

Overview **Science** Year 6

| | Autumn Term | Spring Term | Summer Term |
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| Big Question | Have we lost our way with the world? | War- What is it good for? | How has the past shaped the future? |
| Other Subject links | The Titanic/Map work & human Geography | World War 2/Counties & land use | Shang Dynasty from China/Physical Geography |

| | Autumn 1 <i>Electricity</i> | Autumn 2 <i>Animals inc humans/living things and their habitats</i> | Spring 1 <i>Light</i> | Spring 2 <i>Living things and their habitats</i> | Summer 1 <i>Evolution and inheritance</i> | Summer 2 <i>Evolution and inheritance</i> |
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| National Curriculum <u>Working Scientifically</u> - Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - Using test results to make predictions to set up further comparative and fair tests - Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of a degree | - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - 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 - Use recognised symbols when representing a simple circuit in a diagram. | - Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function - Describe the ways in which nutrients and water are transported within animals, including humans Describe how living things are classified into broad groups according to common observable characteristics and | - Recognise that light appears to travel in straight lines - 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 - 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 - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them | -I can describe how living things are classified into broad groups according to the common observable characteristics and differences including microorganisms, plants and animals. - I can give reasons for classifying plants and animals based on specific characteristics. | - Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | - Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. |

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| <p>of trust in results, in oral and written forms such as displays and other presentations - Identifying scientific evidence that has been used to support or refute ideas or arguments</p> | | <p>based on similarities and differences, including micro-organisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics.</p> | | | | |
| <p>Knowledge</p> | <p>A source of electricity (mains of battery) is needed for electrical devices to work.</p> <p>Electricity sources push electricity round a circuit.</p> <p>More batteries will push the electricity around the circuit faster.</p> <p>Devices work harder when more electricity goes through them.</p> <p>A complete circuit is needed for electricity to flow and devices to work.</p> <p>Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are insulators.</p> | <p>The heart pumps blood around the body.</p> <p>Oxygen is breathed into the lungs where it is absorbed by the lungs.</p> <p>Muscles need oxygen to release energy from food to do work. Oxygen is taken into the blood in the lungs, the heart pumps the blood through blood vessels to the muscles; the muscles take oxygen and nutrients from the blood.</p> | <p>Animals see light sources when light travels from the source into their eyes</p> <p>Animals see objects when light is reflected off that object and enters their eyes.</p> <p>Light reflects off all objects (unless they are black). Non shiny surfaces scatter the light so we don't see the beam.</p> <p>Light travels in straight lines</p> | <p>Variation exists within a population (and between offspring of some plants) NB: This key idea is duplicated in evolution and inheritance.</p> <p>Organisms best suited to their environment are more likely to survive long enough to reproduce</p> <p>Organisms are best adapted to reproduce are more likely to do so</p> <p>Organisms reproduce and offspring have similar characteristic patterns</p> <p>Competition exists for resources and mates</p> | <p>Life cycles have evolved to help organisms survive to adulthood.</p> <p>Overtime the characteristics that are suited to that environment become increasingly common</p> <p><i>NB The following could be duplicated in y6 living things and their habitats</i> Organisms best suited to their environment are more likely to survive long enough to reproduce</p> <p>Organisms are best adapted to reproduce are more likely to do so</p> <p>Organisms reproduce and offspring have similar characteristic patterns</p> <p>Competition exists for resources and mates</p> | <p>Life cycles have evolved to help organisms survive to adulthood.</p> <p>Overtime the characteristics that are suited to that environment become increasingly common</p> <p><i>NB The following could be duplicated in y6 living things and their habitats</i> Organisms best suited to their environment are more likely to survive long enough to reproduce</p> <p>Organisms are best adapted to reproduce are more likely to do so</p> <p>Organisms reproduce and offspring have similar characteristic patterns</p> <p>Competition exists for resources and mates</p> |

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| Vocabulary | Electricity, neutrons, protons, electrons, nucleus, atom, electric current, appliances, mains, crocodile clips, wires, bulb, battery cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, conductor. | Oxygenated, Deoxygenated, Valve, Exercise, Respiration Circulatory system, heart, lungs, blood vessels, blood, artery, vein, pulmonary, alveoli, capillary, digestive, transport, gas exchange, villi, nutrients, water, oxygen, alcohol, drugs, tobacco. | Light source, dark, reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent. Reflect Absorb Emitted Scattered Refraction | Organisms variation Populations. Classification Characteristics Environment, flowering, non flowering, plants, animals, vertebrates, fish, amphibians, reptiles, mammals, invertebrate, human impact, nature reserves, deforestation. Classify, compare, bacteria, microorganism, organism, invertebrates, vertebrates, Linnaean. | Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics | Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics |
| Experiment/s | Creating a circuit with the brightest bulb. | Heart rate investigation | Prism investigation | Classification of animals and plants in the immediate environment | Most common eye colour. | Physical timeline of evolution in the playground. |
| Extended writing | History of electricity report. | Create an information leaflet for a doctor's surgery explaining | Non chron report about the role and parts of the eye | Diary entry in the role of Carl Linnaeus to report his findings. | Mary Anning biography. | Write the story of Charles Darwin and the Galapagos Islands. |

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| | | the composition of blood and the role it has to play in the human body. | | | | |
| How does it link to the big question? | Electricity linked through the Titanic and the electricity on board. Animals including humans - linking to the Titanic and the reaction of the systems within the body linked to freezing temperatures etc. | Light - linking to the blackouts during WW2 and the Blitz. Living things and their habitats - difference between human and animal survival based on living conditions and habitats - thinking about conditions soldiers/civilians lived in during the war | | | Evolution and inheritance - linking to genetics and physical features of humans in different countries (UK& China) The journey of evolution from the beginning of the Shang Dynasty to now. | |