

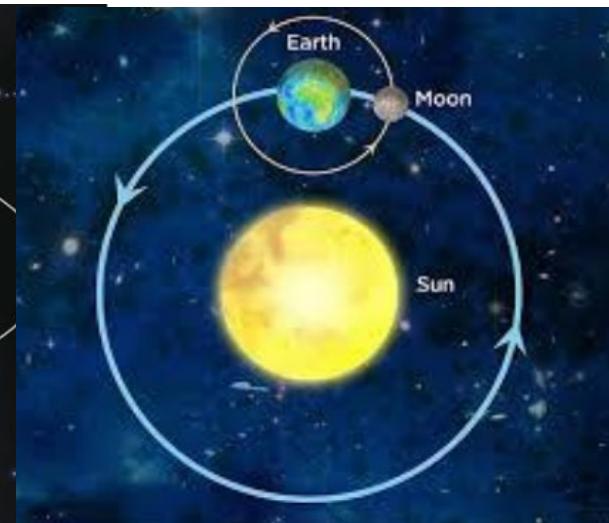
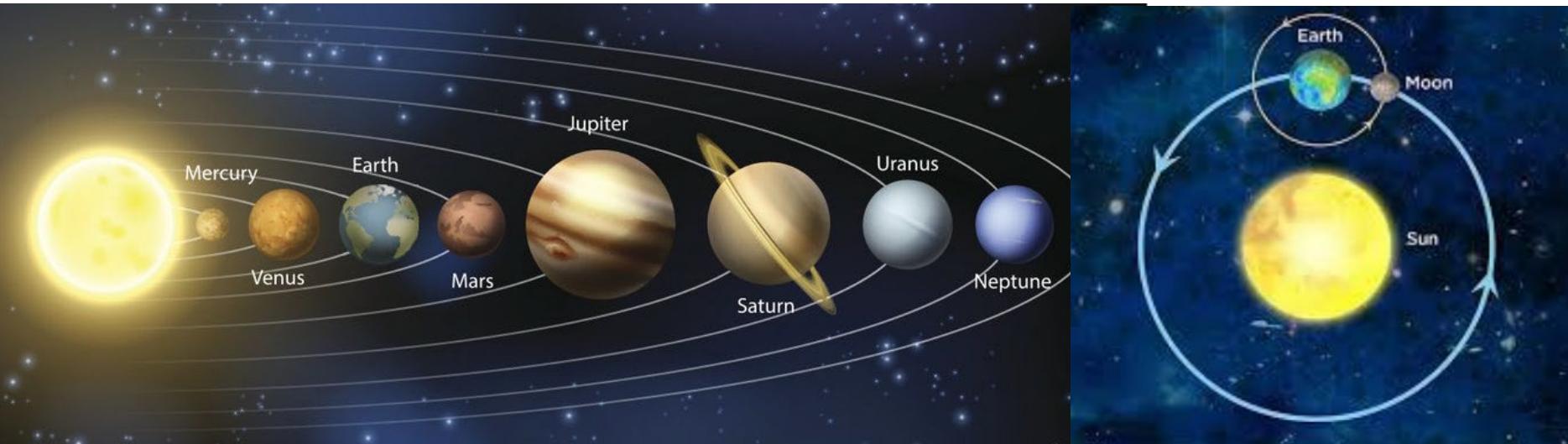
Year 5: Earth and Space

What should I already know?

Recognise that light is needed in order to see things. Recognise that light from the Sun can be dangerous. Recognise that shadows are formed when light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.

Science - Science is a subject where you ask questions about how the world works and find out the answers

Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.



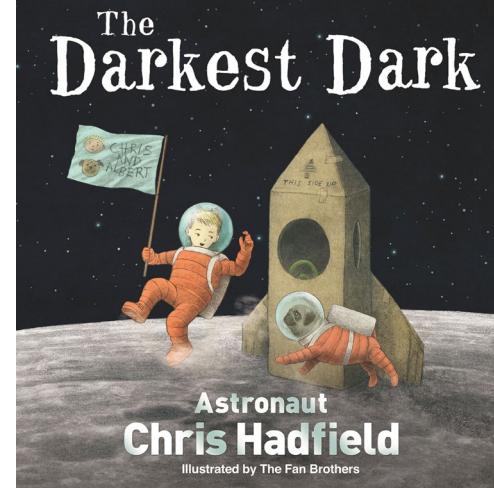
Significant Information

Neil Armstrong

In 1969, Armstrong was the first man to step on the moon.

Nicolas Copernicus

Nicolaus was a Polish astronomer who formulated the heliocentric model of the solar system



Interesting facts - The size of space makes it impossible to accurately predict just how many stars we have.

Glossary/Key Questions

Solar System	The Sun and all the planets that orbit around it.
Orbit	The curved path that an object follows going around a star or a planet.
Rotate	When an object spins on its axis.
What planets are in our solar system?	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. All 8 planets orbit the Sun
What is day and night?	The Earth rotates on its axis once every 24 hours. It is day for the half of the Earth facing the Sun and it is night for the half of the Earth facing away from the Sun.
Why does the moon change shape?	The moon orbits the Earth. It takes about 28 days to complete its orbit. How much of the moon we see, depends on how much sunlight is hitting it. The moon reflects this sunlight.
How does the Earth move?	The Earth orbits the Sun. It takes $365\frac{1}{4}$ days to complete its orbit around the Sun. This is a year.
What is the Sun?	A star at the centre of our solar system. 15 million degrees hot at its centre. It is 1.3 million times bigger than Earth.



New Moon



Waxing
Crescent



First
Quarter



Waxing
Gibbous



Full Moon



Waning
Gibbous



Last
Quarter



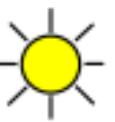
Waning
Crescent

Science Year 5 - Earth and Space

National Curriculum Objectives:			Prior Objectives:		
<ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 			<ul style="list-style-type: none"> No prior objectives 		
Lesson 1  Skill - Questioning, describe  Knowledge - The sun, Earth and Moon are spherical.	Lesson 2  Skill - Explore  Knowledge - Name 8 planets.	Lesson 3  Skill - Describe, Construct  Knowledge - The heliocentric model suggests the Sun is at the centre of the solar system.	Lesson 4  Skill - Observe, Explain  Knowledge- Day-Earth facing sun-Earth facing away from the sun.	Lesson 5  Skill - Investigate  Knowledge - different places on Earth experience night and day at different times	Lesson 6  Skill - Investigate, Explain  Knowledge - phase of the moon is much of the moon appears to us on Earth to be lit up by the sun.
<u>WALT: Describe the Sun, Earth and Moon as spherical bodies.</u> WILF: -Generate enquiry questions. -Model the shapes and sizes. -identify different arguments. What shape is the Earth? Show a picture of the Earth being flat and spherical. Children sort evidence into piles to show which evidence supports which argument. Pictures of the Sun and Moon. Children discuss what they already know about them. Children generate their own questions about the Sun, Earth and Moon (space). Use different sized balls to model the comparisons in size. Recording: Create a mind map of what they have learnt in the lesson.	<u>WALT: Explore the features of planets in our solar system.</u> WILF: -Name the planets. -Order the planets. -Describe the planets. Show chn what the solar system looks like. (Model in science cupboard) Model (and discuss) the size comparisons using the following. Peppercorn - Mercury Cherry tomato - Venus Raspberry - Earth Blueberry - Mars Watermelon - Jupiter Grapefruit - Saturn Apple - Uranus Lime - Neptune Chn use pictures as evidence to describe what the planets look like. Recording: Chn order and label the planets. Describe what the planet looks like.	<u>WALT: Describe the movement of planets.</u> WILF: -Define heliocentric. -Show the sun in the centre -Order the planets What is orbiting? What is rotating? Use role-play. Show chn explain that Copernicus and Galileo challenged the 'geocentric' (earth centred) model of the solar system, to suggest that it was 'heliocentric' (sun centred). (video)	<u>WALT: Explain day and night.</u> WILF: -Make observations. -Mimic the Earth's rotation. -Draw the position of the Earth and Sun. Time-lapse video. Chn discuss how they think day and night occur. Chn use role-play to show the Earth's rotation. Why does night and day occur? How do you know? Recording: Chn draw a diagram to explain night and day. (HAPS write an explanation)	<u>WALT: Investigate day and night.</u> WILF: -Experiment fairly -Measure the length of the shadow. -Make observations. Does day and night occur at the same time around the world? Shadow investigation. Chn observe the changes in shadows at different times in the day. Work in pairs to measure the length, position and definition of the shadow.	<u>WALT: Explain the movement of the moon.</u> WILF: -Experiment fairly -Make observations -Draw the phases of the Moon. Chn observe pictures of the Moon in different phases. Show a video. Chn use a tennis ball and a torch to mimic the Sun and Moon in its different phases. Recording: Draw diagrams of the Moon (ball) in its different phases.
Assessment: Use the vocabulary mat to assess the children's prior knowledge and use the mats again to assess what the children have learnt. Key Vocabulary: Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases, star, constellation, waxing, waning, crescent, gibbous. Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, planets, solar system, rotate, orbit, spherical, geocentric, heliocentric					



Earth



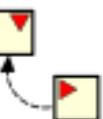
Sun



Moon



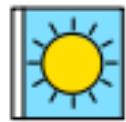
axis



rotation



star



day



night



phases



crescent



gibbous



waxing



waning



Mars



Jupiter



Saturn



Uranus



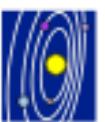
Venus



Neptune



planets



solar system



orbit



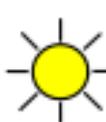
spherical



space



geocentric



heliocentric