



TLA ~ Year 5 Science Progression



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cornerstones Title	Off with Her Head	Stargazers	Pharaohs	Beast Creator	Sow, Grow and Farm	Cornish Mining Culture
Unit title	Material	Earth And Space	Animals Including Humans	Plants Living Things And Their Habitats	Living Things And Their Habitats	Forces And Magnets
Programme of study	<p>Compare and group together everyday materials on the basis of their properties including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. (A)</p> <p>Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. (B)</p> <p>Use knowledge of solids, liquids and gases to decide to how mixtures might be separated including through filtering, sieving and evaporating. (C)</p> <p>Give reasons based on evidence from comparative and fair tests for the particular use of everyday materials including metals, wood and plastic. (D)</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible. (E)</p> <p>Explain that some changes result in the formation of new materials and that this</p>	<p>Describe how the movement of Earth, and other planets, relative to the Sun in the solar system. (A)</p> <p>Describe the movement of the Moon relative to the Earth. (B)</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies. (C)</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. (D)</p>	<p>Describe the changes as humans develop to old age. (A)</p>	<p>Describe the differences in the life cycles of a mammal, and amphibian, an insect and a bird. (A)</p> <p>Describe the life process of reproduction in some plants and animals. (B)</p> <p>*Make sure you include humans.</p>	<p>Describe the life process of reproduction in some plants</p>	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between Earth and the falling object. (A)</p> <p>Identify the effects of air resistance, water resistance and frictions that act between moving surfaces. (B)</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (C)</p>

	kind of change is not usually reversible including changes associated with burning and the action of bicarbonate of soda. (F)					
Skills	<p>Be able to compare and group everyday materials according to their properties e.g. solubility.</p> <p>Be able to set up and carry out a fair test to find which materials dissolve in a liquid/which material is the best insulator.</p> <p>Be able to separate different mixtures of materials.</p> <p>Be able to identify and name reversible and irreversible changes.</p>	<p>Describe the Sun, Earth and Moon as approximate spherical bodies and use this knowledge to understand the phases of the moon and eclipses.</p> <p>Use the idea of Earth's rotation to explain day and night, and the Sun's apparent movement across the sky.</p>	<p>Create a timeline to indicate stages of growth in humans.</p>	<p>Describe, using their knowledge of food chains and webs, what could happen if a habitat had a living thing removed or introduced.</p> <p>Compare the lifecycles of animals including mammals, amphibians, insects and birds as well as plants.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Label and draw the parts of a flower involved in sexual reproduction in plants (stamen, filament, anther, pollen, carpel, stigma, style, ovary, ovule and sepal.)</p> <p>Compare the lifecycles of plants.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Explain that objects fall to Earth due to the force of gravity.</p> <p>Compare and describe, using a range of toys, models and natural objects, the effects of water resistance, air resistance and friction.</p> <p>Describe and demonstrate how simple gears, levers and pulley assist the movement of objects.</p>
Knowledge	<p>Know that dissolving involves two materials: a solvent and a solute.</p> <p>Know that solids which dissolve are 'soluble' and those that don't are 'insoluble'.</p> <p>Know that temperature, stirring and increasing the surface area can speed up the rate of dissolving.</p> <p>Know the difference between dissolving and melting.</p> <p>Know how to compare and group everyday materials by their solubility.</p> <p>Know how to recover a solute from a solvent.</p> <p>Know which materials are suitable for insulating food and keeping it warm.</p>	<p>Know that the Sun, Earth and Moon and the planets in our solar system are roughly spherical. All planets are spherical because their mass is so large that they have their own force of gravity. This force of gravity pulls all of the planet's materials towards its centre, which compresses into the most compact shape – a sphere.</p> <p>Know that as Earth orbits the sun, it also spins on its axis. It takes Earth a day (24 hours) to complete a full spin. During the day, the Sun appears to move through the sky. However, this is due to the Earth rotating and not the sun moving. Earth rotates to the east or if viewed from the North Pole it rotates anti-clockwise, which means the sun rises in the East and sets in the</p>	<p>Know about the changes as humans develop to old age.</p>	<p>Know that a food web is a set of interconnected food chains that show how animals rely on plants and other animals for food.</p> <p>Understand that population changes in a habitat can have significant consequences for food chains and webs.</p> <p>Know that a lifecycle is the series of changes in the life of a living thing and includes three basic stages: birth, growth, reproduction.</p> <p>Know a mammal's life cycle = embryo, baby, adolescent, adult. Amphibian = egg, larvae, adolescent and adult. Insects = egg, larvae, pupa and adult. Bird = egg, baby, adolescent, adult.</p>	<p>Be able to talk about the impact of modern farming methods on wildlife and the natural environment.</p> <p>Be able to talk about the process of reproduction in plants.</p>	<p>Know that gravity is a force of attraction. Anything with a mass can exert a gravitational pull on another object. The Earth's large mass exerts a gravitational pull on all objects on Earth, making dropped objects fall to the ground.</p> <p>Know that air resistance and water resistance are forces which oppose motion and slow down objects. Know these forces can be useful, such as with brakes and parachutes, but sometimes we need to minimise their effects, such as streamlining boats and planes to move through water or air more easily. Know that lubricants and ball bearings between two surfaces help reduce friction.</p> <p>Know that mechanisms such as levers, pulleys and</p>

	Know which changes are reversible and irreversible.	west. As Earth rotates, different parts of it face the Sun, which brings what we call daytime. The part facing away is in shadow which is night-time.		Know that reproduction is the process of producing offspring and is essential to the continue survival of a species. Know what sexual and asexual reproduction are and give examples. How to create a timeline to indicate stages of growth in humans.		gears give us mechanical advantage. A mechanical advantage is a measurement of how much a simple machine multiplies the force that we put in. The bigger the mechanical advantage, the less force we need to apply.
Progression	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: name and group a range of materials. 3. LO: Compare a range of materials based on their properties. Retrieval point 4. LO: investigate dissolving and the solubility of different materials. Investigation Retrieval point 5. LO: investigate and describe reversible and irreversible changes. 6. LO: describe the impact of chemical reactions on every day life/ Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know that planets are spherical and what stars are. 3. LO: know the names of all the planets and their order from the sun. Retrieval point 4. LO: identify and describe how planets travel around the sun. Retrieval point 5. LO: investigate the impact of the Earth traveling around the sun. Investigation 6. LO: know and understand the phases of the moon and eclipses. Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: describe the changes in humans to old age. 3. LO: focus on the growth of babies in their first year – record using charts and bar graphs Retrieval point 4. LO: compare the changes in development between boys and girls. Investigation Retrieval point 5. LO: know and describe the gestation periods of different animals. 6. LO: compare the gestation and life expectancy of different animals. Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: describe and compare the life cycles of different animals 3. LO: describe the process of reproduction in animals and humans (permission needed from parents) Retrieval point 4. LO: describe and compare different types of reproduction. Retrieval point 5. LO: Investigation 6. LO: Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know and describe the different parts of a flowering plant 3. LO: understand the life cycle of a flowering plant. Retrieval point 4. LO: describe how plants reproduce Investigation 5. LO: compare the different life cycles of different plants Retrieval point 6. LO: explore and describe modern farming practices. Retrieval point	1. Pre unit assessment and Prior learning/foundational knowledge 2. LO: know and describe that gravity is a force that exerts a pull on all objects. 3. LO: know and describe resistance inc air and water. Retrieval point 4. LO: know and describe the resistance between two object – friction. 5. LO: Investigate the effects of resistance on different objects. Investigation Retrieval point 6. LO: know and identify that mechanisms give us an advantage Retrieval point

Working Scientifically	Questioning	Measurement	Investigation	Observation
Year 5	Ask a wide range of relevant scientific questions that broaden their understanding of the world around them and identify how they can answer them.	Take increasingly accurate measurements in standard units, using a range of chosen equipment.	Plan and carry out a range of enquiries, including writing methods, identifying variables and making predictions based on prior knowledge and understanding.	Within a group, decide which observations to make, when and for how long, and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect.