



Science and Innovation

A Boeing/Teaching Channel Partnership

POLYMERS FOR THE PLANET Teacher Handbook



TeachingChannel®

Polymers for the Planet

Days 9 and 10: Final Presentations and Findings

Grade Level	Grade 5
Lesson Length	Two 50-minute sessions (if possible, consider adding another day)



Lesson Overview

In the final lesson of the module, students showcase their findings and optimization plans by giving oral presentations (which include at least one visual). During these presentations, students share their optimal design solution and evaluate those presented by other teams. During these two class sessions, students understand that communicating with peers about proposed solutions is an important part of the design process, and by sharing and discussing ideas, the teams can further improve their designs.



Connecting to the Next Generation Science Standards

On Days 9 and 10, students demonstrate understanding of the performance expectations and three dimensions developed throughout the entire module. These lessons serve as a performance assessment in which all of the performance expectations and dimensions are addressed in the final presentation. Please reference the performance expectations, disciplinary core ideas, science and engineering practices, and crosscutting concepts referenced in the front matter of this module.



Basic Teacher Preparation

Students use all the data they collected and their testing experiences to create summative presentations.

Refer to the **Polymers for the Planet Student Handbook** ahead of time so you can address any questions students might have. The document for Days 9 and 10 can be found on page 29 in the **Polymers for the Planet Student Handbook**. The document used in this lesson is:

- **Final Presentations and Findings** (page 29)

Required Preparation	Links/Additional Information
☐ Review suggested teacher preparation resources	Refer to the Suggested Teacher Resources at the end of this lesson



Materials List

Item	Description/Additional Information	Quantity	Where to Locate/Buy
Presentation Rubric	A common rubric for all Science and Innovation Modules is included. Rubrics need to be tailored to use for specifics modules and students.	1 per team	Polymers for the Planet Teacher Handbook, Appendix C
Projector	Some teams may choose to use a slideshow or they may want to project a visual. This capability should be arranged ahead of time.	1 per class	

Day 9: Preparing Your Presentation



Introduction (10 minutes)

Inform students that, in their teams, they will prepare a 3- to 5-minute talk to summarize and present their overall testing results. Discuss the criteria and expectations for the final presentations that occur during Day10. Below is a summary of the presentation procedures and the required elements.

Presentation Procedures and Criteria

1. Teams should strongly consider creating a script, indicating who will speak and what each partner will say.

Example Script

Jcl: Hi, we've made a polymer for the planet.

Kb: We make it out of renewable resources to keep our world clean.

Js: A unique combination of corn starch and potato starch makes our polymer stretchy and strong.

Jcl: Take a look at this: [show graphic and give specific evidence]

Kb: After working through three trials, we optimized our formula for success by.....

Js: We think you'll really love the strength of _____ without the petroleum.

Jcl: Do you ski? Imagine this as your new top sheet.

2. Students need to include the following elements in their talk:
 - o Names of all team engineers
 - o Definition of the design problem (including a description of *why* we need better plastics)
 - o Description of the proposed formula and justification for the proposed materials
 - o Summary of results, both quantitative and qualitative
 - o Comparison of predictions and findings
 - o Presentation of the proposed optimization process and justification for the optimization decision
 - o Relevant thank you(s)
 - o At least one helpful visual



Extension

Presentations in this lesson have been designed for short oral formats. Extensions can be numerous and are encouraged—posters, slideshow presentations, advertisements for new products, skits, songs, poems, and so forth. Creativity is encouraged.

Consider providing a graphic organizer or sentence frames for students who require additional support.



Design Work: Prepare the Presentations (40 minutes)

Students have the remainder of class time to complete their presentations. They can add the final touches to their presentations as homework. Prompt students to consider the identified crosscutting concepts for the module to help frame their presentation.

Day 10: Final Presentations



Introduction (5 minutes)

Students enter the “workplace” dressed to impress. This is the day they present their work in an engineering showcase. Give students and teams 5 minutes to prepare for all the listening and speaking that will occur in today’s culminating showcase.



Whole Group Discussion: Final Presentations (45 minutes)

Ask for the “media liaison representative” for each team to come to the front of the room. These students select a number from a hat to determine the order of their presentation.

Teams come to the front of the room to present to the chairperson of the company. For added novelty, consider inviting a guest adult to serve as this figurehead.

Students are active audience listeners. Remind them they are also being scored for listening. Students have the remainder of the class time to cycle through their presentations.

Modify the **Presentation Rubric** in **Appendix C** to assess the presentations. Consider having students self-assess or assess their peers using **Appendix C**.



Extension

A showcase celebration might be an interesting extension. Invite engineers, designers, and entrepreneurs to add to the “high stakes” situation.

If necessary, allows students to present in front of a smaller audience so they feel more comfortable and confident.



Assessment

The final presentation can be used as a summative assessment of student learning throughout the module. Reference **Appendix B** for suggestions for meeting the needs of all learners.



Community Connections

A showcase celebration might be an interesting extension. Invite engineers, designers, and entrepreneurs to add to the “high stakes” situation.



Suggested Teacher Resources

Meeting the Needs of All Learners	Polymers for the Planet Teacher Handbook, Appendix B
Presentation Rubric	Polymers for the Planet Teacher Handbook, Appendix C
Polymers for the Planet Student Handbook	[Resource Link]