Science Adventure 7: Sum It Up: Science Share-Out

Educator Preview

Adventure Snapshot

Learners share what they learned about hazards and mitigation strategies for NASA missions.

Timing | 50 minutes

Get Ready & Team Up	5 min.
Science Share-Out	40 min.
Reflect & Wrap Up	5 min.
Total	**50 min.**

Level Up Activities 5–15 min. each

Prep Snapshot*

Prep Time 40 min.

Invite people to the presentations.

**See Materials & Preparation for full info.*

21st Century Skills

Connection

- Communication

Science Practices

- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Guiding Question

How can we mitigate hazards on a particular NASA mission?

Learners Will Do

Present their mission plans.

Learners Will Know

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

Connecting Across Adventures

Adventure 6: Mitigating Hazards for Your Mission	Adventure 7: Science Share-Out	Engineering Pathway
Last time, learners chose a NASA mission and thought about the hazards, mitigation strategies, and other factors NASA should consider.	**Today,** learners share their proposed mission strategy with members of their community.	**Next time,** learners experience engineering related to this topic in the Space Hazards Engineering Pathway (optional).

Adventure 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–xxv. Access more PLANETS units, research, and pathways at https://planets-stem.org/.

weblink: https://hov.to/2f1d4748

Materials and Preparation

Materials

For the whole group

- *Our Ideas* poster (on paper or a shared digital document) Examples | Templates

For each group of 3 or 4 learners

- *Hazards Cards* Decks B, C, D, and E: these might have already been prepared or organized in the last adventure by the learners
- Other materials for use in sharing

Adventure 7 Materials Preparation (40 min.)

Ahead of Time

1. Invite family or community members to attend the Share-Out.
2. Have the Educator Science Background (weblink) on hand.
3. Decide what to do with learners' presentation materials after the adventure.

In Your Space

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

Adventure Guide

Get Ready & Team Up (5 min.)

1. Invite learners who did Adventure 6, Mitigating Hazards for Your Mission, to share what they did with a partner or in small groups. *(They chose missions and made plans to mitigate hazards on those missions.)*
2. Say: **Today you will share your mission plans.** Share the Guiding Question with learners aloud and in writing (using multiple languages as needed): **How can we mitigate hazards on a particular NASA mission?**
3. Organize learners into their groups from Adventure 6. Have each group talk about the roles they like to play during group work. Have learners select roles (or assign them yourself).

Support Learner Differences

If new learners are joining you, lead an inclusion activity (pgs. xx–xxii) and use other engagement strategies as necessary (pgs. viii–xviii).

Science Share-Out (40 min.)

4. Ask each group to share their mission and hazards, mitigations, and chance factors. Remind learners that they can share in their preferred languages. As groups are sharing out, make sure you point to the *Our Ideas* poster for key terms.
5. Ask: **What hazards did the human missions have to mitigate? What hazards did the robotic missions have to mitigate? Do you think we should send people or robots on missions in space? Why?** Ask for a volunteer to record the group's ideas for which hazards and mitigations apply to humans and which to robots on the *Our Ideas* poster. Color-code or write symbols next to the hazards and mitigations; for example, R=robot and H=human.

Support Learner Differences

Suggested group roles are listed on the *Science Adventure 4 Hazards Card Game Rules Handout*, pgs. 44-45. Change the role names and responsibilities to work for your group, and swap roles for each adventure. Check out the Intentional Grouping Strategies, pg. xxii.

Reflect & Wrap Up (5 min.)

6. Ask: **What do you want to do or learn more about in the future after these adventures?** *(Find ways to mitigate hazards at home, at school, or in the neighborhood; learn about NASA missions; learn how to create or control robots.)* Record ideas on the *Our Ideas* poster.
7. Congratulate learners on their great work mitigating hazards. Choose a way to recognize their accomplishments, such as by shaking their hands or providing them with badges.

After the Adventure

1. Clean up:
   - Collect the Science Notebooks.
   - Decide if you want to keep the *Our Ideas* poster.
   - Reset the space in which you held the Share-Out.
   - Save cards for use if you teach this pathway again.
2. Take time to reflect on the following educator prompts: **How did you support connections among learners and members of the community? What strategies could you use in the future?**

Space Hazards Additional Resources

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

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

Level Up!

- Encourage learners to explore actual NASA missions to the places they have been considering. The Artemis Program is sending astronauts to the Moon and preparing NASA for a trip to Mars. The OSIRIS-REx mission collected samples from an asteroid and returned them to Earth in 2023. (15 min.)
- Encourage learners and their families to try out the PLANETS At Home activities and those at yes.mos.org/families, which include more challenges to do together. (5+ min.)
- Tell learners, if anyone asks them what they did today, they can tell them "We shared a plan to guard against the hazards on a space mission." (5 min.)
- If your learners enjoyed this planetary science challenge, they would also enjoy the Rover Observation and Discoveries in Space (ROADS) student challenges. Show your learners the NASA National Student Challenges (weblink). (15 min. to review weblink, 10–15 hours per challenge)