

Science Adventure 2: Everyday Hazards: Exploring Hazards and Mitigation

Educator Preview

Adventure Snapshot

Learners act out everyday hazards and match them with safety tips.



Timing | 70 minutes

Get Ready & Team Up 5 min.
Introduction to Hazards 55 min.
Reflect & Wrap Up 10 min.
Total 70 min.
Level Up Activities 5–25 min. each



Prep Snapshot*

Prep Time 60 min.
Prepare *Our Ideas* poster.
Print, cut, and assemble Deck A.
**See Materials & Preparation for full info.*



21st Century Skills

Connection

- Communication

Science Practices

- Obtaining, Evaluating, and Communicating Information



Guiding Question

How do people stay safe from everyday hazards?

Learners Will Do

Match safety tips with hazards in a card game.

Learners Will Know

Humans have developed methods to lessen some hazards. These methods are known as *mitigations*.



Connecting Across Adventures

Adventure 1: Sharing Experiences	Adventure 2: Exploring Hazards and Mitigation	Adventure 3: Hazards Where We Live
Last time , learners shared experiences with and stories about making hazards safer.	Today , learners act out everyday hazards, figure out safety tips to address them, and start learning about hazard mitigation.	Next time , learners will explore hazards near their community and consider how people mitigate those hazards.

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/2f1acfb1>

Materials and Preparation

Materials

For the educator

- Scissors or paper cutter to prepare cards
- *Our Ideas* poster (on paper or a shared digital document) [Examples](#) | [Templates](#)
 - index cards
 - markers
 - scissors
 - tape

For the whole group

- *Hazards Cards Deck A–Everyday Hazards* ([PDF](#))
- [Playmat \(PDF\)](#) (1 or more copies, optional)
- Paper for learners to draw on (optional)

Adventure 2 Materials Preparation (60 min.)

Ahead of Time

1. Print **one** copy of *Hazards Cards Deck A–Everyday Hazards* (in color if possible) (15 cards).
2. Cut these printed card sheets into individual cards with a paper cutter or scissors.



Support Learner Differences

- For blind/low-vision and multilingual learners, choose the BLV Deck version of the cards to provide QR codes on the backside of each card. Each QR code is linked to a [unique webpage](#) designed to be easy to use with text-to-speech and translation technology.
 - [Accessible Version of Deck A \(PDF\)](#)
- To help orient blind/low-vision learners, place a thick sticker on the back of each card, centered along the top so that it's easy to tactically orient the cards right-side up and front-facing. This may take five additional minutes per deck.
- A [limited tactile version of the card decks \(weblink\)](#) and [playmat \(weblink\)](#) also available. An estimated 5–10 minutes is required to punch holes in all the required areas per deck with a one-hole punch. In this deck, learners can match cards by sight and/or by aligning tactile holes.



- Optional: Print one copy of the *Playmat*. (If you have a large group, print multiple copies so everyone can reference it.) Tape *Playmat* together in the arrangement shown below.



4. If you did not do so before the Ready, S.E.T., Go Adventure, prepare an *Our Ideas* poster by following the [Prep & Setup Guide \(PDF\)](#). Add the Guiding Question “How do people stay safe from everyday hazards?” so learners can refer to it throughout the adventure.

In Your Space

5. Place the *Our Ideas* poster in a location all learners can access. Make a plan to store it between adventures.



Teaching Tips

- ✦ You will need to prepare additional decks of cards for upcoming adventures. To save time, consider preparing all decks now. Refer to the Adventures 3–5 Materials Preparation sections.
- You will need to invite family and community members to the Science Share-Out in Adventure 7. To ensure invitees have enough advance notice, consider inviting them now. Refer to the [Adventure 7 Materials Preparation section on pg. 60](#).
- ✦ If learners like to move quickly, you can combine Adventures 2 and 3 into a single session.

Adventure Guide

Get Ready & Team Up (5 min.)

1. Ask: **If you did the last activity, what did you do and why?** (*We told stories about hazards and how we have made them safer.*) Draw learners' attention to their work on the *Our Ideas* poster about the hazards they addressed.
2. Have learners read the *Science Comic*, pgs. 10-14, in their Science Notebooks, to set the context.
3. Say: **Today, you'll explore everyday hazards on Earth.** Share the Guiding Question with learners aloud and point it out on the *Our Ideas* poster (using multiple languages as needed): **How do people stay safe from everyday hazards? Eventually, you will use what you learn to help astronauts stay safe from hazards in space.**
4. Organize learners into groups of four. (Everyone is going to play a game together, and each group will be a team.)

Introduction to Hazards (55 min.)

5. Say: **You will play a matching game of hazards and safety tips. The goal is to remove all hazards.**
6. Ask: **What is a hazard?** Have learners decide on a definition of *hazard* as a whole group. Add *hazard* and the definition that you agree on to the *Our Ideas* poster, along with translations into learners' preferred languages and relevant images. (You may want to add a danger icon next to the term.) Say: **We will keep gathering ideas on the poster.**
7. Set the deck of *Hazards Cards* Deck A—Everyday Hazards (15 cards) facedown on a "Draw Pile" location. Gather learners around a clear area. (Optionally, you can put the cards on a *Playmat* and lay out other *Playmats* for learners to reference.)



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).



✦ You can project a [digital version of the comic \(PPTX\)](#) or share it so learners using text-to-speech technology can access the comics.



- iOS or macOS users should enable text-to-speech or voice-over.
- Windows users should use JAWS or NVDA at [NV Access](#).

Be sure to read carefully and leave a visual shortcut to exit the program, or have your learner restore settings when they are done.

✦ If you have learners who speak multiple languages, consider pairing learners with the same preferred language so they can share with each other in that language.



✦ If possible, ensure that groups contain a mix of blind/low-vision and sighted learners.



Check out the [Intentional Grouping Strategies](#), pg. xxii.

8. Say: **In a moment, you will draw cards from this pile. Your goal is to get others to guess what is on your cards. You must present your cards without using the words themselves. You can present using any of these various options:**

- acting out the idea on the card without using words.
- describing the idea on the card without using the word itself or a direct translation.
- drawing the card idea on a separate sheet of paper.
- using another method decided on by the group.

9. Have each group draw a card from the draw pile. Point out that the Hazard cards are red. Repeat until the deck is gone.

10. Say: **Hazards will be presented first, then Safety Tips will be presented and placed under Hazards they can solve. When a Hazard card has two Safety Tips under it, it has been avoided.**

11. One at a time, have groups with Hazard cards present their cards. When someone guesses what is on a card, the presenters place it in the open area (or in the correct location on the *Playmat*).

12. When all Hazard cards have been placed, have learners present Safety Tip cards. When someone guesses what is on a card, the presenters place it next to a Hazard it can address.

13. Once a Hazard card has two matching Safety Tip cards next to it, have learners flip the Hazard card over and put the Safety Tip cards in a "Discard" location. This action means the Hazard has been avoided.

14. If Hazard cards remain after all Safety Tips are played, shuffle the discard pile and place it in the "Draw Pile" location.

15. Say: **Another way to say *safety tip* is *mitigation*, which means a way to make a hazard less dangerous or painful. It is related to the word *mitigate*, which means to make a hazard less dangerous or painful.** Discuss and revise these definitions of *mitigation* and *mitigate* as a whole group. Add the words and definitions you agree on to the *Our Ideas* poster, along with translations into learners' preferred languages and relevant images.



Support Learner Differences

If needed, give learners time to become familiar with the cards and have each group share words in their preferred languages (or gestures) that communicate the idea on their card.



If an icon is unfamiliar to learners, have them create a new icon that represents the card and add it to the *Our Ideas* poster or create a new card on the blank templates provided in *Hazards Cards Deck A—Everyday Hazards*.



Support Learner Differences

As necessary, describe aloud or in sign language what presenters are doing so that learners of all abilities can understand it.



Support Thinking

Encourage learners to consider how mitigation connects to the work of engineers. Refer back to the Ready S.E.T. Go activity, if helpful for your learners. (*Engineers often design ways to mitigate hazards.*)

16. Explain to learners: **Things that you have done to prepare for or deal with hazards are all mitigations. We can't usually solve or stop hazards from happening, but we can mitigate them.**

Reflect & Wrap Up (10 min.)

17. Gather learners and review the game. Revisit the Guiding Question: **How do people stay safe from everyday hazards?** Ask: **How did you know which safety tips mitigated which hazards? What are other ways you could mitigate these hazards?** Remind learners of the terms *hazard* and *mitigation* on the *Our Ideas* poster.
18. Say: **Next time, you will think about how to mitigate hazards where you live.**



Support Thinking

Say: **Mitigating hazards is good for everyone. For example, sidewalk ramps make crossing the street safer for people in wheelchairs and also easier for bikes, skateboards, and hoverboards. Even pedestrians are less likely to trip.** Have learners think of other mitigations that are good for everyone. Add learners' ideas to the *Our Ideas* poster as examples of mitigations.



Level Up!

- ★ Lay out all Safety Tip cards. Ask: **What do the safety tips have in common?** Let learners share patterns they notice. Add learners' ideas on what the safety tips have in common (make safe, helpful, cause less harm, reduce risk) to the *Our Ideas* poster. Highlight the words *in common*. Help learners make connections between their definitions of *mitigation* and *safety tip*. These should be very similar. (10 min.)
- ★ Ask this story prompt: **How do you avoid hazards at home or in communities you belong to?** Have learners share with a partner in their preferred languages. (5 min.)
- ★ Did you know that NASA monitors hazards and other processes here on Earth? Check out this short video about NASA's Earth Observatory [Introducing: NASA's Earth System Observatory \(1:53\)](#).
- ★ Before the next adventure, have learners interview family or community members to hear their stories of science, hazards, and mitigation. Tell learners, if anyone asks what they did today, they can say "we figured out safety tips to protect us from everyday hazards" or "we figured out mitigations for everyday hazards" and then ask them the above story prompt. Encourage learners to think of more answers at home before the next adventure. Download customizable flyers and get ideas on the [Space Hazards Family and Community Connections webpage](#). Consider returning to learners' ideas at the start of the next adventure. (25 min.)

After the Adventure

1. Clean up:
 - Keep the *Our Ideas* poster for use in Adventure 3.
 - Save the *Playmat* for use in Adventure 4.
 - Set aside the cards from *Hazards Cards* Deck A–Everyday Hazards. They are not used in future adventures.
2. Plan for Science Adventure 3. See [Science Adventure 3 Preparation on pgs. 32–33](#).
3. Take time to reflect on the following educator prompts: **How did you help support learners' acquisition of the vocabulary used in this adventure?**

Space Hazards Additional Resources

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



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