

Day 2 **Activity 4: Scale Model of the Planets**

On the "Scale Model of the Planets" activity page you will find information to help you make your own wall mural of the planets. Your planets will be scaled so you can see how large or small they are compared to other planets in the solar system. The chart tells you the radius (in cm) to use for each planet (radius is the distance from the center of a circle to one of its sides).

To create your mural, you will need the roll of butcher paper from the kit (you may prefer to use one sheet of white poster board and save the butcher paper for Activity 5). Follow the steps on the activity page. When you're finished making your planets, find an empty wall and create your mural.

If you're interested, a graphic available at the following web link also shows the relative sizes of the planets to one another.

Solar System: Relative Size of the Planets

www.movingbeyondthepage.com/link/10009/

Click "The Solar System" link or "Preview" to view an image showing the relative sizes of the planets. (Note that the planets are not shown at their relative distance to the Sun.)

 Activity 5: Distance from the Sun

For this activity, you will calculate each planet's distance from the Sun in astronomical units. An **astronomical unit** (AU) is the distance between the Earth and the Sun (93 million miles).

The distance in miles from the Sun to the other planets can be found in the table on page 23 of *Leap Into Space*. To calculate distance in astronomical units, divide each planet's distance from the Sun in miles by 93,000,000. Because both distances are in millions of miles, you can ignore the zeros after each number. For Mercury, the calculation would look like this:

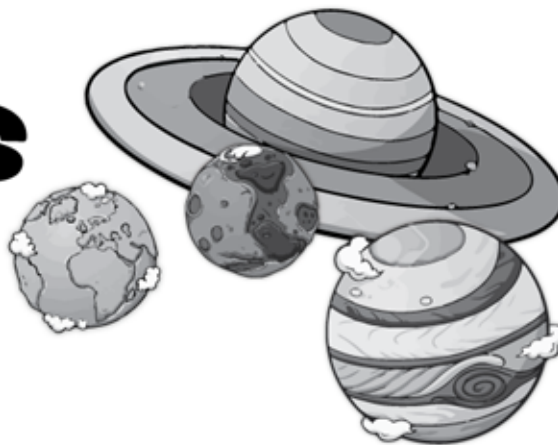
Mercury's distance from the Sun = 36 million miles

$$36 / 93 = 0.4 \text{ AU}$$

Now it's your turn. Fill in the miles and AU on the table found on the "Distance from the Sun" activity page. You can use a calculator for this activity. Round each AU to the nearest tenth. When you are finished, follow the instructions at the bottom of the activity page to create a scale model of our solar system.

NOTE: Be sure to keep your poster! You will use it again in Lesson 4.

Scale Model of the **PLANETS**



Materials:

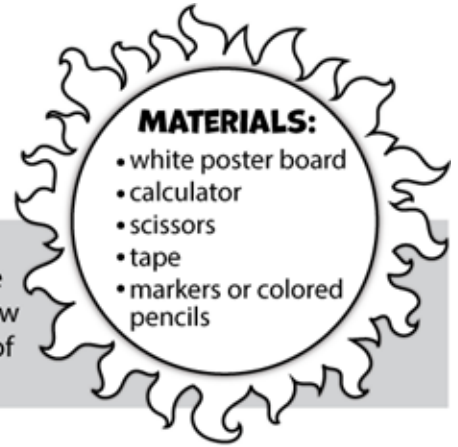
- butcher paper (kit)
- compass (kit)
- markers or colored pencils
- scissors
- tape
- ruler

Directions:

- 1) Choose a different color for each planet and write down your choices in the table.
- 2) Draw circles for each planet using a compass set to the correct radius measurement. It may be easier to set the compass by placing the point and pencil tip on the centimeter side of a ruler.
- 3) Color in each planet with the color you chose. For more realistic models, look at pictures of each planet and color them to match.
- 4) Write the name of each planet on its model, and cut them out.
- 5) When you are finished, you will have drawn the planets to scale. Hang your planets with tape in the correct order on a blank wall to make a wall mural.

planet	color	radius of circle
Mercury		0.5 cm
Venus		1.2 cm
Earth		1.3 cm
Mars		0.7 cm
Jupiter		14.5 cm
Saturn		12.3 cm
Uranus		5.2 cm
Neptune		5 cm

DISTANCE FROM THE SUN



Directions: Record the distance of each planet from the Sun. Convert each measurement to AUs by dividing by 93 million. (Because both distances are in millions of miles, you can ignore the zeros after each number.) Then follow the instructions at the bottom of the activity page to create a scale model of our solar system.

PLANET	MILES (in millions)	ASTRONOMICAL UNITS (AU)
Mercury		
Venus		
Earth		
Mars		
Jupiter		
Saturn		
Uranus		
Neptune		

CREATE A SCALE MODEL OF THE SOLAR SYSTEM

1. Cut a poster board in half lengthwise and tape the two halves together to make one long poster.



2. On the left edge of the poster, draw a 2-inch Sun.
3. Using a scale where an inch represents 1 AU, draw each planet according to its distance from the Sun. (For example, Mercury will be 0.4 inches from the Sun.) Your planets won't be to scale, but you can make the bigger planets a little larger than the smaller planets if you would like to. Use this table to change your decimals to approximately the nearest 1/4 inch.

Decimals to Inches
0.1 to 0.3 = 1/4 inch
0.4 to 0.6 = 1/2 inch
0.7 to 0.8 = 3/4 inch
0.9 = 1 inch

4. Color the planets after you've outlined them on the poster board.

Day 2

Activity 4: Scale Model of the Planets

Your child will create a wall mural of the planets. He will make his model to scale by using a compass to draw circles. Be available to help him as needed, especially with drawing the smaller planets. If you prefer, this project can also be made using one sheet of white poster board. Your child may want to use the butcher paper for Activity 5 instead of this one.

Activity 5: Distance from the Sun

In this activity your child will create a scale model poster of the solar system. Check to see that he calculated the correct AUs before he creates his poster. Also check that he measured the planets correctly on his poster. The distance from the Sun to each planet is the AU in inches; for example, Mercury will be .4 inches from the Sun. A table has been provided on the activity sheet to help your child convert his decimals to approximately the nearest quarter inch. Be sure he keeps his poster. He will use it again in Lesson 4.

"Distance From the Sun" Table Answer Key

PLANET	MILES (in millions)	ASTRONOMICAL UNITS (AU)	DISTANCE (in inches)
Mercury	36	0.4	$\frac{1}{2}$
Venus	67.2	0.7	$\frac{3}{4}$
Earth	93	1.0	1
Mars	141.6	1.5	$1\frac{1}{2}$
Jupiter	483.6	5.2	$5\frac{1}{4}$
Saturn	886.7	9.5	$9\frac{1}{2}$
Uranus	1784	19.2	$19\frac{1}{4}$
Neptune	2794.4	30	30

