



# Planetary Scavenger Hunt

Which planet is the smallest? And just how big is Jupiter? Explore the size of Solar System objects during this space-themed scavenger hunt ... all you need is a ruler!

## TEKS:

SCI 3.8 D: The student is expected to identify the planets in Earth's Solar System and their position in relation to the Sun.

SCI 6.11: Earth and space. The student understands the organization of our Solar System and the relationships among the various bodies that comprise it.

MATH 2.9: Geometry and measurement. The student applies mathematical process standards to select and use units to describe length, area, and time.

MATH 2.9 A: The student is expected to find the length of objects using concrete models for standard units of length.

MATH 2.9 D: The student is expected to determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes.

MATH 4.8 A: The student is expected to identify relative sizes of measurement units within the customary and metric systems.

## Materials:

- Ruler (with centimeters)

## Experiment/How-To:

*A quick introduction:*

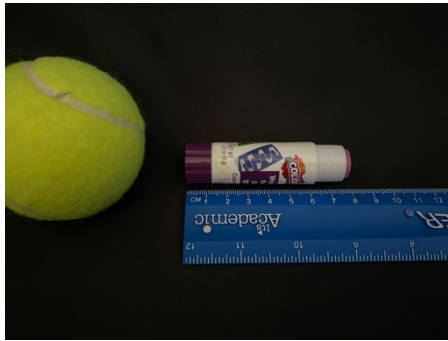
This scavenger hunt will help you understand the sizes of the planets in Earth's Solar System. All the planets in our Solar System are spherical shaped (3D circles), however for this hunt you will be asked to find objects with a certain length or diameter to represent your planet even if they aren't a perfect sphere. An object's length is equal to the measurement of that object from end to end. However, if that object is a circle or sphere, it has no ends! So, we have to use diameter, which measures the distance across the largest part of that circle or sphere.

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- For example, let's say the scavenger hunt wants you to find an object with a length or diameter of 7.5 centimeters. This could be a glue stick with a length of 7.5 centimeters, or a tennis ball with a diameter of 7.5 centimeters.



You are now ready to grab a ruler and go on the scavenger hunt!

### Planetary Scavenger Hunt

1. First, let's find Earth! Use your ruler to find an object that has a diameter or length of 2 centimeters. This object represents Earth. Next, we'll find the planets in order from closest to the Sun to farthest from the Sun, skipping Earth.
2. Mercury - 0.75 centimeters.
3. Venus - 1.75 centimeters.
4. Mars - 1 centimeter.
5. Jupiter - 22 centimeters.
6. Saturn - 19 centimeters.
7. Uranus - 8 centimeters.
8. Neptune - 7.5 centimeters

\*Pluto is not considered a planet anymore, but if you would like to include it in your scavenger hunt, find something with a diameter of just 0.5 centimeters.

If you are having trouble finding objects that match the lengths in the scavenger hunt, here are some ideas: Check your kitchen for tiny snack foods for the smaller planets, or bowls and cups for the larger planets. Legos, marbles, and other DIY/craft supplies are also great sources of scavenger hunt objects. Also, you can always get creative and cut a piece of construction paper into the correct length to represent a planet!

Congratulations on completing this scavenger hunt! Now, take some time to line all of your objects up in planetary order. Starting at the Sun, the order is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. Now, read the STEM Connection while looking at your planets.

### **STEM Connection:**

Earth's Solar System is made up of the Sun and all of the objects that orbit around the Sun, including eight planets. Mercury, Venus, Earth, and Mars are called the "inner planets" because they are closest to the Sun. They are also known as "terrestrial planets" because they have rocky surfaces. Between Mars and the planets

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farther out in our Solar System is something called the asteroid belt. This is formed from millions of gigantic space rocks—some as large as 400 kilometers long!—which are held in the Solar System by our Sun’s gravitational pull. These asteroids separate the four terrestrial planets from the next four planets: the gaseous planets. The four gaseous planets in our Solar System are Jupiter, Saturn, Uranus, and Neptune. They are frequently referred to as “gas giants” because they are large planets composed mostly of gases, such as hydrogen and helium, with a small, rocky core.

Planets are so gigantic that it can sometimes be hard to imagine how huge they really are. From smallest to largest, the planets go in this order: Mercury, Mars, Venus, Earth, Neptune, Uranus, Saturn, and Jupiter. Mercury has a diameter of just under 5,000 kilometers and Jupiter has a diameter of almost 143,000 kilometers! Let’s try to put this into context. If you wanted to get in a car and drive around the middle of the Earth without stopping (so no traffic, sleeping, or bathroom breaks), it would take you just over 17 days at a speed of 96 kilometers per hour (~60 mph). Driving around Jupiter at the same speed would take 189 days. That is over half a year!

Here is something really crazy: The Sun is even bigger than Jupiter... way bigger. If you wanted to include the Sun in your planetary scavenger hunt, you would need to find something with a length or diameter of 136 centimeters! And guess how long it would take to drive around the Sun? 1,888 days. That is over 5 years!

### **Career:**

*Planetary scientists* study the planets, moons, and planetary systems to discover the processes that form them. They explore objects ranging in size from micrometeoroids to gas giants, aiming to determine what they are made of, how they are made, and their history.

### **Resource:**

<https://www.universetoday.com/36649/planets-in-order-of-size/>

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