



ASTRONOMY @ HOME

PLANETARY SCALE MODEL

The planets in our solar system vary in size from Mercury, the smallest rocky planet, to Jupiter, the largest gas giant. It's hard for humans to imagine the scale of these enormous objects, but we can make a model at home to help us compare the sizes of the planets.

MATERIALS & STEPS

- Yarn or string, at least 26 inches
- Scissors
- Two pencils
- A friend or family member to help
- Several pieces of paper, with the biggest at least 26 inches square (You can tape several pieces of paper together, or use paper that comes on a roll, like gift wrap)

First we will create a compass to make it easier to draw circles. The length of each piece of yarn we cut will be the diameter of the circle we want to draw. Cut a piece of yarn about 26 inches long, then tie the ends together in a knot to form a loop. Each person can place a pencil into opposite ends of the loop and pull gently to form the compass you use to draw the first circle.

For each planet, the paper will need to be at least the same width and length as your yarn. Your friend or family member can press gently on the center of the paper while you draw a line, remembering to pull gently to keep the loop taut while moving all the way around the center pencil.

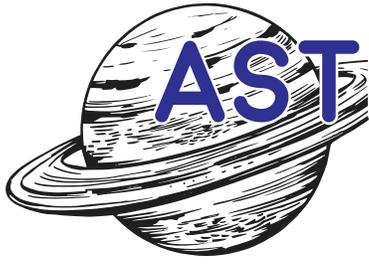
The first circle is the largest and represents Jupiter. Make sure you label it! You can cut the circle out with scissors if you wish. Repeat the same steps using paper and yarn of the following lengths to represent each planet:

Planet	Yarn Length	Planet	Yarn Length
Saturn	22 inches	Venus	3 inches
Uranus	9.5 inches	Mars	2.5 inches
Neptune	9 inches	Mercury	2 inches
Earth	3.5 inches		

Once you create your circles, compare the sizes. Are you surprised how large Jupiter is compared to Earth? If you made all the planets, can you put them in order, closest to the sun to farthest away?

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VOCABULARY

A **compass** is a tool that helps to draw or measure circles. A compass is commonly used for math, navigation, or making art.

Diameter is the distance through the center of an object from one side to the other.

In math, the term **scale** is used to represent the relationship between a measurement on a model and the corresponding measurement on the actual object.

FUN FACT

If you wanted to add the Sun to your model, you'd have to draw a circle that was 250 inches across! It would take 1.3 million Earths to fill up the Sun!



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