Y5 & Y6 SCIENCE CURRICULUM OVERVIEW

Year A

AUTUMN: "OFF WITH HER HEAD!"	SPRING: "MAYAN MYSTERY"	SUMMER: "FABULOUS FAIRGROUNDS"
Evolution & Inheritance **(K)** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago **(K)** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents **(K)** Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Describe how evolution by means of natural selection occurs over time. Relate this to modern examples of inheritance and selective breeding (e.g. in dogs). Describe life stories of key scientists in the field of evolutionary biology. **Y6 ext**: Confidently explain theories of evolution by means of natural selection; describe examples of this. Know that the fossil record and isolated habitats such as the Galapagos Islands provide evidence to support this theory. Identify beneficial adaptations in existing living things which may lead to evolution.	**Classifying Living Things** **(K)** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals **(K)** Give reasons for classifying plants and animals based on specific characteristics. Recognise living things are classified into broad groups according to common observable features. Identify similarities & differences between a wide range of different living things. Offer reasons for classifying plants / animals. Carry out investigations to observe characteristics. Use observations to construct classification keys of increasing complexity. Plan & carry out a comparative test; make careful observations & present findings in a variety of ways. **Y6 ext**: Identify & describe a greater range of plants / animals. Construct more complex classification keys. Describe how the current classification system was established & how will continue to evolve as scientists discover new things. Use numerical data to make a graph.	**Light & Sight** **(K)** 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 **(K)** Recognise that light appears to travel in straight lines **(K)** 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 **(K)** Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them Explain light travels in straight lines from a source. Describe and explain how objects and shiny surfaces reflect light. Plan & carry out an investigation and report their findings. Use the idea that light travels in straight lines to explain the shapes of shadows. **Y6 ext**: Recognise patterns in data they have collected. Predict not yet know values from patterns in their results. Explain how shadows and reflections are formed in terms of the journey of light from source to eye; represent and explain this path using accurate diagrams.
	Materials **(K)** 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 **(K)** Give reasons, based on evidence from comparative & fair tests, for the particular uses of everyday materials, including metals, wood & plastic Demonstrate knowledge of different properties of materials. Classified materials according to properties. Explain why an object is made from a certain material and suggest other suitable materials. Raise questions & investigate properties, including thermal insulators & electrical conductors. Use reference material to research advantages & disadvantages of different materials. Apply what they have learnt in design. **Y6 ext**: Describe properties of less common materials. Investigate objects made from more than one material. Suggest possible reasons for why some materials are good insulators. Research benefits / drawbacks of less well-known materials. Select correct type of graph to record results. Identify relationships in line graphs.	**Changing Circuits** **(K)** Use recognised symbols when representing a simple circuit in a diagram. **(K)** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit **(K)** 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 Provide a solution to a question. Use recognised symbols in circuit diagrams correctly. Discuss analogies and offered own explanations for results. Describe how to do this in a variety of ways. Made quiz cards which work correctly and describe how they work. **Y6 ext**: Give more complex explanations, relating to voltage / resistance. Suggest advantages / disadvantages of different analogies.
VOCABULARY	VOCABULARY	VOCABULARY
Fossil / Offspring / inheritance / selective breeding / Evolution / natural selection / adaptation	Classify / observable / characteristics / similarities / differences / Classification key / classification system Ceramic / polystyrene / Hardness / soluble / transparent / magnetic / thermal insulator / electrical conductor / Advantages / disadvantages / design	Light-wave / wavelength / frequency / vibration / Light source / illumination / Concave / convex / filters / lens / retina / cornea / iris / pupil Conductor / insulator / volts / voltage / symbol / diagram / switch Circuit / series / resistor / cells / generator / turbine / fuses Components /

Year B

AUTUMN: "EUREKA!"	SPRING: "FOOD, GLORIOUS FOOD!"	SUMMER: "AMAZING AFRICA"
Forces **(K)** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object **(K)** Identify the effects of air resistance, water resistance and friction, that act between moving surfaces **(K)** Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Explain unsupported objects fall to earth because of gravity. Plan & carry out a fair test. Use a force meter. Use results to draw conclusions. Describe how air resistance slows objects down. Apply knowledge to investigate. Recognise levers can be used to reduce force needed to list a load. **Y6 ext**: Describe gravity as an invisible attractive force. Make comparisons about gravity on different planets. Suggest improvements to their investigation. Use results to make predictions. Use graphs to support conclusions and identify relationships. Carry out repeat tests. Draw line graphs to identify patterns.	**Types of Change** **(K)** Demonstrate that dissolving, mixing and changes of state are reversible changes **(K)** Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. State dissolving / mixing / changes of state are reversible changes and burning / heating some materials (& mixing bicarb with acid) are irreversible. Recognise that different substances have different solubility rates. Demonstrate how evaporation can be used to reverse changes and recover dissolved solutes. Use evidence to draw conclusions and offer explanations. Plan, carry out & review a fair test. **Y6 ext**: Recognise that in reversible changes no new materials are made & that the original material can be recovered. Research melting in greater depth and name a range of substance which melt. Realise that some materials which don't melt can combust or sublime. Name gases made during burning.	**Our Bodies** **(K)** Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood **(K)** Describe the ways in which nutrients and water are transported within animals, including humans. **(K)** Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Identify main parts of the human circulatory system; describe functions of the heart, blood & blood vessels. Describe how water & nutrients are transported through the body. Investigate effect of exercise on pulse rate. Recognise impact of diet, exercise & drugs on their bodies. Communicate information in a number of different ways. **Y6 ext**: Recognise interdependent nature of different systems of the body. Describe and explained function of heart / circulation system in detail. Relate their conclusions to data they have collected through investigations.
Earth & Space **(K)** Describe the Sun, Earth and Moon as approximately spherical bodies **(K)** Describe the movement of the Earth, and other planets, relative to the Sun in the solar system **(K)** Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **(K)** Describe the movement of the Moon relative to the Earth Explain why shadows move and sun appears to move during the day. Explain day & night in terms of Earth's rotation. Describe movement of earth and other planets, relative to sun. Plan a scientific enquiry about shadows; take accurate measurements. Decide how to record results. **Y6 ext**: Explain how changes in appearance of the moon over 28 days arise from moon orbiting Earth. Identify evidence that has been used to support or refute changing ideas about the Solar System.	**Separating Mixtures** **(K)** Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating **(K)** Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use different techniques to separate mixtures. Explain what is meant by 'dissolving' and name substances which are soluble in water and some which are not. Are familiar with terms solvent and solute. Plan how to answer a question and predicted possible outcomes. Carry out a fair test to answer their question. Record results is a table and graph. Explain how the evidence support / refutes their prediction. **Y6 ext**: Use several different techniques to separate complex mixtures. Relate separation technique to their knowledge of S-L-G. Explain why heat & moving air speed up evaporation. Recognise water is not the only solvent. Make further predictions by extending and extrapolating from a graph / bar chart.	**Life-Cycles** **(K)** Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird **(K)** Describe the changes as humans develop to old age. **(K)** Describe the life process of reproduction in some plants and animals. Describe life-cycles of some plants and animals. Observe and record different stages of life cycles. Describe and name stages of metamorphosis. Plan an outdoor investigation in the local area. Describe methods of pollination & seed dispersal in a flowering plant. **Y6 ext**: Identify patterns in reproductive cycles of plants & animals. Compare different life-cycles. Use data to predict outcomes & growth; use test results to create further comparative fair tests. Describe pollination and dispersal in detail using correct scientific terminology.
VOCABULARY	VOCABULARY	VOCABULARY
Friction / sliding / resistance / particles / gravity / Lever / pulley / gear / fulcrum / Astronomy / celestial body / orbit / rotation / Solar system / planet / asteroid / moon / comet / Spherical / crescent moon / gibbous moon / eclipse / lunar	Reversible / irreversible / evaporate / melt / freeze / Solubility / soluble / dissolve / filter / separate /	Cardiovascular / capillaries / blood vessels / atrium / chambers / ventricles / pulse / Drugs / chemical / tobacco / alcohol / Life-cycle / reproduction / development / Gestation / conception / embryo / uterus / fertilization / sperm / egg / cells / INSECT: Egg / larva / pupa / adult / Toddler / teenager / adolescence / pensioner /