

Space Science Explorer Badge

Purpose: Explore and observe the Sun, Moon, and stars.

Step One: Explore the Sun

Have you ever heard the words “sunrise” and “sunset”? That’s how we describe the Sun coming up in the morning (sunrise) and going down at night (sunset). But did you know Earth—the planet where we live—is actually spinning like a top in space? That’s why the sun seems to move across the sky. On the part of Earth facing the Sun, it’s day. On the part facing away, it’s night!

Make a day sky book to document how the sky changes during the day. You can make it by folding three sheets of paper in half. Decorate the cover with a picture of the sun or some stickers. Go outside with an adult and look at the sky three times during the same day. You could do it after breakfast, after lunch, and near dinnertime. Do not look directly at the Sun. Just like a scientist, make a prediction (a guess) for what the sky will look like each time you go outside. Then, see if your guesses were correct. Draw pictures in your sky book of what you see at different times of day. Does the sky look different each time you go outside? Did the colors or clouds change? Discuss your observations with your family and share your day sky book with them.

Step Two: Observe the Moon

Have you ever noticed the Moon in the daytime sky? Sometimes it’s there, even though it doesn’t seem very bright compared to the blue sky or clouds. When it’s up at night, it’s hard to miss, and some nights it’s brighter than others. Take a closer look at the Moon and see how it seems to change shape over time.

Make a Moon sky book to document how the Moon changes. Make it the same way you made your day sky book. Go outside with an adult three times and look at the Moon. You can either do it three different times during one day or night, or three days or nights in a row at the same time. Before going outside, make a prediction for what the Moon will look like each time. Then go outside and draw what you see. Discuss if your predictions were correct and share your Moon sky book with your family.

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Girl Scout Daisies





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Step Three: Meet the stars

Now that you've observed the Sun (our closest star) and the Moon, it's time to see more stars. All of the other stars are much farther away than the Sun and the Moon. That's why they look like tiny points of light.

Make a pretend telescope to view the stars. A telescope is a tool that scientists use to study the stars by making distant things seem brighter and bigger. Make a pretend telescope by using a toilet paper or paper towel tube or a rolled-up piece of construction paper. Then take your telescope outside on a clear night with an adult and look through it at the stars as you use your creativity to pretend you're a NASA space scientist. A group of stars that forms a pattern is called a constellation. Ask an adult to help you find Orion in the southeast sky, one of the easiest and brightest constellations to find. It has two stars at the top, three in the middle, and two at the bottom. You can find out more about the Sun, Moon, and stars by asking an adult to look at the NASA website with you: nasa.gov.

Congratulations! You have earned the Space Science Explorer badge!

