The Future of Forests

Final Explanation - Teacher Guide

Setting the Stage

Science communication is the process by which scientists share their ideas and discoveries in a clear and concise manner so that it may be understood by their peers and non-scientist audiences. Why does this matter? Effective science communication helps build trust and support for science, demonstrates its relevance to society, and encourages evidence-based decision-making, from government to communities to individuals.

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Lesson Overview

In this lesson, students work independently to incorporate concepts and evidence acquired during the Wildfire and Landscape Change unit into a written final explanation for the unit driving question, “How do landscapes recover after a fire?”

- *Part 1 – (60-90 minutes) Final Explanation*
  Students work independently to write their final explanations for the unit driving question,“How do landscapes recover after a fire?”

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Instructional Overview	
Grade Level	Middle/High School
Instructional Time	60-90 minutes *(total time needed)*
Unit Driving Question	How do landscapes recover after a wildfire?
Lesson Driving Question	Why is science communication important to encouraging evidence-based decision-making?
Building Toward	Middle School: MS-LS2-4, MS-ESS3-3 High School: HS-LS2-7
Three Dimensions	**Science and Engineering Practices:** ● Constructing Explanations (for Science) and Designing Solutions (for Engineering) ● Engaging in Argument from Evidence **Disciplinary Core Ideas:** *Middle School:* ● LS2.C: Ecosystem Dynamics, Functioning, and Resilience ● ESS3.C: Human Impacts on Earth Systems *High School:* ● LS2.C Ecosystems Dynamics, Functioning, and Resilience **Crosscutting Concepts:** ● Stability and Change
What Students Will Do	● Construct an explanation based on qualitative and quantitative evidence for how landscapes recover after a fire.
Materials	❑ Final Explanation PPT ❑ Rubric (1 per student) ❑ Final Models (developed in previous lesson) ❑ Lined paper or computers for final explanation (! per student) ❑ Gotta-Have Checklist ❑ Summary Table
Material Preparation	❑ Print rubric ❑ Review speaker notes in the Final Explanation PPT ❑ See Gotta-Have Checklist example ❑ See Final Summary Table example ❑ See Final Explanation example ❑ Make sure each student has a copy of the Final Model they developed in the previous lesson to refer to when writing their final explanation ❑ Display gotta-have checklist and final summary table
Vocabulary	No new vocabulary

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Part 1 - Final Explanation (60-90 minutes)

Refer to Part 1 slides included in the Final Explanation PPT. See PPT presenter notes for additional information

1. Provide students with instructions for writing their final explanation by referring to the Final Explanation PPT.

Teacher Tips:

- Read the Axial Volcano example as a whole class and highlight the evidence included at the end of the first paragraph.
- Review grading rubric with students. Students should refer to the Gotta-have checklist (see example) when writing their explanation as the Gotta-have checklist includes all observable and unobservable components/parts and all essential science ideas/concepts (see Rubric).
- Discuss helpful hints to get students started.

2. Students work independently to write or type their final explanations for the unit driving question, "How do landscapes recover after a fire?"
    a. Students may refer to any and all worksheets, notes, public records (see Final Summary Table example), etc. from the unit when writing their final explanations (see Final Explanation example as needed).

Optional: Additional Resources (from Model-Based Inquiry)
Consider using one or more of the resources below to scaffold and support students' written explanations:

- Is it important to distinguish between the explanation and argumentation practices in the classroom? (STEM Teaching Tools)
- Constructing Explanations and Designing Solutions (Framework for K12 Science Education)
- Supporting ELL Explanations (Ambitious Science Teaching)
- Scaffolding Students' Written Explanations (Ambitious Science Teaching)
- Writing a Scientific Explanation Using the Explanation Tool (American Museum of Natural History)