Learning Organiser for Year 5 - Science Earth and Space

National Curriculum Summary Key Subject Concept

- 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.

Key Questions

- How do the planets, including Earth, move relative to the Sun?
- How does the moon appear to change shape?
- What shapes are the Earth, Sun and Moon?
- How do we get day and night?
- What is the sun?
- How is the size of shadow affected by the time of day/distance from light source/brightness of light source?
- How does the position of the Sun change during the day?
- How does the shape of the moon appear to change over a month?
- How does day length change through a term/year?
- Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.

Key Vocabulary	Definition
Planet	A celestial (in space) object orbiting around a star.
Solar System	The collection of eight planets and their moons in orbit round the sun, together with smaller bodies in the form of asteroids, meteoroids, and comets.
Galaxy	A system of millions or billions of stars, together with gas and dust, held together by gravitational attraction.
Orbit	The curved path of an object eg: a planet, has around a star (like the sun)
Axis	An imaginary line around which something rotates. The Earth rotates on an axis which is titled to the side.
Hemisphere	Half of a sphere Earth is divided at the equator into 2 halves – the northern and southern hemispheres.
Gravity	Force which pulls objects towards the centre.
Solar	Relating to the sun

Key Facts

DO NOT LOOK DIRECTLY AT THE SUN, EVEN WHEN WEARING SUNGLASSES.

- The Sun is a star at the centre of our solar system.
- The solar system has 8 planets; Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
- The first four planets are relatively small and rocky whilst the four outer planets are gas giants (Jupiter and Saturn) or ice giants (Uranus and Neptune)
- The Sun is stationary.
- The Earth orbits – goes around – the Sun.
- The Moon orbits the Earth.
- The Earth takes 1 year to orbit the Sun – 365 and $\frac{1}{4}$ days. We have a leap year every 4 years to account for the $\frac{1}{4}$ day.
- The Earth is held in its orbit around the Sun by the gravitational pull of the Sun.
- The Earth rotates on an axis anti-clockwise once every 24 hours (day). This gives us day and night.
- The Sun appears to move across the sky but it is because the Earth is rotating. The part of the Earth facing away from the Sun has night and the part of the Earth facing the Sun – the source of light, has day.
- As the Earth rotates, shadows that are formed change in size and orientation.

The Sun, Earth and Moon are approximately **spherical.**

The Earth **orbits** the Sun.

The Moon **orbits** Earth.

- The Moon orbits the Earth in an anti-clockwise direction once every 28 days.
- The moon spins on its axis once every time it orbits the Earth (28 days).
- The Moon has different phases depending on where it is in the orbit. This is why the Moon's shape changes.
- The Sun is a source of light but the Moon is NOT.
- The tilt of the Earth causes Earth's seasons.
- There are also asteroids, meteoroids and comets in the Solar System.
- The Solar System is in a galaxy called the Milky Way.
- The galaxy is in the universe.

Working Scientifically Skills	**Diagrams/Charts/Pictures**
Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	
Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	
Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	

Possible Experiences	**Biographical Information**
• Visit an observatory or experience a star gazing night. • Discuss why different parts of the school are sunny/shady at different times of the day • Draw around the shadow of a child in the same place at different times of the day • Keep a record of how the position of sun changes through the day • Design and make a sundial • Make 3D models of Earth, Moon and Sun from plasticine, papier mache or balloons • Discuss a moving model of the Earth, Moon and Sun • Use a globe and a spotlight to discuss day and night • Use a globe and a spotlight to discuss the year • Explore the Perseid meteor and how this yearly meteor shower can be explained by moving of the Earth around the sun.	Claudius Ptolemy (A.D. 90 – 168)  A Greek astronomer who is famous for his geocentric (Earth-centred) model of the universe.