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SUN EARTH MOON

For Key Stage 1

Registered Charity No. 1005331

Introduction

Young children generally have very logical thought processes based on what they experience. When teaching about the movements of the Sun, Moon and Earth we need to understand that reality often fails to match the common sense interpretation of what we see. Even our everyday language reinforces some of the misconceptions. "The Sun rises and sets", "the Moon and stars come out at night" or "the Sun moves across the sky" are all examples of this. This issue aims to establish, with the help of practical activities, what is actually happening with respect to the Sun and Moon.

Day and Night

This can be demonstrated by using a world globe on a stand, or a large ball if a globe is not available. Using a small piece of modelling clay, make a "person" and stick it to the globe. Use a torch to represent the Sun. With the torch in a fixed position pointing at the globe, rotate the globe, moving the "person" through day and night. If children still find it difficult to understand why the sun looks as if it is moving when it is actually the Earth which is rotating there is a simple activity to correct the misconception. The child holds a simple card frame in a fixed position in relation to their eye and walks past an object. It should be immediately obvious that, although the viewer is moving in one direction, the object appears to move in the other.

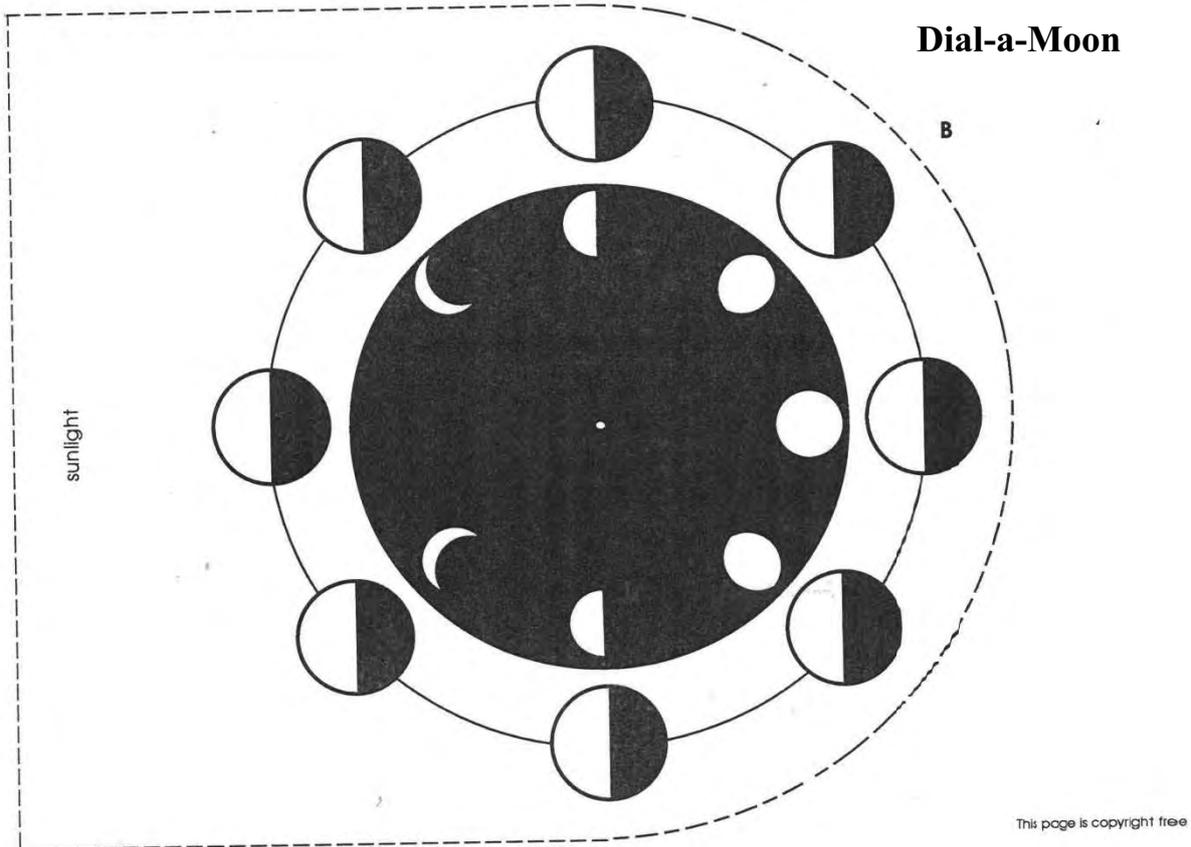
Another activity involving day and night is to consider nocturnal and diurnal creatures and jobs. Children can suggest examples and then make a picture or collage of either night or day, e.g. fox, hedgehog, owl, night watchman, astronomer, for night; sparrow, dog, shopkeeper, gardener for day. Of course many examples appear during night and day but, with each choice the need for light or darkness is stressed, the children should gain a measure of understanding.

The Orbits of the Sun and Moon

If children are given balls to represent the objects, a football to represent the SUN, a tennis ball to represent the EARTH and a table tennis ball to represent the MOON, they can act out the movements of these bodies. You will, of course need the use of the PE hall or the playground. The SUN child stands in the centre, the EARTH child walks in a large circle around the SUN. (Really well coordinated children could try turning as they go to represent the Earth's spin). The MOON child has the hardest job they need to run around the EARTH as it moves around the SUN. Start very slowly because the MOON will find it very difficult. Not all the children will need to take part in the activity but every child should have the chance to stand outside the action and observe what happens. It is amazing how often children can be told what-goes-round-what and still forget when asked so a practical activity helps fix it in the participants' minds.

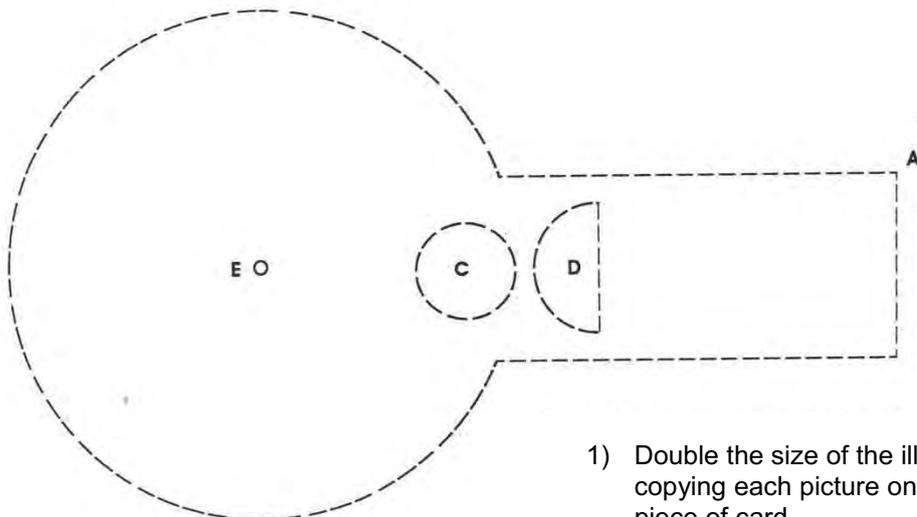
- Moon orbits around Earth.
- Earth and Moon orbit around Sun.
- Earth spins on its axis

Dial-a-Moon



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This Model will help you understand the phases of the moon.
 Outer ring – the position of the “lit” side of the moon relative to the Earth.
 Inner ring – the shape we see.

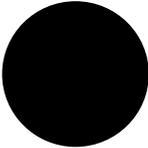
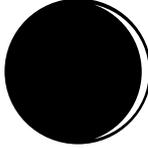
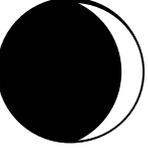
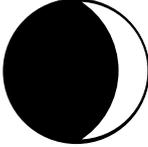
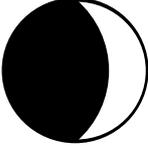
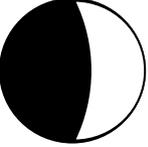
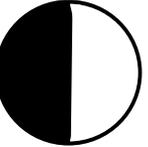
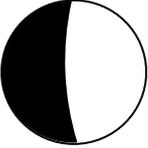
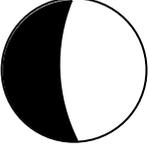
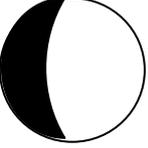
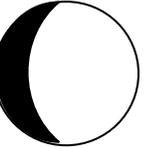
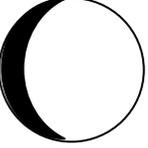
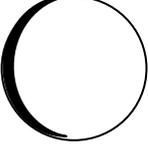
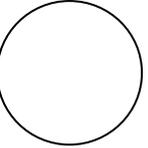
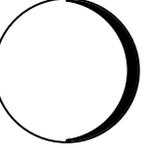
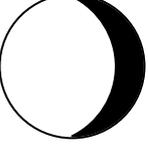
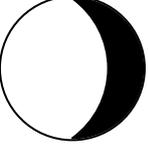
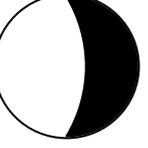
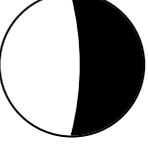
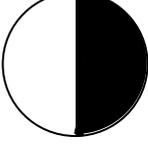
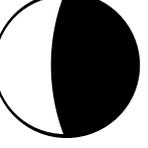
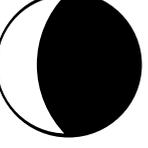
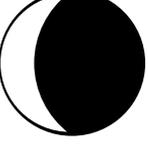
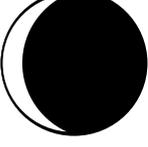
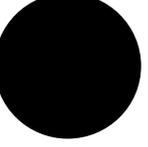


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- 1) Double the size of the illustration, copying each picture onto an A4 piece of card.
- 2) Cut out shapes A and B
- 3) Cut out shapes C and D
- 4) Fix shape A on top of shape B using a paper fastener through E
- 5) Rotate shape A to view the different aspects of the moon

Moon Phases Flip Book (see next page for instructions)

The phases pictured are for the moon as seen in the northern hemisphere. To demonstrate what is seen from the southern hemisphere, stack the pictures in descending order and swap the 'waxing' and 'waning' labels over.

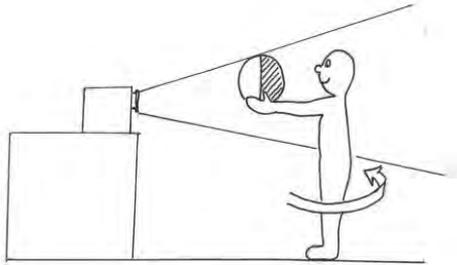
1 New Moon 	2 Waxing Crescent 	3 Waxing Crescent 	4 Waxing Crescent 
5 Waxing Crescent 	6 Waxing Crescent 	7 Waxing Crescent 	8 First Quarter 
9 Waxing Gibbous 	10 Waxing Gibbous 	11 Waxing Gibbous 	12 Waxing Gibbous 
13 Waxing Gibbous 	14 Waxing gibbous 	15 Full Moon 	16 Waning Gibbous 
17 Waning Gibbous 	18 Waning Gibbous 	19 Waning Gibbous 	20 Waning Gibbous 
21 Waning Gibbous 	22 Last Quarter 	23 Waning Crescent 	24 Waning Crescent 
25 Waning Crescent 	26 Waning Crescent 	27 Waning Crescent 	28 New Moon 

The flip book

Photocopy the whole of page 3 - it may be a good idea to enlarge it to make it easier to cut out, put together and flick through. Each picture has a number printed on it. Carefully cut out all the pictures and stack them evenly in order with 1 at the top, making sure the right hand edges are all level by tapping the stack gently on the desk along that edge. Staple the flip book together along the left edge. Flick through the book to show the phases of the moon as seen from the Earth in the northern hemisphere. Only 28 pictures have been used to aid photocopying.

Phases of the Moon

Key stage 1 is a little early for most children to understand the cause of or the names of the phases of the moon. However children can at least realise that the moon appears to change shape in a regular pattern and that these changes are caused by how much light we can see. If the class can keep a record on a chart of the moon's changes over a lunar month (just over 29½ days) it can be recorded with pre-cut card shapes. If they are stuck onto black circles that are the same size as the full moon, the fact that the real shape of the moon does not change will become apparent. If it is a class project then all the children's observations can be combined and used. If there are any advanced pupils or pupils who would get good family support, they could complete an observation chart of their own showing the shape of the moon on each observable night.



An activity demonstrating the phases of the moon can be carried out using a ball and a projector light representing the Sun. A child represents the Earth and holds a ball on which a face has been marked, with the face pointing toward the child. The ball represents the moon. The child turns slowly on the spot in front of the light, holding the "moon" at arm's length. As the child turns the face is always towards the child (as it is with the moon). One full turn of the child represents one cycle of the moon. From their position they will be able to see the pattern of light and shadow on the ball as they turn.

ACKNOWLEDGEMENTS

Dial-a-Moon is taken from *Simply Space* by Carole Creary and Mick Revel, Northamptonshire County Council Education and Libraries 1994

Forthcoming Events. Full information is available on the relevant websites.

ESTA Primary Team Members will be providing practical workshops, resources and information at:-

ASE Conference, Reading. 2nd - 5th January 2013. www.ase.org.uk Saturday 5th January 2013 - Workshop and drop in session.

Geographical Association Conference. Derby. April 4th – 6th April 2013. www.geography.org.uk/ Physical Geography related cross curricular workshops.

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