

A U This is Cool

Supplies

metric rulers and or meter sticks tape scissors
heavy string (the heavy crochet thread from Wal-Mart works well)
pony beads: in the following colors - yellow, solid red, cream, clear blue, clear red, black, orange,
clear gold, dark blue, light blue, brown.

Objective: To find out what an astronomical unit is and how it is used to measure distances in the solar system.

1. You will need a long distance area like a hallway (or go outside) to do the first part of the activity.

An astronomical unit or AU is the distance between the sun and the earth, 93,003,000 miles. We will work together to make a model to show the relative distances between the planets.

2. Assign each girl one of the following planetary body: sun, Mercury, Venus, Earth, Mars, Asteroid belt, Jupiter, Saturn, Uranus Neptune, and Pluto. To measure distance 1 AU will equal 4 steps. Using the “planetary distance guide” help the girls figure out how many steps away from the sun each planet and the asteroid belt should be from the sun. Encourage the girls to try and figure out how many steps they will need to take from the sun. If you are inside you may run out of room before you get all nine planets in place.

Planetary Distance Guide

<u>Planet</u>	<u>AU</u>	<u>Steps</u>
Sun	0.0	0
Mercury	0.4	2
Venus	0.7	3
Earth	1.0	4
Mars	1.5	6
Asteroid Belt	2.8	11
Jupiter	5.0	20
Saturn	10.0	40
Uranus	19.0	76
Neptune	30.0	120
Pluto	39.0	156

3. For part two give each girl a string that is 4 meters and 25 cm long, 11 pony beads, and a “Planet AU” sheet. Wrap a piece of tape around one end of the string to prevent raveling. For this model 1 AU = 10 cm. String on the first bead to represent the sun and tie it at the end that does not have tape on it. A simple over hand knot works well. Measure out 4 cm and tie on a bead for Mercury. Continue till all 9 planets and the asteroid belt are on the string. Point out that if you ignore the decimal point that you will have the correct number of cm from the sun for each planet. Make sure the girls measure from the sun each time and not from the last planet.

<u>Planet</u>	<u>AU</u>	<u>Bead</u>
Sun	0.0	yellow
Mercury	0.4	solid red
Venus	0.7	cream
Earth	1.0	clear blue
Mars	1.5	clear red
Asteroid Belt	2.8	black
Jupiter	5.0	orange
Saturn	10.0	clear gold
Uranus	19.0	dark blue
Neptune	30.0	light blue
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