Subject	Term	Unit
Science - Year 5	Autumn 1	Earth and Space

Intent

At Hurst Hill, we nurture young scientists by fostering curiosity and developing strong scientific knowledge and enquiry skills. Children learn to investigate, observe and evaluate confidently,

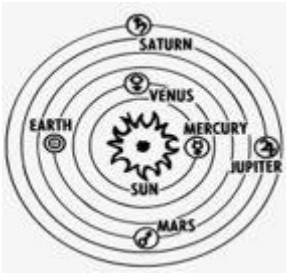
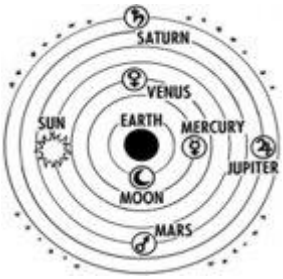
Prior knowledge	National Curriculum
• observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.	• describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative 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 and the apparent movement of the sun across the sky. • identifying scientific evidence that has been used to support or refute ideas or arguments

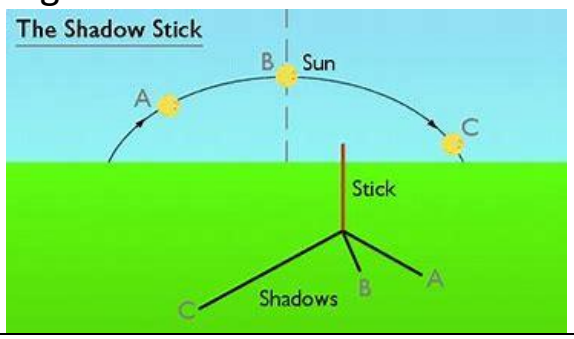
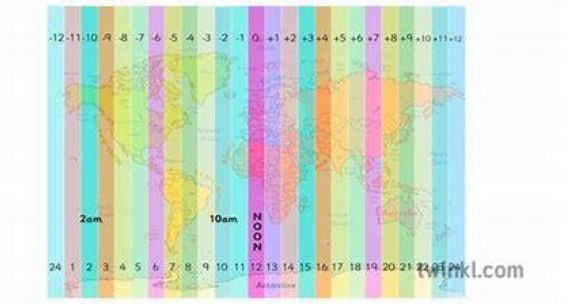
What?	To understand the relation Sun. To think about wh
Why?	~~The links to Year 6 work on time zones and the polar regions.~~ To have an understanding about space.
How?	Through observations and secondary research.

Vocabulary	
Asteroid	A rock that orbits the Sun in a belt between Mars and Jupiter.
Axis	An imaginary line through the middle of something.
Comet	A bright object with a long tail that travels around the Sun.
Galaxy	An extremely large group of stars and planets. Our galaxy is called the Mil ky Way.
Gravity	The force which causes things to drop to the ground.
Leap year	A year which has 366 days. The extra day is the 29th February. There i s a leap year every four year.
Meteorite	A rock from outer space that has landed on Earth.
Orbit	The curved path in space that is followed by an object going around a planet, moon or star.
Planet	A large, round object in space that moves around a star.

Shadow	A dark shape on a surface that is made when something stands between a light and the surface.
Solar System	The Sun and all the planets that go around it.
Sphere	An object that is round in shape, like a ball.
Spin	To turn quickly around a central point.
Star	A large ball of burning gas in space.
Time zones	One of the areas into which the world is divided, where the time is calculated as being a particular number of hours behind or ahead of GMT (Greenwich Mean Time).
Universe	The whole of space and all the **stars**, **planets** and other forms of matter and energy in it.

Learning	
Objective	**Learning**
Can I explain a celestial body?	**Identifying and Classifying** A celestial body (sometimes called a celestial or astronomical object) is any object that exists within the universe. This includes stars, planets and moons, as well as smaller objects such as comets, meteoroids and asteroids. All of these celestial bodies can be found inside galaxies, such as the Milky Way, where our Solar System exists. Name the planets around the sun. Draw the construction of the solar System and discuss the word orbit.
Can I identify the difference between the geocentric and heliocentric models of the Solar System?	**Comparative Testing** The geocentric model of the Solar System was used from prehistoric times and supported by the church for hundreds of years. It stated that the Earth was at the centre of the Solar System, with the Sun and other planets orbiting around it. The heliocentric model, developed in the 16th century, proved that the Sun was actually at the centre of the Solar System and that Earth and all of the other known planets

	orbited around it. This was a huge change in thinking and took nearly a century to be accepted by scientists and the church. Draw or use pictures of each of the models to describe what they mean and who though this in the past. How did ideas change? Why did ideas change?  
Why was Nicolaus Copernicus' work so controversial?	**Research** Nicolaus Copernicus (1473-1543) https://www.youtube.com/watch?v=M0p6NKANE08 [Biography] https://www.youtube.com/watch?v=s6efb-Lz1N4 [Heliocentric Model] Polish mathematician, astronomer and church leader.What did he believe? Why was it so controversial at the time? How long did it take people to believe him? Why?
Can I identify all the phases in the cycle of the Moon?	**Identifying and Classifying** The Moon orbits the Earth in an anti-clockwise direction and takes approximately 28 days, or one lunar month, per orbit. Because the Moon also spins on its axis as it orbits Earth, we only ever see one side of it. Depending on where it is in its orbit, the Moon is visible in 8 different phases: a new moon is closest to the Sun and cannot be seen at all, whilst a full moon is furthest from the Sun and shows the Moon's full side. Use the moon phases experiment NASA - Moon Phases Demonstration to show how the phases of the moon change. Why do they change? Record the phases of the moon in books.
Can I use a sundial to help me tell the time?	**Observing Over Time** The Earth rotates on its axis in an anti-clockwise direction and makes one complete rotation in 24 hours, or one day. This makes it appear as though the Sun is moving through the sky,

	but in fact it is the Earth's rotation that causes day and night. As the Earth rotates, shadows that are formed change in size and orientation. What would the shadows rev eal about the time of day?Measure the length of shadows during a day. Record the diagram in books and explain what we are observing. 
Can I explain why it is daytime in some places and night-time in others?	**Comparative Testing/research** Look at a globe and show how night and day occur using a torch. Children to research time zones and to predict which countries will be in daylight while others have night time. Record findings. 

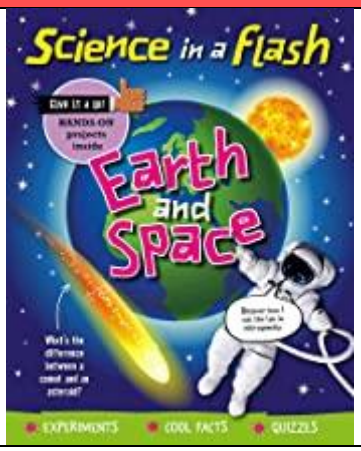
Additional research

Why do some people consider Stonehenge to be an astronomical clock?	**Pattern Seeking** Stonehenge was constructed in prehistoric times on Salisbury Plain in Wiltshire. The whole site is built in such a way that it lines up with the sunrise on the longest day of the year and the sunset of the shortest day of the year. Why would this have been important in prehistoric times for working out what season of the year it was?

Websites

NASA - Moon Phases Demonstration
https://www.youtube.com/watch?v=M0p6NKANE08
Year 5: Earth and Space | STEM
Earth and space - KS2 Science - BBC Bitesize

Recommended Reads



Golden Thread

Earth and space