

Solar System String Model

How big is our solar system? Really, REALLY big! Astronomers use a unit of measurement called an **Astronomical Unit**, or **AU**, to calculate the distances of different planets from the sun and measure the size of our solar system. One AU is equal to the distance from the sun to Earth, about 93 million miles (150 million kilometers)! Use the chart of relative distances provided to build your very own to-scale model of our solar system and planets!

Supplies:

- Measuring tape with centimeter markings
- 4.5-meter-long piece of string
- Large craft pony beads (or other craft beads) in various colors
- Small piece of cardboard or wood to wrap solar system string around

Instructions:

1. Pick out different beads to represent each planet and the sun! Look for beads that are roughly the same colors – blue for Earth, red for Mars, green for Uranus, etc.
2. Tie the bead representing your sun to the end of your string.
3. Using the distances (in centimeters) in the chart below, measure the distance from the sun to the first planet, Mercury.
4. Tie Mercury in place on your sting. Tip: ask an adult to help you to make sure it stays in place!
5. Repeat steps 3 and 4 for each planet.
6. Lay your sting out on the floor to see the relative distance between all the planets in our solar system!

On your solar system string, all the planets are in a line so we can see the distances between them, but in space, the planets all orbit around the sun. Want to see your string of planets in orbiting action? Have a friend or family member hold the sun, while you stand apart from them holding the end. With the string pulled tight, walk counter-clockwise around your friend to see how the planets circle the sun in outer space!



This activity was adapted from NASA/JPL. Explore more at <https://www.jpl.nasa.gov/>

NIGHT SKIES OF FORT COLLINS



Scaled distances of planets from the sun:

STAR NAME	ACTUAL DISTANCE IN AU	SCALED DISTANCE IN CENTIMETERS
SUN	0	0 cm
MERCURY	0.4 AU	4 cm
VENUS	0.7 AU	7 cm
EARTH	1.0 AU	10 cm
MARS	1.5 AU	15 cm
ASTEROID BELT	2.8 AU	28 cm
JUPITER	5.2 AU	52 cm
SATURN	9.6 AU	96 cm
URANUS	19.2 AU	192 cm
NEPTUNE	30.0 AU	300 cm
PLUTO	39.5 AU	395 cm

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