HAWTHORN PARK COMMUNITY PRIMARY SCHOOL

Where Care and Learning Count

Headteacher: Mrs Jeni Houghton

Science Knowledge Organiser	Area: Earth and Space	Year Group: 5

Statutory guidance:
By the end of this unit pupils will be able to:

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- Describe the movement of the Moon relative to the Earth
- Describe the Sun, Earth and Moon as approximately spherical bodies
- Use the idea of the Earth's rotation to explain day and night

Notes and guidance (non-statutory)

Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night. Pupils should learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006).

They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).
Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses.

Pupils should find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.

Pupils might work scientifically by: comparing the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.

Key Vocabulary

1. Sun	A huge star that Eath and the other planets in our solar system orbit around.
2. star	A giant ball of gas held together by its own gravity.
3. moon	A natural satellite which orbits a planet.
4. planet	A llarge object, spherical or nearly spherical that orbits a star
5. sphere	A 3D shape in the shape of a ball.
6. spherical bodies	Astronomical objects, shaped like spheres.
7. satelite	Any object or body in space that orbits something else, for example th Moon is a satellite of Earth.
8. orbit	To move in a regular, repeating curved path around another object.
9. rotate	To spin, for example Earth rotates (spins) on its own axis.
10. axis	An imaginary line that a body rotates around, for example Earth's axis runs from the North Pole to the South Pole.
11. geocentric model	A belief people used to have that other planets and the Sun orbited to Earth.
12. heliocentric model	The structure of the solar system where the planets orbit around the Sun.
13. astronomer	Someone who studies or is an expert in astronomy (space science).

Key Assessment Questions

Can they identify and explain the movement of the Earth and other plants relative to the sun in the solar system?
Can they explain how seasons and the associated weather is created?
Can they describe and explain the movement of the Moon relative to the Earth?
Can they describe the sun, earth and moon as approximately spherical bodies?
Can they use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky?
Can they present a report of their findings through writing, display and presentation using appropriate scientific vocabulary?
Can they use evidence from secondary sources to explore their own and other people's ideas?

Greater Depth:
Can they compare the time of day at different places on the earth?
Can they create shadow clocks?
Can they begin to understand how older civilizations used the sun to create astronomical clocks, e.g. Stonehenge?
Can they explore the work of some scientists? (Ptolemy, Alhazen, Copernicus)

Key Knowledge

Mercury, Venus and Mars are rocky planets. They are mostly made up of metal and rock.
Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they do have cores made up of rock and metal.
Pluto used to be considered a planet, but was reclassified as a dwarf planet in 2006.