



GRADES 9-12

## Our Solar System

Explore the many worlds—planets, moons, dwarf planets, comets, and asteroids—that orbit the Sun. Our Solar System is much more than a star and eight planets; it is home to a set of diverse and amazing objects that we are only beginning to understand.

### Guide Overview

This guide includes suggestions for how to engage your students and facilitate an age-appropriate learning experience in the **Our Solar System** exhibit.

## Highlights & Related Questions



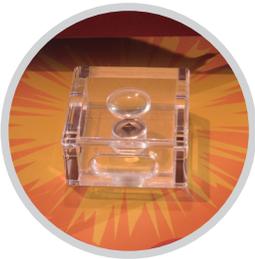
- FIND** Have the students find and investigate the information panel about the planet that most interests them.
- DO** Encourage the students to interact with the iPad, seeing the planet and its moons up close. Have the students compare and contrast the planet they chose to Earth.
- ASK** What are three things you didn't know about this planet before or that surprised you? Describe features of the planet that are similar to or different from Earth.



- FIND** Have the students find the large meteorite on the table near the café.
- DO** Encourage the students to touch the meteorite sample. It's from space!
- ASK** What do you think this item is? Where do you think it came from? **A piece of rock or metal from space that has fallen to Earth called a meteorite. This one likely originated from the Asteroid Belt between Mars and Jupiter.** Can you use context clues to guess what it's made of? **Metal, mostly iron and nickel.** Can you identify any places in the solar system that have been shaped by asteroid and meteor impacts? **Most places in the solar system have been impacted, but craters are most visible on rocky planets and moons such as Mercury, and our Moon.**
- FIND** Have the students locate the model of the Mars Rover. Explain that this is a model of the Spirit and Opportunity rovers that have been on Mars since 2004, investigating the surface and sending back information to Earth.



**ASK** Which parts of the rover can you identify? Answers can include wheels, camera, solar panels, antennae. How do you think the rover is powered? It gets energy from the Sun, converted through solar panels. How do you think it gets instructions for direction? Answers can include satellites sending signals, picked up by the two antennae. What sorts of things would we want to learn about Mars by going there? We want to learn about the climate and geologic history, including if there was ever liquid water on the surface. Do you think humans will ever travel to Mars?



**FIND** Have the students find the three stations near the windows where they can touch rocks from other worlds.

**DO** Direct the students to choose one station to investigate and touch the rock sample. They can also press the buttons at the stations to hear scientists explain information about the rocks in more detail.

**ASK** How does it feel? How do we know this rock is from another world? By studying its age and composition. What can we learn from these rocks? We can learn about the history and composition of other worlds by studying the rocks that originate from there. Where did these rocks come from? How did they get here? They were blasted off the surface of another moon or planet by an asteroid impact and then after floating in space, fell to the Earth.



**FIND** Instruct the students to find the Departures and Arrivals of spacecraft interactive screens, behind the Mars Rover near the main hallway.

**DO** Have the students investigate three spacecrafts that will be launched soon, or are on their way to a destination. You can do this by touching a specific craft on the screen.

**ASK** Where are these spacecraft going? Outer space, planets. What do scientists hope to learn by sending them there? More information about our Solar System. What are some reasons sending spacecraft on these missions is better than sending humans? Safety: if the craft malfunctions, no humans are harmed. There are also dangers in space like radiation and freezing temperatures that would hurt humans. Distance: the worlds these crafts are going to visit are incredibly far away. The machines will not return to Earth.