

Into Our Skies: Space in Schools

Modelling Our Solar System

The Sun is 150,000,000 km (93 million miles) away from Earth! Trying to understand how far this is, and how far away the other planets in our solar system are is not easy. This activity allows you to see the distances between them by building a scale model of the solar system using a roll of toilet paper.

What you will need:

Roll of toilet paper
Gel pen or felt tip pens to write on toilet paper

What to do:

Take one sheet of toilet paper and test your pens on it. Work out the best way to write on the paper without tearing it and you can see your writing clearly.

Draw a circle on the seam between the first two sheets of toilet paper. Write the word Sun next to this. It represents our Sun at the center of our solar system.

Use the table below to draw a circle and label it with each planet in the solar system. The number in the table is the number of sheets of toilet paper needed to reach the orbit of each planet from the Sun, so you would mark Mercury on the seam two sheets away from the Sun (see picture below). Ceres, the largest asteroid, is used to represent the asteroid belt.

Planet	Squares of toilet paper from the Sun
Mercury	2.0
Venus	3.5
Earth	5.0
Mars	7.5
Ceres (asteroid belt)	14.0
Jupiter	26.5
Saturn	48.5
Uranus	97.5
Neptune	152.5
Pluto (dwarf planet)	200.0



Now that you can see how far the objects in our solar system are from each other, we can also model the difference in their sizes

The Sun is so enormous that you can fit over one million Earths inside it.

In our toilet roll model, the distances between the planets are to scale. The sizes of the planets are to scale too, but it is a different scale to the distances.

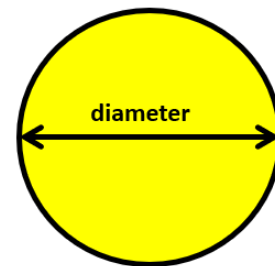
What you will need:

A ruler
A collection of round things from around your classroom

Or

Paper
Pencil

The diameter of a sphere or circle is the distance across the object passing from side to side through the center point.



What to do:

Look at the diameter column of the table. You need to find something round in your classroom with a similar diameter. If you cannot find anything you can draw circles with the diameters given on paper and cut them out.

Place the objects on the toilet paper where the different planets and the Sun are marked. It will give you an idea of how big the planets are in relation to each other!

Planet	Diameter (mm)	Suggested Object
Sun	200	ball
Mercury	1.5	pin head
Venus	10	blueberry
Earth	10	blueberry
Mars	5	peppercorn
Jupiter	23	cherry tomato
Saturn	17	large marble
Uranus	8	small marble
Neptune	8	small marble