Earth and Space

KS 1

Day and Night
Pupils should be taught to:

- **To be able to identify the differences between day and night.**
- **To understand some key characteristics of night and day.**

Pupils will:

- Think about how they feel at night and express how they feel at night. Use of stories like 'Night Bear, Day Bear' 'The Owl who Was Afraid Of The Dark' 'Can't You Sleep Little Bear'
- Explore how they can still see at night. Use of torches, fluorescent materials such as bedroom stickers. Possible investigation opportunities to investigate the best light source at night, how far away different light sources can be seen. Links to Light unit.

Find out animals that come out at night, nocturnal animals. Animals such as hedgehogs, foxes, badgers, owls, glo-worm. Find out what make them suited to being nocturnal. Possible visit from the hedgehog preservation society, RSPCA or a vet.

Years and Seasons
Pupils should be taught to:

- **Observe changes across the four seasons.**
- **Observe and describe the weather associated with the seasons and how day length varies.**

Pupils will:

These activities may be better suited to being completed at various points throughout the year.

- Explore the suitability of clothes worn and the activities carried out in the different seasons. Possible take a class photo at various times throughout the year with the children dressed for the weather and/or doing weather related activities. Keep a class seasons book/wall.
- Explore how different animals are adapted to their habitat. Why are polar bears suited to the cold? Why are elephants suited to hot, dry habitats? Links to animals and habitats unit.
- Explore different events during different seasons. Christmas-winter, starting a new school year-Autumn, ending a school year/sports day-Summer, Mother's Day-Spring.
- Explore how school/home/forest school/trees/plants change throughput the year and the seasons. Take photos of one area at various point and describe its change throughout the year. Can the children predict what will happen next? Can they say why the changes are happening?
- Find out about animals that hibernate during the year. Possible hedgehog study? Find out why animals hibernate. Find out about animals that hibernate in different countries. Links to animals and habitats unit.

Explore how to stay safe in different seasons. Investigate how to stay safe during the darker, winter months. Road safety, linked to Light unit. Investigate the most appropriate colours for safety. Find out about the people who help us who need to stay safe in poor light-police/ambulance/fire uniforms. Sun safety in the late spring/summer and early autumn

Lower KS2

Day and night
Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. (Simply as this will be revisited in more depth at UKS2).
Pupils explore the apparent movement of the Sun across the sky through a sun diary/shadow stick/ sun dial. Link to work on shadows. Discuss sun safety.

Describe the Sun, Earth and Moon as approximately spherical bodies.
Pupils to describe the Earth, Sun and Moon as approximately spherical bodies. Make a scale representation of the Earth, Sun and Moon in the classroom using different shaped spheres, showing the relative size and the distance from each other.

Describe the movement of the Earth relative to the Sun in the solar system.
Pupils to model the movement of the Earth in relation to the Sun to explain day and night. Pupils can do this by using themselves.

Months
Pupils to keep a moon diary to establish the phases of the moon. Ensure fair testing by always looking at the moon from the same place e.g. The same bedroom window. This is an observing enquiry. Remember to use concrete before modelling.

Describe the movement of the Moon relative to the Earth.
Pupils to model the moons orbit of the Earth using themselves as part of the model.
Pupils will establish that the Moon is not a light source; it does not make its own light.
The moon reflects light from the sun.
We can see the Moon because light from the Sun bounces off it back to the Earth. Pupils can explore with torches and spherical objects in a dark room.

Year/Seasons

Pupils to observe and describe how day length varies throughout the year.
Pupils to explore the range of activities they participate in after school in the summer and in winter. This is a pattern seeking enquiry. Look at patterns in the data. Establish that it is dark after school in the winter etc.
Pupils to compare the daylight hours in the longest and shortest day.
Pupils to explore and compare day length with countries in the Southern hemisphere. Use of Google Earth.

Upper KS2

Day and Night
Pupils should be taught to:

- **Describe the Sun, Earth and Moon as approximately spherical bodies.**
- **Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.**

Pupils should :

- *Briefly revisit* , the sun, earth and moon are spherical and differ in size.

- Know that the sun is at the centre of our solar system which contains seven other planets (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.) *N.B. This does not need to be covered in huge detail just to set the earth in context.*

Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

- Understand why we have day and night and that it takes 24hours for the earth to spin on its axes once.
  - Explore video clips which show the earth spinning and illustrates day and night.
- It is day when the half of the earth is facing the sun and night when it is away from the sun.
  - Chn to model this using themselves as the earth and sun (using a torch).
  - Use a globe and torch (represent the sun) with a blue tac man to illustrate this. Experiment with the position of the man in different parts of the world.
  - *N.B. For your information - The Earth rotates on its axis East to West anticlockwise. Look at video clips where the sunrises first in the east and then across the west.*
  - Cross reference Maths data handling and interpretation.
- Observe the position of the sun during the day and afternoon. Establish that the sunrises in the east and sets in the west.
  - Cross Reference to light/shadows.
- Record and graph day length [continue when covering work on seasons.]
  - Use a datalogger/sensors to record light and sound to pick up the dawn chorus of birds. Chn to answer how this changes over the year.
- ***Make continuous photographic record of the position of the sun/shadows in different seasons.***
  - Explore what happens to a shadow in a year (enquiry).

Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.

Month
Pupils should be taught to:

- **Describe the movement of the moon relative to the Earth.**

They should understand that at moon is a celestial body that orbits a planet(Earth has one moon; Jupiter has four large moon and numerous smaller ones)
Pupils should:

		• *Briefly revisit* phases of the moon.
		  ○ Chn modelling how the moon orbits the earth (rotate on its axis) only seeing one face of the moon taking 28 days.
		  ○ Model using a white football (half covered in black to illustrate the dark side of the moon), the Earth blocks light from the sun and this explains why we have different phases of the moon.
		  ○ Use an OHP projector, chn to hold a ball on a stick and rotate modelling the movement of the moon. This will demonstrate the phases of the moon.
		  ○ Chn explore moon diaries, use past SATs papers to make predictions for when the moon will be full/new moon next.
		
		<u>Seasons/Year</u>
		<u>Pupils should be taught to:</u>
		Pupils should :
		• Explore and establish that it is the tilt of the earth and where the earth is in its orbit of the Sun, that determines the seasons, length of the day/night. E.g. Equator, Poles.
		• Revisit photographic record and rerecord in a new season.
		  ○ Video clips- BBC Learning Zone.
		  ○ Share examples of chn experiences of how the position of the sun changes in different seasons. E.g. Light shining in chn's faces in assembly or classroom.
		• Model the tilt of the Earth on its axis, spinning 365 ¼ times around the Sun for 1 year. Briefly discuss Leap year.
		• Record and graph day length making comparisons across the seasons and position on the earth.
		  ○ Enquiry-Why is day length shorter in Winter, longer in the Summer.
		• Make links to schools in southern Hemisphere, make diaries of the changes in the seasons, weather and activities.
		Possible visits to Space Centre in Leicester, Planetariums, Techniquest.