

## To infinity and beyond!

Hi Buzzards!

For the next couple of weeks, we are going to be exploring all things space, starting this week with our solar system!



### Task 1 - The Planets of our Solar System.

a) Can you name the planets of our Solar System in order?

This is something that you have probably learnt before but if not, get Googling and find out what the planets are called and what order they appear in!

b) When I was younger, I learnt the mnemonic **'My Very Easy Method Just Speeds Up Naming Planets'**. The first letters of the rhyme help me to remember the planets! You might have also heard **'My Very Energetic Mouse Jumped Straight Up Nelly's Pants'** However, Pluto is no longer considered a planet. It is now considered to be a dwarf planet and so it doesn't appear in the list anymore. Can you invent a new mnemonic that makes sense without Pluto? Make them funny (but appropriate) and maybe post your ideas on your blogs or send them in and we could share them with everybody.

### Task 2 - Scale Model of the Solar System

A solar system is a group of planets and other space material orbiting (going around) a star. In our solar system, that star is better known as the Sun and the planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

The solar system models you've seen before probably don't show how much bigger some planets are than others, or, more importantly for space travel, how far away the planets are from the Sun and each other. The Earth is about 150 million kilometers (93 million miles) from the Sun. Because this distance is so important to us Earthlings, it has been given a special name, called the Astronomical Unit (A.U.) for short. The Earth is one astronomical unit from the sun. Planets that are closer to the Sun than the Earth have a measured distance of less than one A.U. while objects farther from the Sun than Earth have a measured distance of greater than one A.U.

The size of a planet can be worked out from its diameter. Diameter, you might remember from math class, is the distance from one end of circle or sphere to another side, going through the middle.

In this activity, you will make two scale models of the solar system. The first model will show the distance the planets are from the sun in astronomical units, the other model will compare the size of the planets. Of course, we can't make a life-size model as space is so huge! We will have to scale it down to a much much smaller size!

### Model One: How far are the planets from the sun and from each other?

#### You will need:

A tape measure (hopefully you have one lying around)

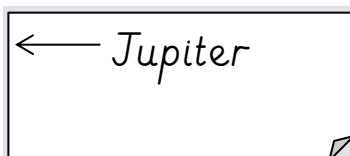
Paper, post-its or sticky labels

A pen or pencil

#### Method:

1. Label your post-its or sticky labels with the names of the planets in our solar system, making sure that you use capital letters (Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune) Add an arrow pointing towards the edge (the sticky edge if using post its) You can also draw a picture of each planet on the label if you wish to make it look nicer!

Like this:



2. Now, in a large space, extend your tape measure to 3m and lay it on the floor.
3. Place your 'sun' post-it at 0cm
4. Use the table below to position each of your post-it's the correct distance from the sun.

Planet	Real distance from the sun (AU)	Scaled distance in cm
Mercury	0.38	3.8cm
Venus	0.72	7.2cm
Earth	1	10cm

Mars	1.5	15cm
Jupiter	5.2	52cm
Saturn	9.5	95cm
Uranus	19.2	192cm
Neptune	30.1	301cm

Now look at your model solar system. This is how far the planets would be from the sun if the earth was just 1mm in diameter. The earth is actually 12750km in diameter!

### Model Two: How do the sizes of the planets compare?

You will need:

A ruler

Paper

Pencil

Compass (the kind you draw circles with)

Scissors

Pen

### Method:

1. Using the scaled diameter column in the table below, use a ruler to accurately draw a line the correct diameter for each planet.
2. Using a compass, draw circles around the diameters (this might be tricky with the tiny ones!)
3. Label the planets, so you don't forget which is which when you are cutting them out. For tiny planets, you might have to use an abbreviation.
4. Cut your planets out

Planet	Real Diameter	Scaled diameter in cm
Mercury	4,800km	0.4cm
Venus	12,100km	0.9cm
Earth	12,750km	1cm
Mars	6,800km	0.5cm

Jupiter	142,800km	11cm
Saturn	120,660km	9cm
Uranus	51,800km	4cm
Neptune	49,500km	3cm

Now that you can compare the sizes of the different planets, you'll see how tiny Earth actually is compared with some of the planets in our solar system!