Old Arctic” curriculum to develop a visual to answer the unit driving question, “How have scientific questions, methods, technologies, and our knowledge of the Arctic changed over time?” This assessment will take two to three days to complete.



Photo Credit: Lars Barthel/AWI

Lesson Overview

Days 1-3

- *Part 1 – (120) Final Visual Construction*

Students work in pairs to construct a visual to answer the unit driving question, “How have scientific questions, methods, technologies, and our knowledge of the Arctic changed over time?”



Instructional Overview	
Grade Level	Middle/High School
Instructional Time	120-180 minutes (2-3 class periods)
Standards Alignment	<p>NGSS:</p> <p>Scientific Knowledge is based on Empirical Evidence: Science knowledge is based upon logical and conceptual connections between evidence and explanations.</p> <p>Scientific Knowledge is Open to Revision in Light of New Evidence: Scientific explanations are subject to revision and improvement in light of new evidence</p> <p>Scientific Investigations use a variety of Methods: Science investigations use a variety of methods and tools to make measurements and observations</p> <p>Science is a Human Endeavor: Advances in technology influence the progress of science and science has influenced advances in technology</p> <p>Science is a Human Endeavor: Scientists and engineers rely on human qualities such as persistence, precision, reasoning, logic, imagination and creativity</p>
Unit Driving Question	<ul style="list-style-type: none"> How have scientific questions, methods, technologies, and our knowledge of the Arctic changed over time?
Driving Question(s) For This Lesson	<ul style="list-style-type: none"> How have scientific questions, methods, technologies, and our knowledge of the Arctic changed over time?
Learning Goals	<ul style="list-style-type: none"> Compare and contrast scientific questions, methods, technologies, and Arctic knowledge from the Fram and MOSAiC expeditions.
Materials	<p>Day 1-3</p> <ul style="list-style-type: none"> <input type="checkbox"/> Final Visual Construction Student Worksheet (students work in pairs) <input type="checkbox"/> Computer paper and/or Poster paper <input type="checkbox"/> Colored pencils, crayons, markers <input type="checkbox"/> Technology (computer, ipads) <input type="checkbox"/> Summary table (see examples of a final summary table)
Material Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Print student handouts <input type="checkbox"/> Reserve access to technology (computer, ipads) <input type="checkbox"/> Gather computer paper, poster paper, colored pencils, crayons, markers for each pair of students <input type="checkbox"/> Display summary table
Vocabulary	See vocabulary from previous lessons.



Final Visual Construction (1-3 days)

Driving Question: How have scientific questions, methods, technologies, and our knowledge of the Arctic changed over time?

1. Review the unit driving question and final summary table as a whole class.
2. Distribute and review the instructions and rubric for constructing the final visual (see [Final Visual Construction student worksheet](#)) as a whole class. Instruct students to refer to rubric when constructing their visual. Students should work in pairs to create a visual to answer the unit driving question.