Space KS2

Post visit information and activities

Using a globe – time zones
Recap on the fact that it is always daytime in one half of the world and night-time in the other half. This could be extended into an investigation of different time zones. The Earth spins towards the east. So the Sun rises in the east and sets in the west. As a result, the Sun rises in UK several hours before, for instance, the USA. Ask the children to investigate this using countries of your choice. You could choose countries with a topical interest and suggest children watch live broadcasts on television to reinforce the concept.

Using a globe—changing shadows
Use a globe and a bright light to show how shadows change on a globe as it spins. This could be extended for older, more able children by comparing two shadows at different latitudes. You may want to relate this to the idea that it is hotter nearer to the equator because the Sun is higher in the sky and its rays are therefore more concentrated.

Using a globe – make a sundial
Use the enclosed Shadow Time sheet on page 3 to make a shadow clock for a globe and use it to investigate how a sundial works. You could take this further by making real sundials. Information about making and buying sundials can be found at:http://www.sundials.co.uk/ Alternatively have a Sunclock, or 'human sundial' that uses a person's shadow constructed as a permanent feature of your school's grounds, see: http://www.sunclocks.com/index.htm

Using a globe – seasons
Some children may observe that (and question why) globes spin at an angle (of approximately 23 degrees) from the vertical. You could use this as a starting point to explore the varying length of day and night during the different seasons. The North Pole is tilted away from the Sun during the northern winter so northern latitudes spend longer in the dark half of the Earth. Conversely, the North Pole is tilted towards the sun during the northern summer, so that northern latitudes spend longer in the daytime half of the world.

Scale model of the solar system
Try to convey an idea of the huge distances between the planets with a model of solar system (see enclosed sheet on page 4 – The Solar System). The children will need to work outside. It is not practicable to represent the planets at this scale. Jupiter, for instance, would need a sphere of less than 1mm diameter.

Phases of the Moon
Record the phases of the moon by direct observation for 28 consecutive days (see enclosed activity sheet Phases of the Moon on page 5). The children will need to devise symbols for nights when the Moon is not visible and for nights when clouds prevent observations. You will need to explain that as the Moon rises and sets it is

not always visible even on cloudless nights. It is also worth emphasising that the Moon is often visible during daytime. The children could compare their observations with textbook illustrations. A more abstract, and therefore challenging, activity sheet is enclosed on page 6 representing the orbit and phases of the Moon in diagrammatic form. Phases of the Moon and the times the Moon rises and sets can be checked in the newspapers or online.

The Plough

A simple Plough finder is enclosed. It should be photocopied onto card and assembled with a paper fastener.

Websites

http://www.bbc.co.uk/science/space/
Space news, sky maps, 3D tours of the planets, games, competitions, pictures etc.

http://www.heavens-above.com/
Provides information about observing artificial satellites.

http://nineplanets.org/
Nine Planets is a multimedia tour of the solar system and provides an overview of the history, mythology, and current scientific knowledge of each of the planets and moons.

See also the extensive NASA websites for lots of copyright free images and resources.

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Shadow Clock

Make a shadow clock to go on a globe.

How to make it

Cut out one of the squares and mount it onto card.

Stick a matchstick vertically onto the centre of the card.

Blue tac the card onto a globe.

Make sure 12 is pointing to the North Pole.

How to use it

Shine a light onto the shadow clock (or put it into the sunlight).

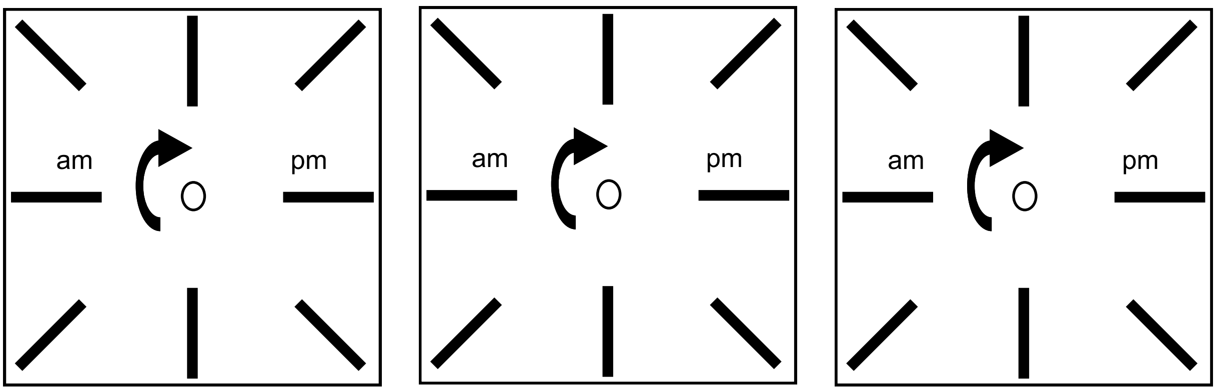
Rotate the globe anti-clockwise. (When looking down from the North Pole.)

How does the shadow of the matchstick change?

Does it change direction?

Does it change length?

Find out about sundials.



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The Solar System

Use this data to help you make a scale model of distances between the planets of the solar system.

The Sun is 1 million km in diameter but in this model a ball the size of a small marble (1cm diameter) would stand for the Sun.

	Average Distance from Sun	**Distance from Sun in cm**	**Distance from Sun in metres**
Sun			
Mercury	58 million km	58cm	0.58m
Venus	108million km	108cm	1.08m
Earth	150 million km	150cm	1.5m
Mars	228 million km	228cm	2.28m
Jupiter	778 million km	778cm	7.78m
Saturn	1427 million km	1427cm	14.27m
Uranus	2870 million km	2870cm	28.70m
Neptune	4500 million km	4500cm	45m
Pluto	5900 million km	5900cm	59m

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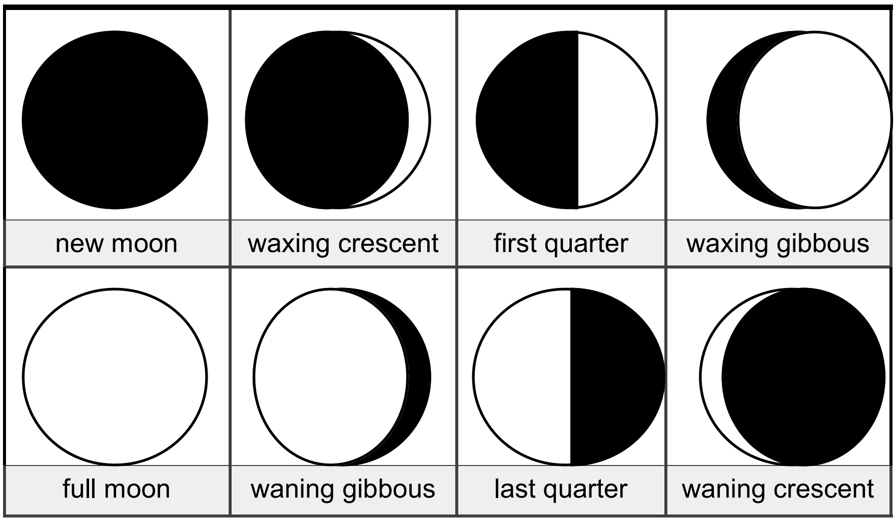
Phases of the moon

Name…………………………………

Record the phases of the moon for 28 consecutive days.
Decide on a symbol for cloudy nights and for nights when you cannot see the Moon.



cloudy

moon not visible

____day	_____day	_____day	_____day	_____day	_____day	_____day

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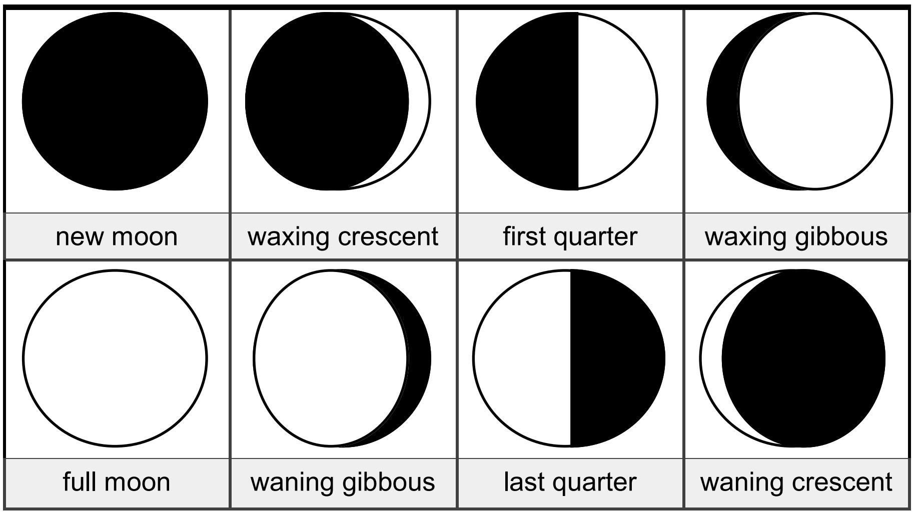
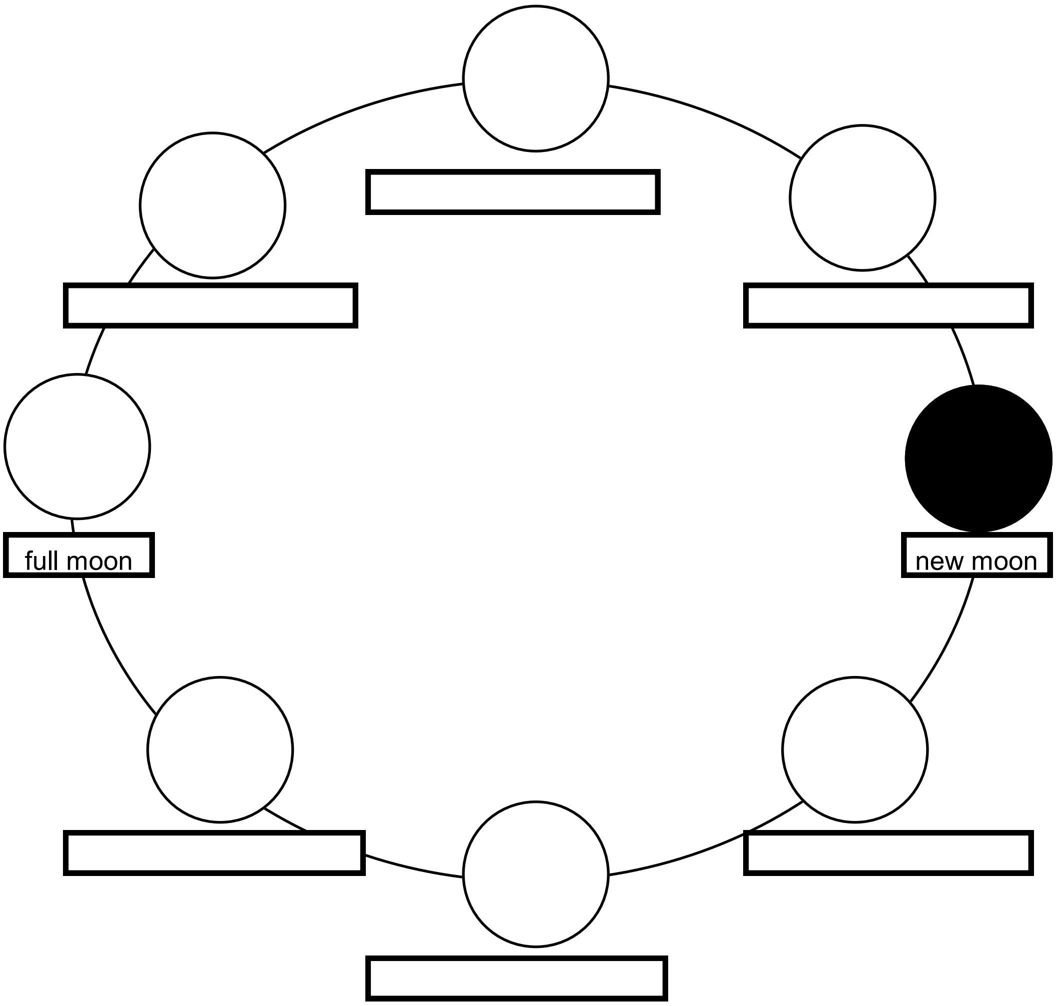
Phases of the moon

Name…………………………………

Shade the diagram to show the phases of the Moon **as seen from Earth.**

Label each phase of the Moon.





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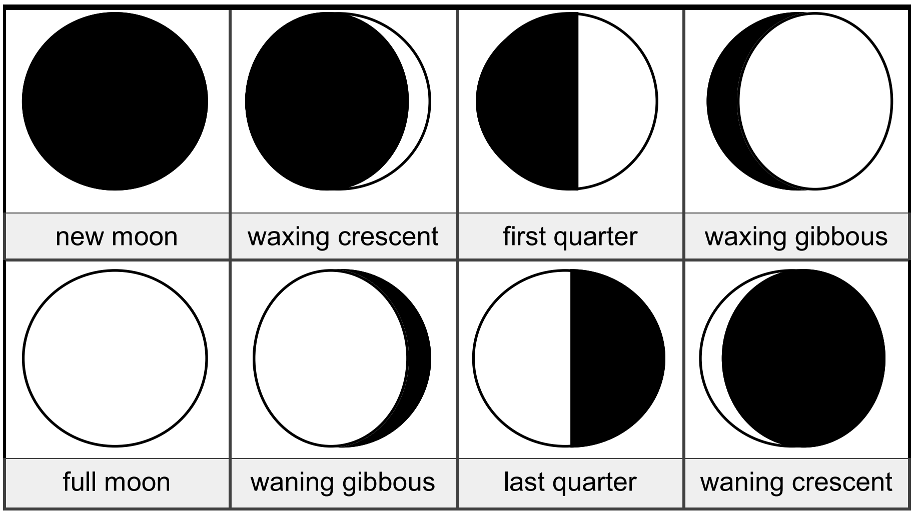
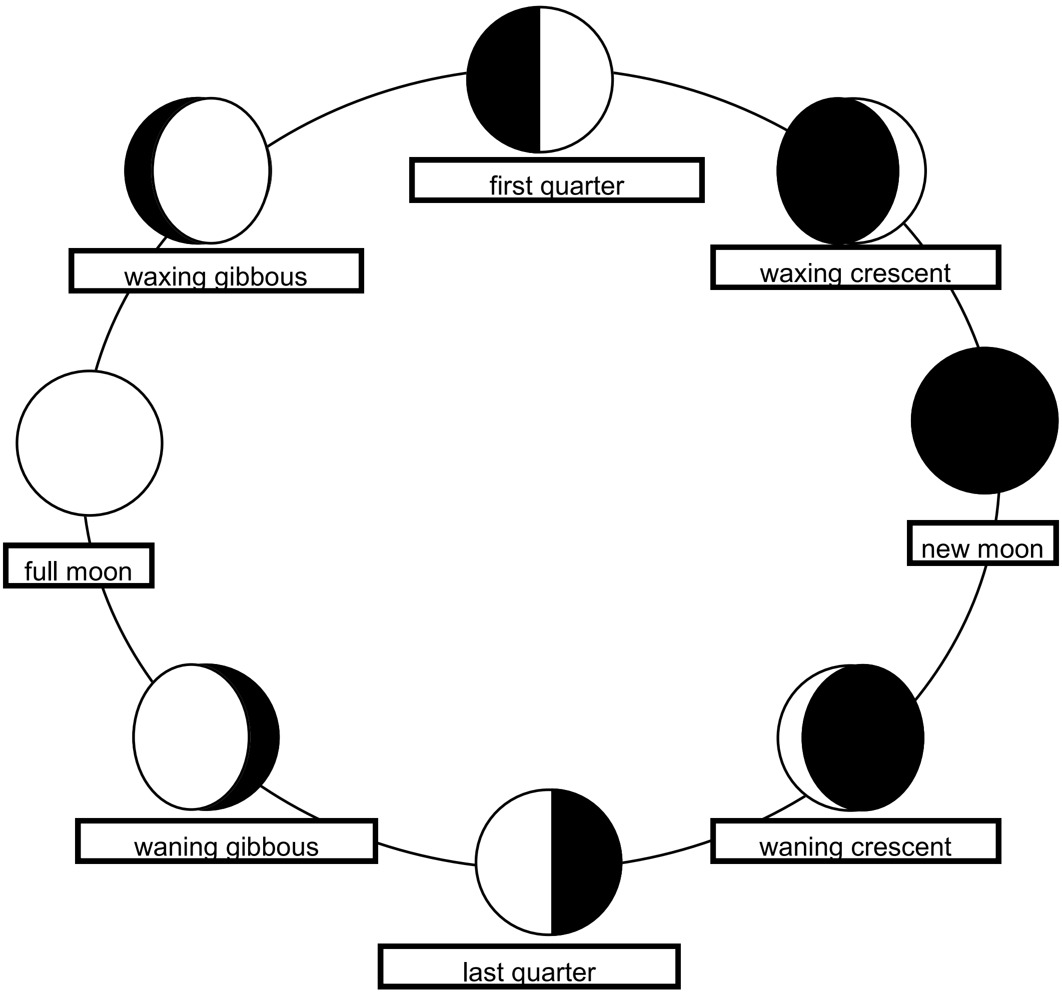
Phases of the moon

Answer Sheet





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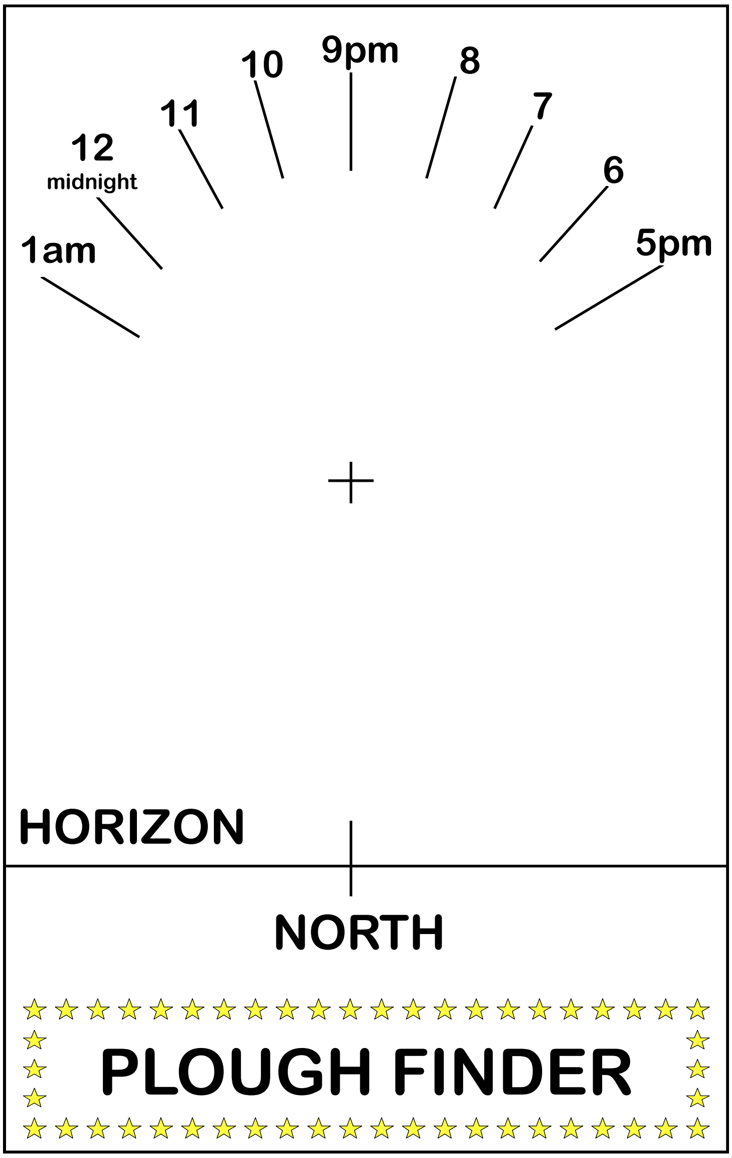
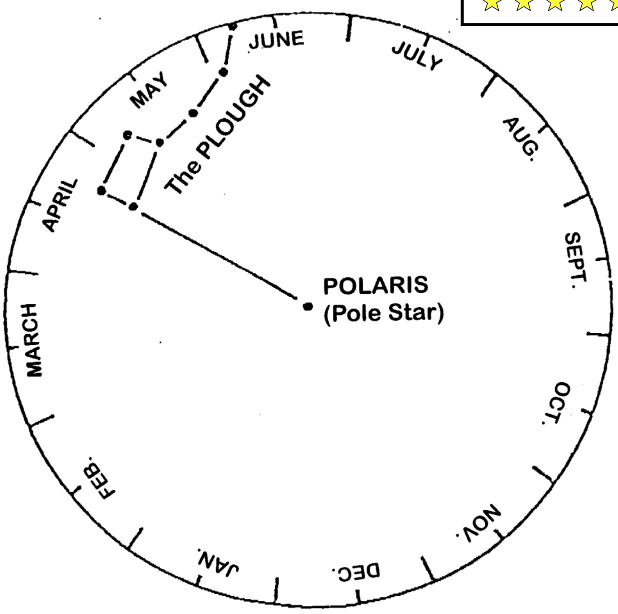
Plough finder

Make a Plough Finder

How to make

1. Cut out the base
2. Cut out the dial.
3. Put a paper fastener through the centre of the dial.
4. Pin the dial on top the base, put the paper fastener through the cross.





How to Use

1. Turn the dial so the time and month line up.

2. Stand outside facing North to find the Plough in the position shown on the dial.