Science Progression of Skills and Knowledge Earth and Space

Key to understanding this document: Black = National Curriculum objectives Red = Knowledge/Skills to be taught Green = Resources to be used

Area of	FYFS	Year 1	Year 2	Year 3	Year	Year 5	Year 6
Learning	<u></u>	<u></u>	<u></u>	<u></u>	4	<u></u>	<u></u>
Earth and					Ξ.		
Snace				200	1.00	Woking Scientifically	
opuce			3	0.0	100	WS1 To be able to plan a scientific enquiry to answer a question	
			60			ES1. To be able to describe the movement of the Earth, and other	
			100	11		Is a lange to describe the movement of the call, and other	
			10.7	1000		planets, relative to the suit in the solar system. (This will take two	
			1.1	1000		lessons)	
			23			Designed and the shill does when it shalls so the sector of the universe. Add	
			0	0.0		Begin by asking the children what is at the centre of the universe. Add	
			201	C		answers on flip chart. Watch the following video	
			~ 1			http://www.bbc.co.uk/learningzone/clips/what-does-the-sun-really-	
			_			look-like/8948.html this will help the children understand the placement	
			111	- Sec.		of the sun.	
			0410				
			6 U		10.	Making a model of the solar system.	
			Lat.	81			
			115			The children will research the order of the planets and then create their	
			12 I	1.1		own poster of the planets in order giving key facts about each planet. As	
			200	100		a class they will model how the planets move around the sun.	
			100				
			62			Ask the children to think about how far from the Sun think Earth?	
			1.6			http://www.bbc.co.uk/learningzone/clips/how-far-is-the-sun-from-	
				0.0		earth-animation/13916.html	
						Show the above link and this will give the children an idea about the size	
						of Earth compared to the sun.	
						Then we are going to be creating a scaled model of the solar system.	
						Watch the clips below:	







Pictures of the whole lunar cycle for the date you are doing this unit can be found at:

http://www.moonconnection.com/moon_phases_calendar.phtml

You can look at particular areas on the Moon at NASA's website: <u>http://moon.nasa.gov/home.cfm</u>

Deep thinking time - How does the shape of the Moon appear to change over time?

Allow the children to discuss the following statements:

- 1. Bits of the Moon fall off and then grow back again
- 2. The Moon can only be seen at night
- There is Moon that is a shape of a circle, and there is another Moon that sometimes replaces it that is shaped like a crescent.
 Ask children what evidence they could produce to prove or disprove these statements.

Modelling- How does the shape of the Moon appear to change over time?

The following video shows how to model the phases of the Moon: http://www.bbc.co.uk/learningzone/clips/stargazing-challenge-themoon-on-a-stick/13903.html

Sun must be an OHP/desk lamp, a white ball is the Moon, and the head of the pupil is the Earth. The white ball is mounted on a stick which the child holds up and out. The OHP or large torch is aimed at the ball. The child rotates (sitting on a swivel chair) with stick and comments on what he/she can see. (Best done away from a wall to avoid light being scattered back and thus illuminating the dark side.) By rotating slowly, a complete cycle of lunar phases can be observed. When the ball is between the child and the projector this is the 'New Moon'. Rotating a quarter-turn anticlockwise brings us to the 'first



quarter' in which half the lit face is visible to the child (this is about 7 days into the cycle). Turning further we pass through 'waxing gibbous' to 'full Moon' when the ball is on the opposite side of the chair from the OHP and the child can see the whole of the lit face (provided the beam is not blocked by their head – a lunar eclipse). Completing the cycle, the white ball passes through 'waning gibbous' and 'third quarter' back to the 'New Moon' position.

Recording

The children can draw pictures that show how the shape of the Moon appears to change and record a video or on Pic Collage. The children can complete a phase of moon spin sheet.

Optional

At home the children can keep a diary of phases of the Moon. Check with information back in class by referring to diaries, newspapers and websites.

Children can produce diagrams showing what part of the moon can be seen at different dates.

To be able to plan a scientific enquiry to answer a question

ES4 To be able to use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

The following lessons were taken from Andrew Berry Science Scheme

Ask the children to think about how we have night and day.







