# Engineering Adventure 8: Spread the Word: Preparing for the Engineering Share-Out

## Educator Preview

### Adventure Snapshot

Learners prepare to communicate their ideas about designing space gloves in the Engineering Share-Out.

### Timing | 45 minutes

| | |
|---|---|
| Get Ready & Team Up | 10 min. |
| Preparing the Presentation | 25 min. |
| Reflect | 10 min. |
| **Total** | **45 min.** |

**Level Up Activities** 5–25 min. each

### Prep Snapshot*

**Prep Time 20 min.**

- Invite people to Share-Out.

**See Materials & Preparation for full info.*

### 21st Century Skills

**Connection**

- Collaboration
- Communication

**Habits of Mind**

- Make evidence-based decisions.

## Guiding Question

*What design recommendations do we have for space gloves?*

### Learners Will Do

Plan how to discuss what they have learned with members of their community.

### Learners Will Know

Engineers have valuable knowledge to share about the problem they have solved.

## Connecting Across Activities

| Adventure 7 Improving a Space Glove | Adventure 8: Preparing for the Engineering Share-Out | Adventure 9: Engineering Share-Out |
|---|---|---|
| **Last time**, learners improved their space gloves and tested them again. | **Today**, learners prepare to communicate their ideas about designing space gloves in the Engineering Share-Out. | **Next time**, learners will communicate their ideas about designing space gloves in the Engineering Share-Out. |

### Activity Resources

Access videos and digital resources using the link or QR code below. More information for teaching this curriculum is available in the Educator Guide Introduction (pgs. iii–xxvi). Access more PLANETS units, research, and pathways at https://planets-stem.org/.

weblink: https://hov.to/70ade2d1

## Materials and Preparation

### Materials

#### For the whole group

- *Our Ideas* poster (on paper or a shared digital document) Examples | Templates
- materials to repair damage to gloves
- materials to make and display signs, posters, pictures, and so forth, to go with the presentations (optional)

#### For each group of 4

- final gloves from Adventure 7
- previous gloves from Adventure 6 (optional)
- 20 fuzzy sticks (optional)

#### For each learner

- Engineering Notebook (PDF)

### Adventure 8 Materials Preparation (20 min.)

#### Ahead of Time

1. Invite people from the community, including families and friends of learners, to the Engineering Share-Out.

#### In Your Space

2. Place the *Our Ideas* poster in a visible place in your learning setting or prepare to share it digitally.

#### Teaching Tip

The Engineering Share-Out is a chance for learners to share with staff, families, and friends! Encourage learners to invite guests. This will help them take ownership of their designs. Consider setting up Testing Stations if learners want to share the tests.

*Example Glove Display*

## Adventure Guide

### Get Ready & Team Up (10 min.)

1. Ask: **If you did the last activity, what did you do and why?** *(We improved our gloves using results from previous tests, then tested them again.)*
2. Say: **You'll be sharing your space gloves, and the story of how you used an engineering design process to make them, with others.** Share the Guiding Question with learners aloud and write it on the *Our Ideas* poster (using multiple languages as needed): **What design recommendations do we have for space gloves?** Explain that first, everyone needs to prepare for this Share-Out.
3. Have learners join up with their space glove groups from Adventures 6 and 7 and distribute Engineering Notebooks.

### Preparing the Presentation (25 min.)

4. Give each group time to think about the following question: **What ideas do you think we should share?** *(Why space gloves are important; how they protect against cold, impact, and dust; how we designed space gloves; things other people should think about when designing space gloves.)* **How should we share them?** *(By demonstrating, talking, writing, drawing, discussing with others, and making records such as videos and audio recordings.)* When everyone is ready, discuss as a whole group.

### Support Learner Differences

- If new learners are joining you, lead an inclusion activity (pgs. xx-xxi) and use other engagement strategies as necessary (pgs. viii–xviii).
- If you have learners who speak multiple languages, encourage them to share in their preferred languages.

5. The Share-Out is a chance for learners to explain their thinking and reflect on what they learned about space gloves and hazards throughout the unit. As a group, agree upon a structure for the Share-Out. Possible structures include the following:
   - **Gallery Walk** where each group stands at their station and explains how well their space gloves would work on Mars, Asteroids, or the Moon, while other groups rotate through. Groups may include posters, graphs, writing, drawings, audio or videos on small devices in their presentations.
   - **Screening** of whole-group video, slide show, audio files, or other media about learners' work.
   - **Performance** where learners play scientists who ask questions to find out which gloves are best for their mission to Mars, Asteroids, or the Moon. Or learners can develop script cards so adults can play the scientists.
   - **Discussion** in which learners, family, and community members share their knowledge.

6. Once learners have chosen a structure for the Share-Out, tell them they can prepare notes on *Communicate*, pg. 24, Engineering Notebook. Say: **Think about the languages spoken by your family and friends, and possible guests. Try to include those languages if you can.** Give groups time to fix any damage to their gloves and make other preparations.

7. As groups are preparing, rotate among them and provide support.

## Reflect (10 min.)

8. Have groups pair up and discuss the Guiding Question on the *Our Ideas* poster: **What design recommendations do we have for space gloves?**

### Support Learner Differences

Some learners may disengage if the Share-Out contains too much whole-group discussion. Think about what your learners need and ensure they choose an appropriate Share-Out structure.

If you have learners who speak multiple languages, encourage them to share in their preferred languages. Circulate and ask groups: **Where can you include your preferred language or other languages you know in your share-out?** Encourage learners to make welcome signs and present in different languages spoken by the audience.

All learners should contribute to the Share-Out, but not everyone will feel comfortable presenting in the same style. Indigenous learners may feel it is inappropriate to present directly as the center of attention. Ensure nonverbal presentation methods are available, and encourage participation behind the scenes, not only presenting in front of the group.

### Teaching Tip

- If some learners missed sessions or are just joining and don't have a work group, consider using the Performance approach, and have those learners participate as the scientists. Share *Test Results: Improve*, pg. 23, Engineering Notebook as background for glove performance.
- Have groups use fuzzy sticks to create a stand to display their model gloves (see pg. 101).

9. Say: **Next time, you will share your designs with an audience. Communicating with others is an important part of an engineering design process.** Have each group discuss: **Why is it important to share what we have done and learned with others?** *(So others can build on our knowledge; so they don't make the same mistakes.)*

## After the Adventure

1. Clean up:
   - Keep the *Our Ideas* poster for Adventure 9.
   - Save each group's design and presentation materials for the Engineering Share-Out.
2. Take time to reflect on the following educator prompt: **What methods did learners choose to present their designs? What did you learn from the methods they chose?**

### Space Hazards Additional Resources

Resources include All Downloads, All Videos, Family Connections, and more.

weblink: https://hov.to/940428f7

## Level Up!

- Ask this story prompt: **Can you tell a story about a previous time you've presented your ideas and how you did it?** *(Possible responses include stories about sharing ideas in school, family, and community settings.)* Have learners share with a partner (note that the sharing can take forms other than speaking aloud). Consider returning to learners' ideas at the start of the next adventure. (5 min.)
- Tell learners, if anyone asks them what they did today, they can tell them "We prepared to share about the space gloves we designed." (5 min.)
- Invite family and community members to participate in the Engineering Share-Out by sharing their stories and expertise. (25 min.)