

**GRADES 4-5**

Telescopes: Through the Looking Glass

Uncover the extraordinary beauty and technology of some of the world's most important telescopes, which enable us to discover information about the Universe.

Guide Overview

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

Highlights & Related Questions



- FIND** There are many real antique telescopes on display in cases around this gallery. Have students find one they like!
- DO** Encourage students to imagine what it would be like to look at stars and planets using the telescope they chose. Have them make observations about the telescope and compare and contrast it to others nearby.
- ASK** What shape is the telescope? **A cylinder.** Are there any interesting features or designs? Can you identify any specific parts? **Answers can include tube, lenses, eyepiece.** Can you use context clues to figure out how a telescope works? Describe your hypothesis. **It uses lenses to gather light, making images of objects appear brighter and more detailed.**



- FIND** Instruct the students to find the Grand Orrery across from the interactive Galilean telescope.
- DO** Encourage the students to climb the stairs to be able to see the top of the orrery. Tell them that an orrery is a model of the Solar System that people used hundreds of years ago (and even today!) to visualize the motions of planets.



ASK Which things are represented in the orrery? **Sun, planets and moons.** Which planets do you think take less time to orbit around the Sun? **Planets closer to the Sun.**

FIND Have students find the 20-foot long telescope. It's hard to miss!

DO Instruct students to take turns looking through the eyepiece.

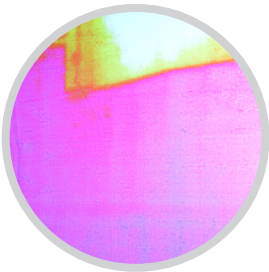
ASK Make observations about and describe what you see. **A model of a planet.** Which planet could it represent? **Saturn. We know it's Saturn because of the rings around it.** Is the image blurry or clear? Why? How did scientists make shorter telescopes? **By using mirrors.**



FIND Have students find the interactive table with mirrors, lenses and light.

DO Encourage students to play with the light using mirrors and lenses.

ASK How does the light bend as you shine it? How does the light move differently when you use different shapes and materials? Why do you think the light moves that way?



FIND Have students find the infrared camera.

DO Instruct them to stand in front of it and find themselves in the screen. They can also experiment with the props in the bin under the camera: a clear plastic square and an opaque tarp square.

ASK Is this like a normal camera? **No.** How is it similar or different? **It shows different colors than a normal camera, but still depicts the person in the camera's view.** What do you think the colors this camera is showing you represent? **Infrared light, or body heat.** What happens to the image when you hold up the clear plastic? **It blocks the heat.** How about the square or tarp? **Some heat can go through.**