



Nature-Watch Activity Kit

Star Seekers

(Nature Watch Kit #107)

Kit Contents

<u>Item:</u>	<u>Qty</u>
Star Finder Sets	25
Star Seeker Star Card Decks	2
Books about Stars	2
Instructor Manual	1

Additional Items Needed:

Markers
Staplers
Scissors

Next Generation Science Standards Alignment

5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.

5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

MS-ESS1-2. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.

MS-ESS1-3. Analyze and interpret data to determine scale properties of objects in the solar system.

**See Back for
STEM Extensions**

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.



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STEM Extensions

Science

- Play a guessing game with the constellations on a magnetic white board. One player decides on a constellation, then creates it on the white board by first setting out magnets where each star should be. The other players can try to guess the constellation. If no one guesses it, the player can draw in the lines one by one to connect the stars in the shape of the constellation. Whoever guesses correctly draws the next constellation. The goal is to guess before any lines are drawn.
- A shooting star is not actually a star, but rather it is a meteor, a piece of debris from space that burns up in the Earth's atmosphere. Make plans to see a meteor shower the next time one comes around. You can find out on the news or online when there will be one that is visible from your region. To prepare, learn more about meteors and discuss it with your classmates.
- Build a 3-D model of the life cycle of a star, showing how it shrinks and becomes denser and hotter as it gets older. You'll find the names and details of the stages in a book or online, and then you can decide what kind of craft supplies or other objects would be best to use for the model.

Technology

- There are several apps that can be used on smartphones to help with night sky viewing and identification of stars. Try them out the next time you go stargazing. Do a search for "night sky" or "stargazing" to find some.
- Obtain access to high-tech stargazing technology by either going to a planetarium or contacting an astronomy club that does public outreach. You won't believe your eyes when you see the stars with professional equipment.
- Explore the images on the Jet Propulsion Laboratory's website (www.jpl.nasa.gov) to see what some of the astronomical objects described in this activity kit look like. How do the images match or differ from what you imagined or expected to see?

Engineering

- Create an indoor starry sky to share your knowledge of the constellations. Punch holes into cardstock in the shape of your favorite constellation. Use a flashlight or projector to shine light through the holes onto a blank wall in the dark. Combine constellations with your classmates to display multiple constellations at the same time. After enjoying the indoor starry sky, come up with ways to improve the setup. (Here's a hint to start your brainstorming: one way is to use a paper cup instead of cardstock, poke holes in the bottom of the cup, and fit the cup over the flashlight. What else can you come up with?)
- Light pollution (the shining of lights up into the sky) makes it difficult for people living in densely populated areas to see the stars at night. There is a stark difference in how many stars can be seen above a rural area versus above an urban area. First, find some photos online that show light pollution's effects, then explore some possible solutions to address the issue. Which of the solutions do you think are most doable? Could your region benefit from these solutions?

Math

- The ancient Mayan people were very interested in astronomy, and they based their calendars on it. One of the calendars had 365 days, which consisted of 18 months of 20 days each followed by a special month of five days. If you had to match this up to our calendar, determine which of our dates would coincide with the start of each Mayan month (the 20-day month called a tun, and the five-day month called a uayeb). Start with January 1 as the first day of the first tun.
- Do the "Create Your Own Constellation" activity, but this time make constellations that are geometric shapes put together. Try to hide some of the shapes within other shapes, and see if your classmates can find them among the stars.