



## TLA ~ Year 6 Science Progression



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cornerstones Title	<b>Revolution</b>	<b>A Child's War</b>	<b>Frozen Kingdom</b>		<b>Blood Heart</b>	<b>Gallery Rebels</b>
Unit title	Evolution and inheritance (A,B,C)	Electricity (A,B,C)	Plants and Living things (A,B) Revision and Consolidations		Animals including humans (A,B,C)	Light and sound (A,B,C,D)
Programme of study	<p>Recognise that things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (A)</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (B)</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (C)</p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (A)</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (B)</p> <p>Use recognised symbols when representing a simple circuit in a diagram. (C)</p>	<p>Describe how living things are classified into broad groups, according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (A)</p> <p>Give reasons for classifying plants and animals based on specific characteristics. (B)</p>		<p>Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood and blood vessels. (A)</p> <p>Recognise the impact of diet, exercise, drugs, and lifestyle on the way their bodies function. (B)</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans. (C)</p>	<p>Recognise that light appears to travel in straight lines. (A)</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. (B)</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. (C)</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. (D)</p>
Skills	<p>Explain that living things have changed over time, using specific examples and evidence.</p> <p>Identify that living things produce offspring of the same kind, although the offspring are not identical to each parent.</p>	<p>Explain how the brightness of a lamp or the volume of a buzzer is affected by the number and voltage of cells used in a circuit.</p> <p>Compare and give reasons variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and functions of on or off switches).</p>	<p>Classify living things, including microorganisms, animals and plants, into broad groups according to their observable characteristic and based on similarities and differences and give reasons for these choices.</p> <p>Be able to use and construct classification systems to identify plants and animals from a range of habitats.</p>		<p>Name and describe the purpose of the circulatory system and the functions of the heart, blood vessels and blood.</p> <p>Explain the impact of positive and negative lifestyle choices on the body.</p>	<p>Be able to identify that light travels in straight lines.</p> <p>Explain that, due to how light travels, we can see things because they give out light or reflect light into the eyes.</p>

	Identify how animals and plants are adapted to suit their environment, such as giraffes having long necks for feeding, and that adaptations may lead to evolution.	Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components.			
Knowledge	<p>Know that scientists compare fossil remains from the past to living species that exist today. To use this information to hypothesise how living things have evolved over time.</p> <p>Know that humans and apes share a common ancestry and evidence for this comes from fossil discoveries and genetic comparison.</p> <p>Know that animals sexually reproduce generate new offspring of the same kind by combining the genetic material of two individuals. Each offspring inherits two of every gene, one from the female and one from the male parent.</p> <p>Know that an adaptation is a physical or behavioural trait that allows a living thing to survive and fill an ecological niche. Adaptations evolve by natural selection. Favourable traits help an organism to survive and pass on their genes to subsequent generations.</p>	<p>Know that voltage is measured in volts (V) and is a measure of the difference in electrical energy between two parts of a circuit. The bigger the voltage the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor.</p> <p>Know a circuit needs a power source, such as a battery or cell, with wires connected to both positive and negative terminals. Other components include lamps, buzzers or motors, which electrical current passes through and affects a response such as lighting a lamp or turning a motor. When a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it.</p> <p>There are recognised symbols for different components of circuit.</p>	<p>Know that scientists classify living things into broad groups according to their characteristics e.g. vertebrates. There is a ranking system within the biological classification system: kingdom, phylum, class, order, family, genus and species.</p> <p>Know vertebrates can be subdivided into five groups: amphibians, birds, fish, mammals and reptiles.</p> <p>Know classification keys help us identify living things based on their physical characteristics.</p> <p>Know how living things have been classified.</p>	<p>Know the circulatory system includes the heart, blood vessels and blood.</p> <p>Know that lifestyle choices can have a positive or negative impact on the body.</p>	<p>Know that light travels in straight lines.</p> <p>Know that light sources give out light.</p> <p>Know that when light hits an object, it is absorbed, scattered, reflected or a combination of all three.</p> <p>Know how the eye works and that light enters the eye, the lens and cornea refract light, focuses it on the nerve tissue at the back of the eye (the retina). Once light reaches the retina it is transmitted to the brain via the optic nerve.</p>
Progression	<p>1. Pre unit assessment and Prior learning/foundational knowledge</p> <p>2. LO: recognise and describe how offspring are genetically similar to their parents.</p>	<p>1. Pre unit assessment and Prior learning/foundational knowledge</p> <p>2. LO: know how to make working electrical circuits including lamps, buzzers, motors</p>	<p>Pre unit assessment and Prior learning/foundational knowledge</p> <p>2. LO: understand the classification system and explain why we use it.</p> <p>3. LO: use the classification system to classify living things based on their physical attributes.</p> <p><b>Retrieval point</b></p> <p>4. LO: explain how living things have been classified</p>	<p>Pre unit assessment and Prior learning/foundational knowledge</p> <p>2. LO: understand and describe the function of the heart</p>	<p>Pre unit assessment and Prior learning/foundational knowledge</p> <p>2. LO: know and describe how light travels and from where.</p> <p>3. LO: explain how light travels to the eye.</p>

	<p>3. LO: explain that living things have changed over time e.g. humans common ancestry with apes <b>Retrieval point</b></p> <p>4. LO: identify and describe how animals and plants have adapted to suit their environments. <b>Investigation</b> <b>Retrieval point</b></p> <p>5. LO: recognise how scientist use fossils to explain how living things have evolved.</p> <p>6. LO: provide evidence of how living things have adapted over time to suit their environment. <b>Retrieval point</b></p>	<p>3. LO: know and use the symbols in electrical circuits to make working electrical circuits. <b>Retrieval point</b></p> <p>4. LO: investigate the effects of voltage on components in electrical circuits. <b>Investigation</b> <b>Retrieval point</b></p> <p>5. LO: compare and give reasons for variation in electrical circuits</p> <p>6. LO: demonstrate how the voltage effects the different components in an electrical circuit. <b>Retrieval point</b></p>	<p><b>Retrieval point</b></p> <p>5. LO: Construct and explain their own classification systems <b>Investigation</b></p> <p>6. LO: Construct and explain their own classification systems – contrasting habitat <b>Retrieval point</b></p>	<p>3. LO: understand and describe the function of the circulatory system. <b>Retrieval point</b></p> <p>4. LO: explain and describe why we need nutrients and hydration <b>Investigation</b> <b>Retrieval point</b></p> <p>5. LO: describe and explain what is harmful to our bodies.</p> <p>6. LO: explore how to look after our bodies <b>Retrieval point</b></p>	<p><b>Retrieval point</b></p> <p>4. LO: explain what happens when light hits an object.</p> <p>5. LO: know why shadows are take the same shape as objects that cast them. <b>Investigation</b> <b>Retrieval point</b></p> <p>6. LO: explain how light travels e.g. to make rainbows. <b>Retrieval point</b></p>
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Working Scientifically	Questioning	Measurement	Investigation	Observation
Year 6	Ask and answer deeper and broader scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge.	Take accurate, precise and repeated measurements in standard units, using a range of chosen equipment.	Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding.	Independently 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.