

## Planet Earth in Space

### Suggested activities for fifth and sixth class

- Discuss and illustrate the sun's role in 'The Water Cycle'.
  - Link to the formation of clouds and rain.
- Difference in temperature in Summer and Winter
  - Get a globe, torch/lamp and piece of strong card with a hole in the middle
  - Put the globe on a table and stand the lamp about 1 metre away. Place the globe in a position so that the North Pole is facing away from the lamp i.e. winter time in Ireland.
  - Hold the sheet of card between the globe and the lamp so that a narrow beam of light shines onto the surface of the globe.
  - Examine the light on the globe. Identify the area where it is brightest.
  - Next, turn the globe so that the North Pole is leaning towards the lamp. i.e. summer time in Ireland
  - Examine the light on the globe again. Identify where it is brightest.
- With charts of the solar system get the children to pick out the parts with which they are familiar. Establish and discuss the characteristics of the different planets etc. establish any common characteristics e.g. orbiting of the sun by all planets Using websites suggested below view images of various planets and the sun taken from space.
- Who am I? Game ~ children are secretly given name of planet, they can only reveal one characteristic at a time, class try and guess with the minimum amount of clues what planet is being described.
- Explore Orbits ~ Draw an orbit
  - Place a piece of paper on a board into which pins can be stuck.
  - Stick in two pins approx 10-12 cm apart
  - Tie the ends of a piece of string/thread around the pins. Make sure the thread is a couple of cm longer than the distance between the pins.

- Place a pencil in the centre of the pins and pull downwards catching and pulling the thread until it is taut.
  - Keeping the string tight draw a line on the paper, continue the line and you will see you appear to have drawn an oval. i.e. an ellipse.
  - Most satellites e.g. our moon, move or orbit in this shape.
  - To change the size of the ellipse simply change the distance between the pins.
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- Exploring Orbits and gravity
    - Put a ball into the toe of a stocking.
    - Hold the end and whirl the ball around you head ~ Feel the ball trying to pull away, to keep it moving in a circle you have to pull in the other direction.
    - This is similar to how a planet travels around the sun. The planet is trying to escape and the sun must pull on it to keep it in place. This pull is gravity. In the same way the earth pulls on the moon so that it is a satellite of the earth and orbits around us.
    - Discuss how long it takes the earth to orbit the sun, link to leap year.
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- Scaling the Sun/ Relationship of Earth and Sun in terms of size
    - In pairs get the children to draw a small circle 4mm on white card and colour this green and blue. This is the earth.
    - On a larger sheet of card get them to draw a circle 44cm across [use pencil, piece of wool 22cm, pin to rotate and draw big circle]. Colour this circle in orange, it is the sun.
    - Out in the yard get one pair to illustrate. Mark a spot with chalk and leave the child with the earth to stand there holding it aloft.
    - The other child takes 100 large steps approx 50m in front of the earth, turns around and holds the sun card aloft.
    - Discuss the distance and comparative size of these two bodies in our solar system. Get the earth to Rotate i.e. illustrate day/night=24 hrs and orbit the sun=1 year
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- Seasons are caused by the tilt of the earth's axis

- Place a data projector [or some other strong light source] in the centre of a table so that it can be moved round in a full circle.
- Place the globe appropriately so that the light hits the equator directly and the two poles are equally shaded. Put forehead thermometer strips on the equator and each of the poles.
- Get the children to point out the coldest and hottest regions on the earth. Why is it hotter on the equator than at the poles? ~ relate to sun's falling rays, concentration of heat when sun is overhead, link to sunburn, sunglasses etc / spread of rays
- Discuss where the sun is for those living at the poles i.e. on the horizon and those living on the equator i.e. overhead. This is Spring.
- Note how the globe is tilted on its mounting as this is how the earth also sits on its axis.[Revise rotation giving night & day]
- Move the globe a quarter of a circle anti-clockwise, keep the axis pointing in the same direction and reposition the light source [Globe mounting is now facing the light]
- Find Ireland and ask what season is it here now? [Summer] Why is summer our warmest time of year? [relate to rays and position of sun] What is happening in the southern hemisphere e.g. Australia
- Proceed to move the globe in two more anticlockwise movements pausing at each to discuss the seasons experienced in Ireland at each point.