

# Space Lesson 1: Space and The Solar System

## Teaching Ideas

**Learning Objective:** To explore space and the solar system.

**Success Criteria:**

- **To identify the planets in our solar system.**
- **To describe a planet in our solar system.**
- **To calculate a scale model of the solar system using a scale.**

**Context:** This is lesson 1 in a series of lessons that covers the topic of KS3 space. This lesson focuses on the planets and where they lie in our Solar System. You can teach this lesson as a stand-alone lesson or use it to form the wider unit of work on space. The choice is yours!

### Resources

scissors  
sticky tape  
card  
mini-whiteboards  
A4 and A3 paper  
compass  
string  
trundle wheel

## Starter

### Rate Your Knowledge

Students are required to rate their knowledge of space from the five true or false statements. You may choose to use mini-whiteboards for this activity. This is a good opportunity for self-assessment – discuss each question in turn to address any misconceptions.

## Main Activities

### Day and Night

Recap day and night. Explain to students that when one side of the Earth faces the Sun, it is daytime on that side; the opposite side of the Earth is in darkness and therefore night time. The Earth spins on an invisible tilted line called an axis. Remind students that there are 24 hours in a day on Earth. Different planets have different-length days depending on how long it takes for them to rotate on their axes.

### The Planets

In our Solar System, there are 8 planets. Ask students if they can remember the order of the planets from their work in primary school. Ask students if they know what a mnemonic is. A mnemonic is a way of remembering something. We can make a sentence out of the first letter of each word in a sequence to help us remember it. For example, we can remember how to spell 'because' by remembering the mnemonic: Big Elephants Can Always Understand Small Elephants.

Provide students with the [Planets Mnemonic Worksheet](#) and ask them to work with a partner to create their very own mnemonic to remember the order of the planets.

### Our Solar System

Ask students what other objects might be found in space. Working with a partner, they have one minute to write a list of as many objects as they can think of. A one-minute timer has been included on the slide to support with this activity. You may choose to use mini-whiteboards, with students all showing their answers as the timer ends. At this point, there is scope for discussion about space objects other than planets. The list on the slide isn't comprehensive and students may suggest other ideas.



## Modelling The Solar System

Provide students with the [Planet Fact Cards](#). (You may wish for students to work in groups to complete this activity.) They need to show their working out and write their answers on the cards. They then use their answers to make a scale model of the Solar System. This activity can be split into two parts; you may choose to focus on drawing the planets to scale or, depending on the space available, you may choose to model the distance of each planet from the sun. You may wish to do both parts.

Calculating the scaled diameter – Students calculate the diameter of each planet. They can then select the size of paper needed to draw each planet. Using a compass, students should draw correctly scaled versions of the planets and cut them out.

Calculating the scaled distance – Using the information, students calculate the distance of each planet from the Sun. If students have made the scaled models of the planets, you may choose to use these as markers. If students have not made the scaled planets, they could create their own planet masks using the [Planet Masks Worksheets](#).

Take students to a suitable location. This may be a large school hall or the school field. Each group of students should have a suitable marker in place to represent the Sun, such as a cone or lamp. Using a trundle wheel, each group should map out their scale model of the Solar System and either use their scale drawings as markers or stand the correct distances from 'the Sun' while wearing their planet masks.

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## Plenary:

### Planet Postcard

Students should imagine that they have taken a much-needed holiday to another planet. Using the [Planet Fact Cards](#), students should write a postcard back to their family or friends on Earth describing the planet and the activities that they have been taking part in. They should try to use as many facts about their chosen planets as possible.

