

## Topic: STEM

### Badge: Space Explorer

Space scientists are people who study outer space--what's in the sky. Just like a space scientist, girls will explore and observe the Sun, Moon and stars as they look at the sky and talk about what they see!



1. Explore the Sun
2. Observe the Moon
3. Meet the Stars

Suggested Supplies: paper, pens, crayons or markers, stickers, lamp with a removable shade, construction paper or cardstock.

#### Activity 1: Discover what makes the Sun “rise” and “set”

- Place a sticker on your nose, pretend that is where you live on your head/the earth
- Face the lamp with the bare light bulb and slowly turn around
- Notice that when you face the light, your sticker is in daytime and when you are turned around with your back to the light, your sticker is in nighttime.

This is how we have night and day. Our Earth rotates and makes the sun look like it is going up and down.

**Fun Fact!** The path one object takes around another is called an orbit.

#### Activity 2: Let’s make a Day Sky Book

- First put 2 pieces of paper and one piece of construction paper in a stack and fold them in half to make a little book. Staple a couple of times on the fold.
- You can decorate the cover of your Day Sky Book with anything you want. It’s your Day Sky Science book.
- Look outside and draw what the sky looks like that day ex: Are there clouds in the sky? Can you see the sun today?
- Try guessing what tomorrow is going to look like and draw that too.
- You can do this at different times of the day too. See if you can guess right.

This guessing is called Predictions. This is how scientists learn.

**Fun Fact!** While the Sun is very special to us, there are billions of stars like our Sun throughout the Milky Way Galaxy.

#### Activity 3: The phases of the Moon

- Ever notice the moon looks like different shapes in the sky? Why do you think that is?
- It isn’t changing shape. When it goes around the Earth, the sun hits it differently so parts of the moon are light and you can see that part. And parts are dark because the Earth is in the way sometimes. That makes it look like it has changed shape.
- Look up and draw the moon on one piece of paper for a week. Notice how much it changes.

**Fun Fact!** If the Sun were as tall as a typical front door, the Earth would be the size of a U.S. nickel!

#### Activity 4: The stars and Constellations

- When you look up at the stars, they make shapes called Constellations.
- Place your hand on a blank piece of paper and place about 7 dots on the paper around your hand right next to your skin. When you take your hand away, it doesn’t exactly look like a hand. It is a constellation of your hand. Your imagination fills in the gaps, just like when you look at a constellation of stars.
- Go to this website <http://www.supercoloring.com/dot-to-dots/constellation-map> and see if you can pick out some constellations in the sky around your house.

## **More Fun Facts!**

- Solar System: The Sun, our star, and all the objects that travel in orbit around it.
- Galaxy: A system of dust, gas, and stars.
- Our Solar System is just one of billions of planetary systems that make up our Galaxy, which is called the Milky Way.

## **Want to learn more?**

- NASA's Sun website: <http://www.nasa.gov/sun>
- Songs about the Sun: <http://www.astrocappella.com/sun.shtml>
- Sun and Earth interactions: <http://science.gsfc.nasa.gov/670/about/heliophysics.html>
- How stars are made: <https://science.nasa.gov/astrophysics/focus-areas/how-do-stars-form-and-evolve/>

Share what you have learned and created with your family members. Tell them about the Sun, Moon and stars!

**Be sure and tell your Troop Leader what you did and what you learned about Exploring Space!**

You can also purchase the badge online at <https://www.girlscoutshop.com/Daisy-Space-Science-Explorer-Badge>