Science – Earth and space – Year 5

Year 5 NC - pupils should be taught to:	How we do this in Year 5	Year 5 Vocabulary
Describe the Sun, Earth and Moon as approximately spherical bodies <u>How working scientifically can be met</u> • identifying scientific evidence	Ideas and Evidence: Show the class a covered shape (it's a trapezium). What shape is this? What is your evidence? Repeat questions while gradually uncovering the shape from right to left until it is fully uncovered. Discuss how their ideas changed the more evidence they had and state this is also the case for scientific ideas. Shape Of The Earth: Take the whole class out to the playground. What shape is the Earth? How do you know? What shape does it look like to you? Expect children to say sphere but discuss the fact that there is no evidence of that when you look around them. What does the evidence of your eyes tell you? Flat Earth Versus Spherical Earth: Children read aloud a different evidence card to their group. Children discuss and sort the evidence between that which supports the idea that the Earth is flat and the evidence that supports the idea that the Earth is a sphere. Identify Evidence: Children feedback from the group activity. Which idea has the most support? Why? What do you think based on the evidence? What Shape is the Earth? Sun and Moon: What about the shape of the Sun and the Moon? Go through the explanation.	Earth, Sun, Moon, sphere, circle, evidence, flat, round.
Describe the movement of the Earth, and other planets, relative to the Sun in the solar system <u>How working scientifically can be met</u> • name and describe • identify scientific evidence • explain	Discuss any existing ideas about the solar system focusing on the following questions: Can you name the planets? Do you know the order of the planets? Where have you got your ideas from? Meet The Planets – Solar System Speed Dating! Give each child a fact card. Make it clear which planets will stay sitting and which will rotate around the room. Each child has 5 minutes with each of the other planets to discuss and compare facts about the planets. Then children to create a planetary poster. Children swap posters and peer assess. Children write two things they liked and one thing that can be improved. Orbit or Rotate: What is the difference? In pairs, children to discuss and demonstrate the difference to each other. Feedback to whole class and ask a pair to model.	Star, sun, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Star, sun, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, orbit, rotate, heliocentric, geocentric.

	How do the planets in the solar system move? How do you know? Where is your evidence? Remind children that scientific ideas need to be backed with evidence. Geocentric Versus Heliocentric: Show children videos of geocentric and heliocentric model of the solar system. How are the planets moving? What is the centre of the solar system? Which model of planetary movement is correct? Why? Ascertain any existing knowledge children may have and if they can present any evidence for the heliocentric model. If possible, have whole class on the carpet or chairs in a circle. Read the story of the change from the geocentric model to the heliocentric model. Children playing characters to be given character masks on lollipop. Use the interactive whiteboard backgrounds. Planetary Model Story: Children split into small groups to create and film a short sketch for their character. Changing Scientific Ideas: How do scientific ideas change? Why did it take a long time to change from a geocentric to a heliocentric model of planetary movement? What were the important factors?	
Use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky. <u>How working scientifically can be met</u> • explain • identify scientific evidence • make predictions • explain • reporting and presenting findings from enquiries	Discuss what the children already know about the sun and shadows. Night and Day: Watch time lapse clip of the Sun moving across the sky. What is this clip showing us? Discuss image - How does the rotation of the Earth cause night and day? What would happen if the Earth were still? What other evidence do you have that it is the Earth that moves? Children take turns to verbally explain how night and day occurs then write an explanation text for night and day. Children read their explanation text to their partner. Their partner gives two positive points and one next step to improve. Swap roles. Children act on their partner's feedback. Night and Day: Why does night and day occur? How do you know? Does night and day occur at the same time everywhere on Earth? Why? Why not? Children discuss with talk partner and feedback. Night and Day Investigation: Click link to Google Maps and ensure that the map is zoomed in and out as appropriate. Model how to pick one country on the map. State that if it is 12:00 in the UK then the Sun is fully above them. Move	Day, night, Sun, Earth, rotate, axis, shadow. Day, night, Sun, Earth, rotate, axis, shadow, time, countries, daylight, night time, distance, light, dark.

	the globe and complete the prediction table. Children make predictions. How can we check if our predictions are correct? Where would we get the information from? Children feedback and then discuss reliability of sources and feasibility of using a source of information. Time Zones: Model how to use the time zones map to calculate times in other countries. Conclusion: Were your predictions correct? Why? Why not? What was the relationship between the time of day in one place and another with respect to distance? All children to write a conclusion	
Describe the movement of the Moon relative to the Earth <u>How working scientifically can be met</u> • explain	Orbiting Objects: We know that the Earth orbits the Sun. Does it move in any other type of way? Demonstrate rotation of the Earth on its axis using a globe. Are there any objects that orbit the Earth? Satellites, International Space Station (ISS), Moon. Forces: Why don't they just float away? Which force keeps objects orbiting? Briefly discuss gravity as an attracting force and why it is important. Moon Movement: Show video of moon orbiting the Earth. How does the moon move? Does it rotate? Why the moon is only lit from one side? Children to make models and then present their models and demonstrate their understanding of the movement of the moon.	Rotate, orbit, axis, face, Sun, Earth, Moon