Science Long Term Plan UKS2

	Autumn	Spring	Summer
Year A			
Topic	**Properties and Changes of Materials** (properties and uses of everyday materials; ir/reversible changes) **Yr 5** **Animals incl Humans (**circulatory system, diet, health**) Yr 6**	**Earth and Space Yr 5** **Forces Yr 5**	**Living Things and their Habitats** (classification) **Yr 6** **Animals incl Humans** (sex education) **Yr 5**
Working Scientifically Programme of study	During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: **The 5 Types of Enquiry**: sorting and classifying, comparative and fair tests, patterns seeking, researching using secondary sources, observing over time, Are all being used throughout the year? ● 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 and a degree 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		

Science Long Term Plan UKS2

Vocabulary	Properties and Changes of Materials (properties and uses of everyday materials; ir/reversible changes) Electrical conductivity Thermal conductivity New material Buoyancy burning Rusting Gas given off Reversible change Irreversible change Hard to reverse **Animals including humans** Circulatory system Blood vessels Capillaries Arteries Veins Red blood cells White blood cells Oxygen Carbon dioxide Lungs Air sacs Ventricles Aorta Wind pipe Diaphragm Bronchi Pulmonary vein / artery Lifestyle Drugs Diet Heart rate Clotting Plasma	**Earth and Space** Earth Planets Sun Solar system Moon Celestial body Sphere / spherical Rotation Spin Phases of moon Axis / axes Night / day Mercury Mars Neptune Venus Jupiter Saturn Pluto Uranus Time zones Orbit Elliptical orbit Revolve Shadow clocks Sundials Asteroids Comets Galaxy Meteors Light years **Forces** **(previous Yr 4 vocab)** Force gravity Push / pull Direction of force Air resistance streamlined Float / sink Friction Force-meter Mechanism Air resistance Water resistance Levers Pulleys Gears springs Drag forces Transference of force and motion	**Living Things and their Habitats (classification)** **Previous Yr 4 vocab** Classification keys Environment Fish Reptiles Amphibians Mammals Birds Vertebrates Invertebrates Human impact Plant groups (trees, grasses, flowering and non-flowering plants) Organism Micro-organism Bacteria Microbes fungus Name invertebrates: arachnid, mollusc, insect and crustacean **Animals incl. Humans (sex ed)** Sexual Asexual Birth Fertilisation Menstrual cycle Puberty Eggs Live young Egg Cell Embryo Ovary Placenta Penis Testes Vagina Uterus Foreskin Scrotum Urethra Anus Umbilical cord Period Erection Fallopian tubes Cervix

Science Long Term Plan UKS2

Key Knowledge			
	Properties and Changes of Materials (properties and uses of everyday materials; ir/reversible changes) ● 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 ● give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ● and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda **Animals including humans** ● identify and name the main parts of the human circulatory system, and describe	**Earth and Space** ● describe the movement of the Earth and other planets relative to the sun in the solar system ● describe the movement of the moon relative to the Earth ● describe the sun, Earth and moon as approximately spherical bodies ● use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky **Forces** ● explain that unsupported objects fall towards the Earth because of the force	**Living Things and their Habitats** (classification) ● 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 ● give reasons for classifying plants and animals based on specific characteristics **Animals including Humans (sex ed)**

Science Long Term Plan UKS2

	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	of gravity acting between the Earth and the falling object ● identify the effects of air resistance, water resistance and friction, that act between moving surfaces ● recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	● describe the changes as humans develop to old age *The lessons for Sex Education are delivered separately to Year 5 and 6 pupils over the two-year cycle. Year 6 lessons build on the knowledge and understanding developed in Year 5.

Science Long Term Plan UKS2

Year B			
Topic	Properties & changes of materials: dissolving, separating mixtures, solutions Yr 5 Evolution & Inheritance Yr 6	Electricity Yr 6 Light Yr 6	Living Things and their Habitats: Life cycles & reproduction Yr 5 Animals, including Humans: Sex Education Yr 5
Working Scientifically Programme of study	During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ● 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 and a degree 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		
Vocabulary	**Properties & changes of materials: dissolving, separating mixtures, solutions** Dissolve Solution Soluble Insoluble Solute Solvent Mixture Filtering Sieving Solubility separating	**Electricity** **Previous Yr 4 vocab** Electricity Electrical device / appliances Mains Plug Components Conductor Insulator Circuit symbol Cell Battery Wire Bulb Switch Buzzer Motor Connection Electrical / simple circuit Complete circuit Closed circuit Open circuit Positive Negative Crocodile clip	**Living Things and their Habitats: Life cycles & reproduction** reproduction Germination Pollination Birth Fertilisation Seed dispersal Seed formation Pollen Stamen Stigma Anther Filament Style Sepal Carpel Insect Eggs Live young

Science Long Term Plan UKS2

	Evolution and Inheritance Evolution Adaptation Genes DNA Chromosomes Evolutionary change features Inherit Inheritance Environmental conditions Fossil records Natural selection Variation Reproduction Competition Environmental variations Survival of the fittest	**Yr 6 vocab** -Series circuit Terminal Voltage volume Current Resistance Circuit diagrams **Light** **previous Yr 3 vocab** Light Light source Names of light sources, torch etc Dark / darkness Reflect Reflective Mirror Shadow Block / absorb Direction of light Transparent Opaque Translucent Bright Dim Light beam sunlight **Yr 6 vocab Absorption** Transmission Lenses Optics Prism Rainbow Refraction spectrum	**Animals, including Humans: Sex Education** Sexual Asexual Birth Fertilisation Menstrual cycle Puberty Eggs Live young Egg Cell Embryo Ovary Placenta Penis Testes Vagina Uterus Foreskin Scrotum Urethra Anus Umbilical cord Period Erection Fallopian tubes Cervix

Science Long Term Plan UKS2

Key Knowledge	**Properties and Changes of Materials (**properties and uses of everyday materials; ir/reversible changes) ● know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ● use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating ● demonstrate that dissolving, mixing and changes of state are reversible changes **Evolution and Inheritance** ● 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	**Electricity** ● 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 **Light** ● 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	**Living Things and their Habitats: Life cycles & reproduction** ● describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ● describe the life process of reproduction in some plants and animals **Animals, including Humans: Sex Education** ● describe the changes as humans develop to old age *The lessons for Sex Education are delivered separately to Year 5 and 6 pupils over the two-year cycle. Year 6 lessons build on the knowledge and understanding developed in Year 5.

	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	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	

Science Long Term Plan UKS2