

# All about Hiwayz<sup>®</sup> PHENOMENA! STEM ACTIVITY CARDS

## Student Groupings:



### Individuals

Promote independent curiosity and problem-solving



### Partners or Small Groups

Promote active collaboration and spark conversations as students work to prove their reasoning about phenomena



### Whole Class

Model meaningful discussions and interactive problem-solving skills with adult support

## FRONT



Phenomena images

1

2

Essential skill

## Elements of each card

- 1 Phenomena images** - Thought-provoking images that spark curiosity and promote deep thinking connected to the activity and science concept.
- 2 Essential skill** - Objective statement written in student-friendly language.

**BACK**

**1** Station of STEM®

**2** Guiding question

**4** MATERIALS

- ◊ Robotics tools
- ◊ Assorted craft materials
- ◊ Augmented reality tools
- ◊ Student device
- ◊ Recording Sheet

**3** VOCABULARY

- ◊ Manned space exploration
- ◊ Accommodation
- ◊ Enable

**5** Step-by-step directions

**6** Challenges

**How is space exploration possible?**

- 1 Look at the image on the front of the card. Record what you notice about the International Space Station (ISS) and spacewalks. What accommodations are required to explore space?
- 2 Use your augmented reality tools to explore which parts of the International Space Station provide conditions that allow humans to work in space (such as power, shelter, food, and water).
- 3 Use assorted craft materials to represent different essential parts of a space station, such as solar panels, airlocks, and water recycling systems.
- 4 Use your robotics tools to represent an astronaut on a spacewalk who is repairing essential parts of the space station.
- 5 Record observations of successes and challenges in using your robotics tools.

**CHALLENGE**

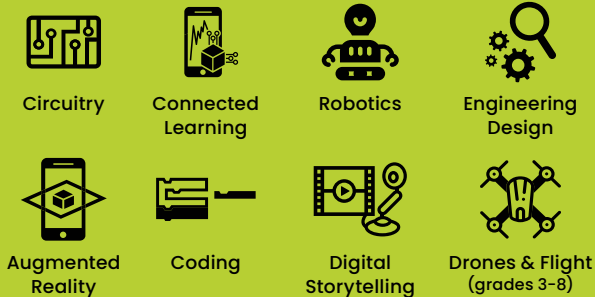
1. Research the early history of space flight and focus on a particular astronaut or mission. Share your findings in a presentation to your classmates.
2. Make a list of five personal items you would bring with you for a year-long stay on a space station. Write a brief description of each item and explain why you would bring it.

Save a recording of your robot in action to add to your STEM portfolio.

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**Elements of each card**

**1 Station of STEM®** - The Stations of STEM - a TechTerra trademarked concept - refers to a system for understanding and organizing learning centers for the purpose of exploring the world of STEM and STEAM.



**2 Guiding question** - Sparks curiosity and prompts student thinking and conversation.

**3 Vocabulary** - Highlights important terms that students will encounter.

**4 Materials list** - Materials and STEM tools needed to complete the card (standard classroom supplies)

**5 Step-by-step directions** - Student-friendly language to encourage independent hands-on exploration without one-on-one adult support.

**6 Challenges** - Extends thinking on the concept and connects to different content areas including language arts, math, and social studies.

Explore concepts using hands-on STEM tools in each area. Use your own tools or those purchased from our Hiwayzz® Tool Starter Kit and Tool Bundles.