PEANUTS and SPACE FOUNDATION

The View is Beautiful

OBJECTIVES

Students will:

- Read *Snoopy, First Beagle on the Moon!* and *Shoot for the Moon, Snoopy!* to give students some background knowledge.
- Learn how light travels through space.
- Explore the history and significance of constellations in the sky.
- Create a scale 3D constellation.

SUGGESTED GRADE LEVELS

K – 5th

SUBJECT AREAS

Science, Math, History

TIMELINE

45-60 minutes

NEXT GENERATION SCIENCE STANDARDS

- 1-ESS1-1: Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- 5-ESS1-1: Support an argument that the apparent brightness of the sun and stars is due to their relative distances from Earth.

21st CENTURY ESSENTIAL SKILLS

Critical thinking/Problem solving, Communication, Information literacy, Social Skills, Organizing Concepts, Predicting Patterns, Constructing Explanations

BACKGROUND

- According to NASA.gov, NASA has proudly shared an association with Charles M. Schulz and his American icon Snoopy since Apollo missions began in the 1960s. Schulz created comic strips depicting Snoopy on the Moon, capturing public excitement about America's achievements in space. In May 1969, Apollo 10 astronauts traveled to the Moon for a final trial run before the lunar landings took place on later missions. Because that mission required the lunar module to skim within 50,000 feet of the Moon's surface and "snoop around" to determine the landing site for Apollo 11, the crew named the lunar module Snoopy. The command module was named Charlie Brown, Snoopy's loyal owner.

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The View is Beautiful

- These books are a united effort between Peanuts Worldwide, NASA and Simon & Schuster to generate interest in space among today's younger children. The character of Snoopy has been allowed to be reimagined for this special partnership and for the opportunity to head into outer space.
- Constellations are named patterns of stars. All societies created them. The classical -- "ancient" -- constellations that populate our sky began in the lands of the Middle East thousands of years ago, their origins largely lost to time. They passed through the hands of the ancient Greeks, who overlaid them with their legends and codified them in story and verse. During Roman times they were assigned Latin names.
- The 48 ancient constellations single out only the bright patterns. From around 1600 to 1800, post-Copernican astronomers invented hosts of "modern" constellations from the faint stars that lie between the classical figures, from pieces of ancient constellations, and from the stars that occupy the part of the southern sky that could not be seen from classical lands. Later astronomers broke the ship Argo into three parts, yielding 50 ancient constellations.
- In the early twentieth century, the International Astronomical Union (IAU) adopted 38 of the modern constellations and drew rectangular borders around all 88. Many of these contain informal constellations, or "asterisms," that are often the first to be learned, Ursa Major holding the "Big Dipper" and so on. Other asterisms, like the Winter Triangle, cut across constellation boundaries. Some constellations look like what they are supposed to represent, but most do not. Constellations, both ancient and modern, are generally meant to honor and represent, not to portray.
- The constellations play an important role in modern astronomy. They bring order to the sky by dividing it into smaller segments, providing a base for naming celestial objects. Though the brighter stars commonly carry "proper names" that come mostly from Arabic, they are also assigned Greek letters and Arabic numbers to which are affixed the Latin possessive forms of the constellation names, Vega, for example, also known as "Alpha of Lyra," or "Alpha Lyrae." The IAU also adopted three-letter abbreviations for all the constellations and their possessives, Vega thus becoming Alpha Lyr.

VOCABULARY

Constellation, Lightyear, 3D, Light, Space, Stars

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The View is Beautiful

GRADE K – 5
PAGE 3

MATERIALS

For each student:

- Distance to the Stars worksheet
- 1 rectangle piece of cardboard (roughly 4” by 6”) *can be cut ahead of time
- 7 toothpicks (pre-cut ahead of time if performing this lesson with younger students)
- 1 thumbtack or push pin
- Ruler
- Glue stick
- Scissors

LESSON PROCEDURES

1. Read *Snoopy, First Beagle on the Moon!* and *Shoot for the Moon, Snoopy!* to the entire class to give students some background knowledge.
2. Introduce what constellations are and how humans have used them over time for a variety of purposes.
3. Define lightyear (the distance light travels in one year). Many stars can be hundreds of lightyears away from each other but appear close to each other in the night sky. The distance of ONE light year is 5.88 trillion miles.
4. Explain to students that they are going to construct a scale model of the Ursa Major constellation, better known as, The Big Dipper. In this scale model they will see that constellations are not “flat” in the sky. Each star has a name and differs in their distance from the Earth.
5. Pass out materials to the students.
   a. Remind students that the marshmallows are for the project; not for consumption.
6. Cut out the image of the Big Dipper on the dotted line.
7. Glue the 4”x 6” piece of cardboard to the backside of the Big Dipper cut out.
8. Poke one small hole in each of the stars using the thumbtack.
9. Cut toothpicks to match the lengths needed for each star
   a. Merak, Phecda, Alioth and Mizar are full length toothpicks.
   b. Megrez is half a toothpick in length.
   c. Dubhe and Alkaid are roughly one-fourth the length of a toothpick.
   d. You may want to precut these lengths if working with younger students.
   e. Have older kids measure each toothpick with rulers and then cut.
10. Stick the sharp end of the toothpick to its matching star. Then stick a marshmallow on the other end of the toothpick.

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The View is Beautiful

11. Instruct students to observe the constellation from different angles.
12. Explain to students that the constellations we see from Earth are unique to us and our perspective. Note: The Big Dipper would not look the same if you were standing on Mars.

EXTENSIONS

- Instruct students to create their own constellation. Students will draw an outline of the constellation using dots, then connecting the dots to create the full constellation outline. The dots would serve as the placement for their stars.
- Print out other constellations and research the distances of those stars.

RESOURCES

Garcia, M. (2018, July 9). NASA and Peanuts Celebrate Apollo 10's 50th Anniversary. Retrieved from https://www.nasa.gov/feature/nasa-and-peanuts-celebrate-apollo 10-s-50th-anniversary

Kaler, J. (2014, February 14). THE CONSTELLATIONS. Retrieved from http://stars.astro.illinois.edu/sow/const.html

Schultz, Charles M. (2019). *Snoopy, First Beagle on the Moon!* New York, NY: Simon & Schuster.

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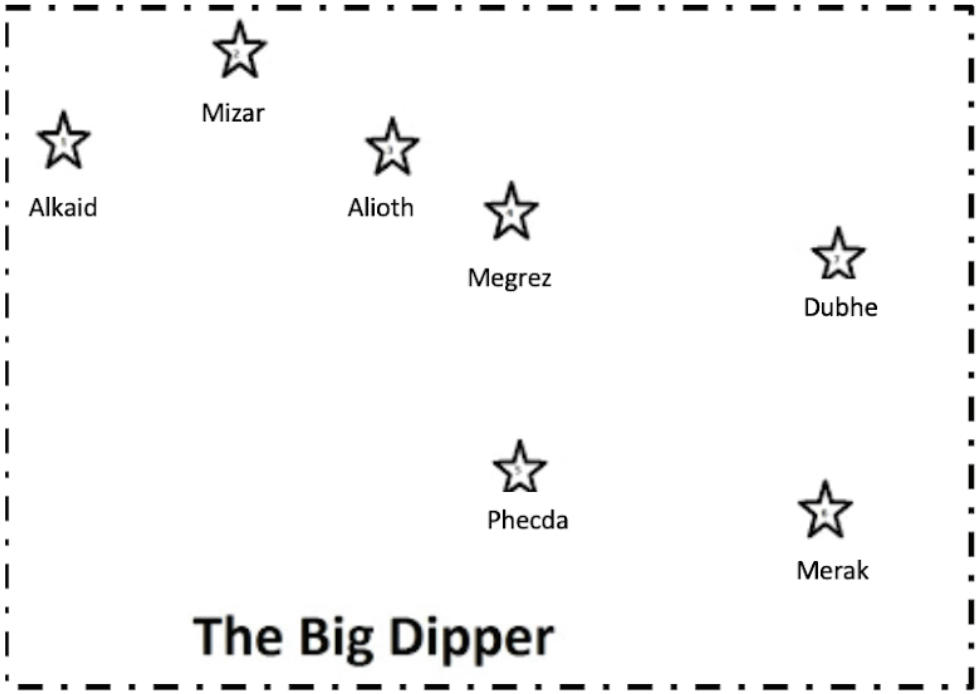

Merak = 79.7 Light Years

Phecda = 83.2 Light Years

Alioth = 81 Light Years

Mizar = 82 Light Years

Megrez = 58.4 Light Years

Dubhe = 123 Light Years

Alkaid = 101 Light Years

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Did you know that the stars you see in a constellation are not the same distance away? Many can be hundreds of light years away from each other. We group stars into 88 constellations to help astronomers map objects in the sky.

What is a light year? The distance light travels in one year

How far is a light year? 5.88 trillion miles

Directions

1. Cut out the image of the Big Dipper on the dotted lines.
2. Glue the back of the Big Dipper image to your cardboard.
3. Poke one small hole in each of the stars using the thumbtack.
4. Cut toothpicks to match the lengths below and stick them in their matching star. (Four toothpicks will be full length)
5. Stick a marshmallow on the end of each toothpick.
6. Hang your constellation on your wall and enjoy!