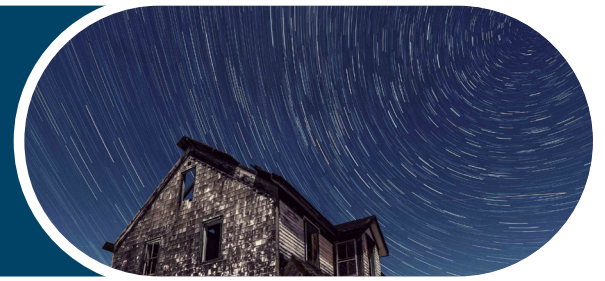


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Teacher Toolkit: Night Sky Tonight | Grades K–12



PROGRAM OVERVIEW

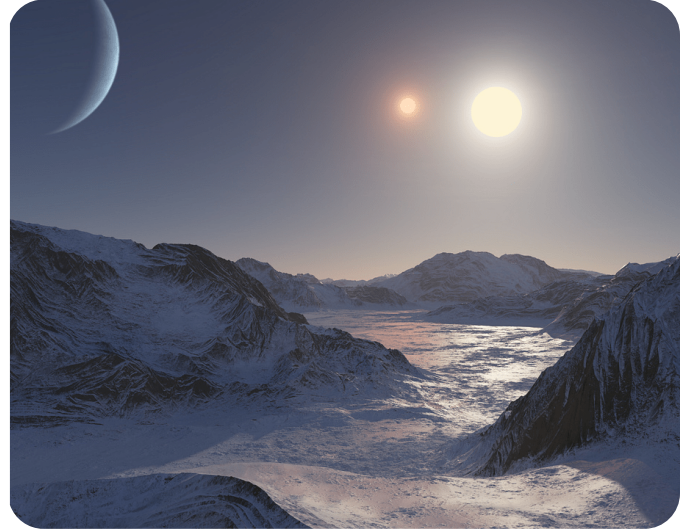
Get familiar with the program content.

Program Description

Become a true backyard astronomer. Learn how living on a giant spinning ball changes what can be seen each night, discover how to find constellations, and even how the sky can be used to find directions!

Program Objectives

Note: each program will cover some but not all program objectives, based on each group's age, interests and needs, as well as what is visible in the sky at the time of the program.



Grades K–2

Participants will understand that the planetarium is a model that shows us what space is like, but does not show us outer space for real.

Participants will be able to identify times at which using a model is most useful.

Participants will be able to observe and describe that the Moon is visible at different times of day/night.

Participants will use observations to describe patterns in sky objects during Earth's rotation over the course of a day.

Participants will be able to observe, describe and model the daily rotation of the Earth on its axis.

Participants will be able to model the position of the North Star above the Earth's axis.

Participants will use observations to describe patterns in the amount of daylight in the summer and winter.

Grades 3–5

Participants will be able to explain ways that the planetarium model is different than real outer space.

Participants will be able to observe and describe that the Moon goes through different phases in a pattern.

Participants will be able to model the daily rotation of the Earth on its axis.

Participants will be able to observe, describe and model how the stars appear to spin around the North Star.

Participants will understand that observable patterns provide evidence for scientific explanations.

Participants will use observations to describe the pattern that different stars are visible during the winter than during the summer.

Participants will use observations to describe patterns in the amount of daylight in the summer and winter.

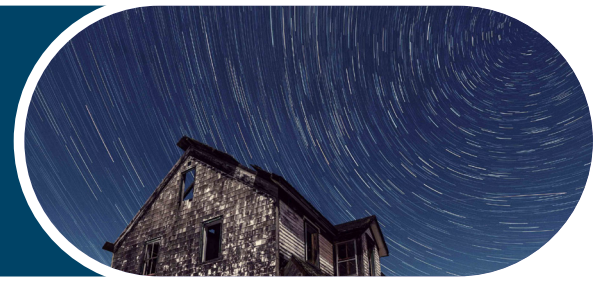


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Program Objectives Continued

Grades 6–8

Participants will be able to name advantages and disadvantages of the planetarium as a model.

Participants will be able to explain why the Moon goes through different phases.

Participants will be able to explain and model why the stars appear to spin around the North Star.

Participants will understand that observable patterns provide evidence for scientific explanations.

Participants will be able to explain why different stars are visible during the winter than during the summer.

Participants will be able to model the position of the North Star above the Earth's axis.

Participants will use observations to describe patterns in the amount of daylight in the summer and winter.

Grades 9–12

Customizable programs based on student interest and content needs.

Program Key Words (English/Spanish)

Astronomy / la astronomía

Planetarium / el planetario

Pattern / el patrón

Model / un modelo

Horizon / el horizonte

Zenith / el cenit

Rotation / la rotación

Orbit (v) / orbitar

Orbit (n) / la órbita

Constellation / la constelación

Program Outline

Subject to change. Each program will cover some but not all program components, based on each group's age, interests and needs, as well as what is visible in the sky at the time of the program. Please let your PacSci educator know if there's something you'd like to focus on.

- Introduction to astronomy:
 - The planetarium as a model.
 - Day and night.
- Navigating the night sky:
 - Introduce horizon and zenith.
 - Finding cardinal directions.
 - Locating the big dipper and north star using patterns and distances.

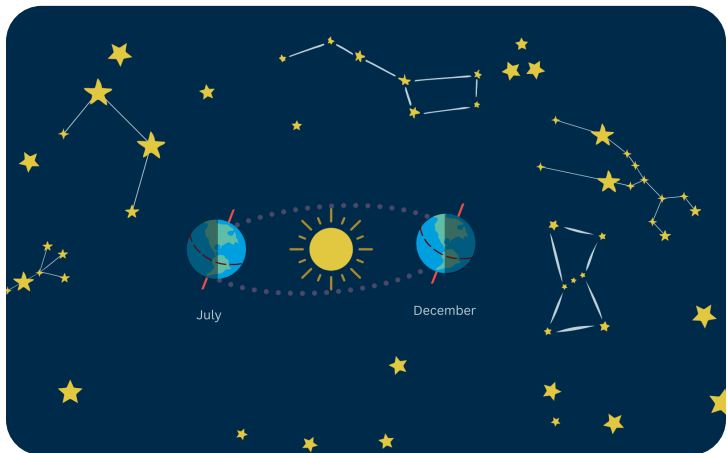
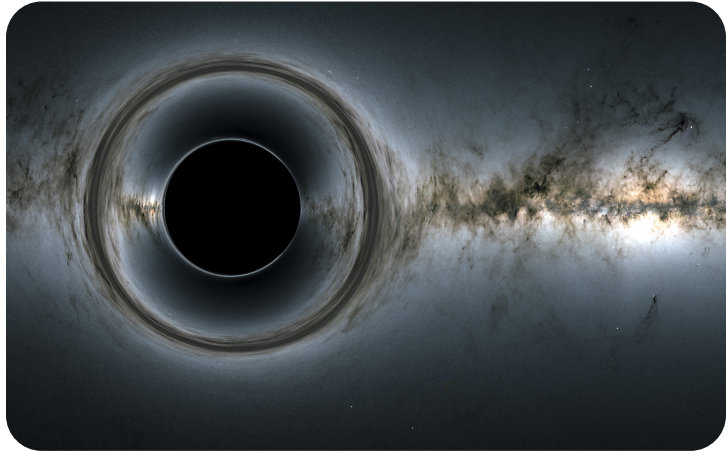
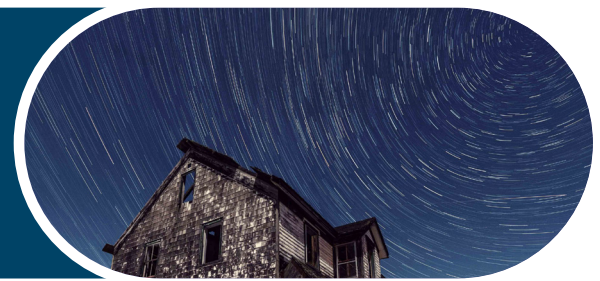


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Program Outline Continued

- Nightly patterns of stars:
 - Observe and describe patterns over time.
 - Model Earth's rotation on its axis using our bodies.
- The Moon:
 - Observe and describe the Moon's appearance.
 - Explore Moon phases.
- Seasonal pattern observation:
 - Observe and describe patterns and changes across seasons.
 - Locate and discuss significance of constellations.
 - Model seasonal constellation changes due to the Earth's revolution using our bodies,
- Planets:
 - Locate and observe any visible planets based on their differences from other night sky objects.
- Program conclusion.

[View supported NGSS](#)

BEFORE THE PROGRAM

DISCUSSION PROMPTS

Use these prompts to lead an optional pre-program discussion and reflection in your class.

- Astronomy is the study of things in space, which we call celestial objects. How many kinds of celestial objects can you think of? Can you see any of those objects from Earth?
- Imagine you woke up one morning and didn't have a clock or calendar to tell you what time of day or which month of the year it was. How would you keep track of time? What signs would you notice in the natural world to know what time of day it is? What part of the month it is? What season it is?



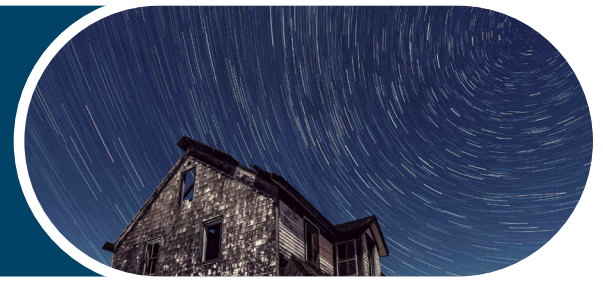
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DURING THE PROGRAM

Print the optional worksheet for your students to follow along with during the live presentation. The back of the worksheet includes additional prompts for after the program.

PRINTABLE WORKSHEET

- Night Sky Tonight Printout: [Click to download](#), then print double sided.

AFTER THE PROGRAM

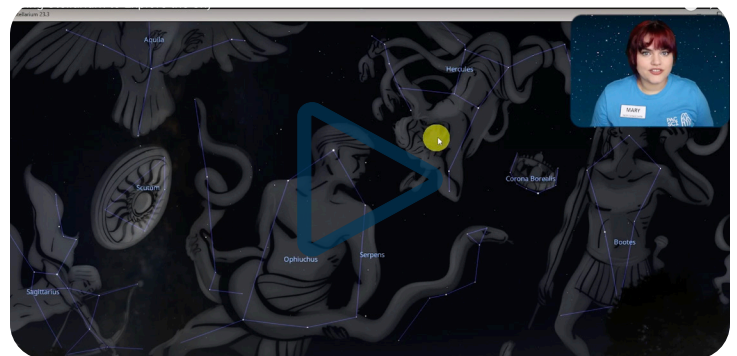
These optional extension resources can be used within the learning space, or shared with students to do at home with their families.

ACTIVITY GUIDES

- Make a model of the earth, sun and moon to better understand why we see different Moon phases from our perspective here on Earth with [Going Through a Phase](#) | [Pasando por una Fase](#). Activity time: 15–30 minutes. (Recommended for 3rd grade +)
- [Star Finder](#) | [Buscador de Estrellas](#): Make your own star finder with this printable to help you continue locating star patterns on your own throughout the year. Activity time: 30–40 minutes. (Recommended for 3rd grade +)
- [Marshmallow Constellation Activity Guide \(follow along video here\)](#) | [Constelaciones de Malvavisco](#): Create a 3-D model of your own constellation using simple materials, then write a story about your imagined shape using the written guide and/or follow along video. Activity time: 30–60 minutes.

ADDITIONAL RESOURCES

- In our program, we used a virtual planetarium model called Stellarium. Use our five-minute [Stellarium How-To video](#) to learn the basics of navigating this program, then explore Stellarium on your own, or challenge yourself to the [Stellarium Scavenger hunt](#).

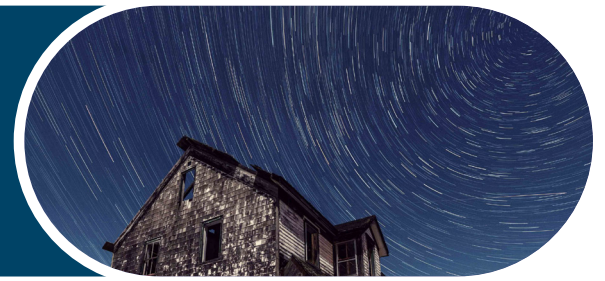


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▶ STEAM VIDEO

- Meet Megan Gialluca in this nine-minute career video about [Searching for Life in Space](#). Megan uses data from telescopes to search for signs of life in the atmosphere of exoplanets.



📖 READING LIST

- Check out the [Night Sky Tonight reading list](#) for STEAM books related to the program themes.

For more activities with simple materials, check out the [Curiosity at Home / Curiosidad en Casa](#) web page. Explore activity sheets by age group and topic in both English and Spanish.



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