

# PLANETS Science Series:

Space Hazards

SCIENCE *NOTEBOOK*

NAME: .....

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## Activity 1 **Everyday Hazards**

In your own words, write what the words "hazard" and "mitigate" mean:

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- Or -

Draw a picture of something that mitigates a hazard:

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## Activity 2 Hazards on Earth

What natural hazards can you think of?

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What is something you could do to mitigate (prepare for or deal with) the hazard?

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## Activity 3 Hazards in Space



Which card would you like to know more about?



Which hazard do you think is the most dangerous?



Which mitigate card do you think is the most useful?

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## Activity 4 **Mitigate Hazards for your Mission**

### **Congratulations!**

Your team has been selected as the Health and Safety Officers for one of the following missions.

Once you know what mission your team will be working on, you will need to use the cards to identify hazards, mitigations, and chance factors that NASA needs to plan for.

Ask questions, make a list, brainstorm ideas, and be ready to explain which hazards and mitigations are most important for your mission.

Work as a team to create a presentation that you can give to the NASA review board!



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## Activity 4 Mitigate Hazards for your Mission

### Mission 1

We're launching a rocket! What Earth hazards might be present on launch day at Kennedy Space Center in Florida and how should we mitigate them? What other chance factors might impact the launch?

Tips:

» Look for Earth icons - 

» The launch site is in Florida, so earthquakes and volcanoes are not around, but water and weather hazards sure are.



Dec 5, 2019 SpaceX Falcon 9 rocket launch  
<https://www.nasa.gov/launchschedule>

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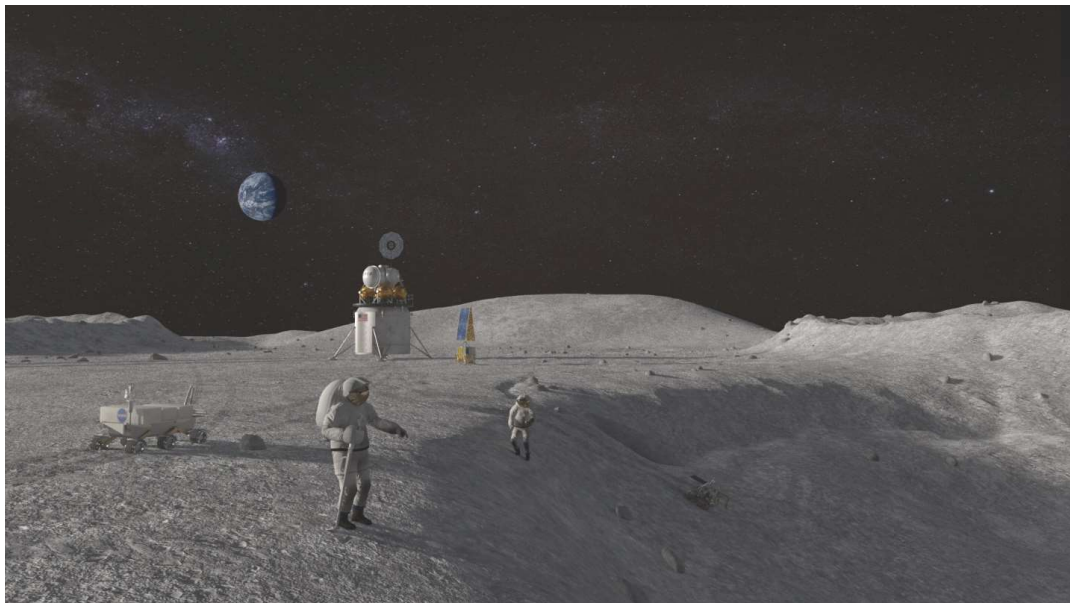
## Activity 4 Mitigate Hazards for your Mission

### Mission 2

We're going back to the Moon! Technology has improved a lot since the Apollo missions of the 60's and 70's and once we get there we need to identify and mitigate hazards with a fresh new look.

Tips:

» Look for the Moon icons -



*Artist's illustration of astronauts on the moon in 2024*

<https://www.nasa.gov/feature/sending-american-astronauts-to-moon-in-2024-nasa-accepts-challenge>

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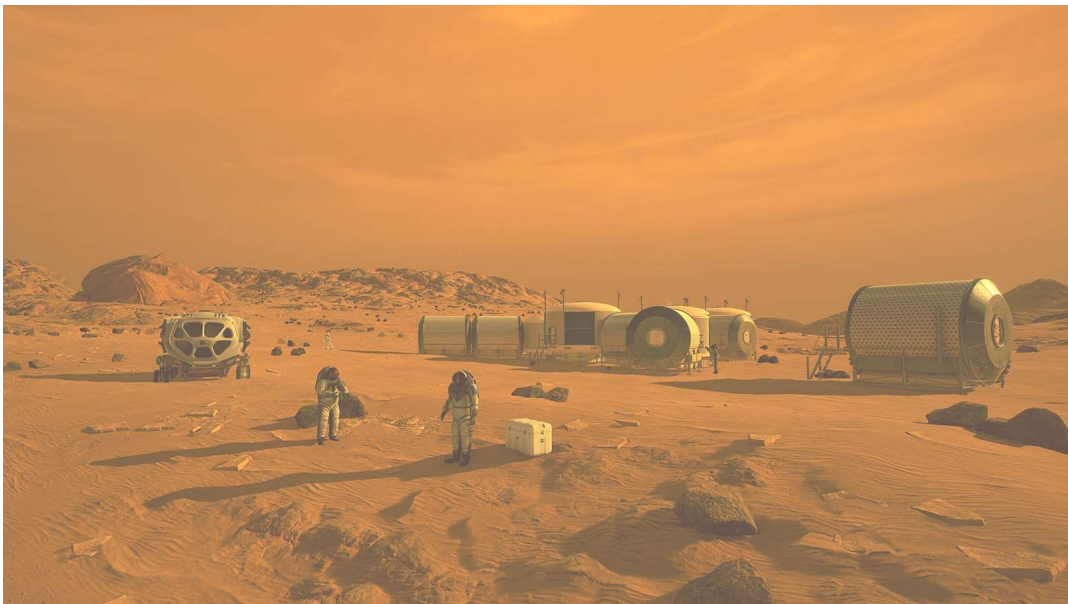
## Activity 4 Mitigate Hazards for your Mission

### Mission 3

We are sending a person to Mars for the first time ever! What hazards and chance factors should the Mars team plan for and how should they mitigate them?

Tips:

» Look for the Mars icons -



*Artist's illustration of astronauts and habitats on Mars*

<https://www.nasa.gov/feature/jpl/nasas-mars-2020-will-blaze-a-trail-for-humans>



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## Activity 4 Mitigate Hazards for your Mission

### Mission 4

We want to land an unoccupied spacecraft on an asteroid, get samples, and bring them back to Earth. What should we know that will keep the spacecraft safe from damage?

Tips:

» Look for the Asteroid and Robot icons -



» Ask your educator to see the Educator Background section on Hazards faced by Robots



Illustration

*Artist's illustration of the current OSIRIS-REx Spacecraft*  
<https://www.jpl.nasa.gov/news/news.php?feature=7299>





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## Activity 4 **Mitigate Hazards for your Mission**

Brainstorming Space:



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## Activity 4 **Mitigate Hazards for your Mission**

Additional Notes or Cool Facts to Remember: