SHOBNALL PRIMARY & NURSERY SCHOOL

SCIENCE PROGRAMME OF STUDY

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	EYFS STATUTORY FRAMEWORK					
	AUTUMN TERM (1st HALF)	**AUTUMN TERM (2nd HALF)**	**SPRING TERM (1st HALF)**	**SPRING TERM (2nd HALF)**	**SUMMER TERM (1st HALF)**	**SUMMER TERM (2nd HALF)**
	IT'S GOOD TO BE ME	**I CAN SING A RAINBOW**	**ALL ABOARD**	**THE GREAT OUTDOORS**	**ALL CREATURES GREAT AND SMALL**	**OUR HEROES**
NURSERY (Understanding the World)	**Our Body** To know the names of some body parts and what we use them for. To learn about changes to their bodies since they were a baby.		**Plants** To distinguish between a living and non-living thing. To explain where plants come from. To grow and care for a plant. To be able to explain the life cycle of a plant. To know what a plant needs to live.		**Animals** To know that animals are living things. To describe an animal's habitat. To list some materials used to make a bird's nest. To name some animals that live on a farm. To give a possible reason why dinosaurs died off.	
	Make simple predictions about what they think might happen. Carry out simple investigations in a small group. **ROCKET WORDS:** arm, leg, nose, hand, foot, ear, eye and mouth		Make simple predictions about what they think might happen. Carry out simple investigations in a small group. **ROCKET WORDS:** plant, seed, soil, water, STEM, root, sunlight, garden.		Make simple predictions about what they think might happen. Carry out simple investigations in a small group. **ROCKET WORDS:** bird, cow, sheep, goat, chicken, pig, bear and farm.	

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	EYFS STATUTORY FRAMEWORK					
	AUTUMN TERM (1st HALF)	**AUTUMN TERM (2nd HALF)**	**SPRING TERM (1st HALF)**	**SPRING TERM (2nd HALF)**	**SUMMER TERM (1st HALF)**	**SUMMER TERM (2nd HALF)**
	HOME SWEET HOME	**SPARKLE AND SHINE**	**FOOD GLORIOUS FOOD**	**ON THE HIGH SEAS**	**A BUG'S LIFE**	**BON VOYAGE**
RECEPTION	**Materials** To know that things can change shape. To understand about melting. To know where knitted jumpers come from. To understand the usefulness of wool and what happens to it when it gets wet. To know about materials which act like mirrors. To know how water changes.		**Forces** To know what happens if you pull or push something. To understand what happens when things float or sink.		**Insects** To learn about where insects and vertebrates live. To learn about insects and invertebrates. To learn more about insects and invertebrates.	
	Make simple predictions, observations and evaluations through investigations. **ROCKET WORDS:** melt, wool, mirror, jumper, cold, freeze, ice, smooth		Make simple predictions, observations and evaluations through investigations. **ROCKET WORDS:** push, pull, fast, slow, press, suck		Make simple predictions, observations and evaluations through investigations. **ROCKET WORDS:** snail, worm, spider, honey, beetle, ladybird, fly	
EYFS to YEAR 1	Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)		Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)		Year 1 Subject Content EYFS Educational Programmes(Curriculum) Suggested EYFS Key Skills, Knowledge and Understanding (Curriculum)	
	Year 1 Subject Content Plants Animals including humans Everyday Materials		Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and		Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and	

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	Seasonal Changes	firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. • Make simple predictions about what they think might happen • Carry out simple investigations in a small group • Explain why something happened and use this to predict what might happen next/change • Identify, compare, classify and group a variety of places, objects, materials and living things • Talk about changes, including the seasons • Talk about their immediate environment and compare it to other environments	firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. • Make simple predictions about what they think might happen • Carry out simple investigations in a small group • Explain why something happened and use this to predict what might happen next/change • Identify, compare, classify and group a variety of places, objects, materials and living things • Talk about changes, including the seasons • Talk about their immediate environment and compare it to other environments

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	NATIONAL CURRICULUM					
	AUTUMN TERM (1st HALF)	**AUTUMN TERM (2nd HALF)**	**SPRING TERM (1st HALF)**	**SPRING TERM (2nd HALF)**	**SUMMER TERM (1st HALF)**	**SUMMER TERM (2nd HALF)**
YEAR 1	In Year 1, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to **Science programmes of study: key stages 1 and 2**: • Key stage 1 – year 1 (*pages 7 – 9*) • Developing Experts Year 1 Curriculum Map					
	EVERYDAY MATERIALS To investigate materials To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Distinguish between an object and the material it is made from. Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties. Compare and group together a variety of everyday materials on	**EVERYDAY MATERIALS** **The Three Little Pigs** To investigate materials and apply knowledge To build a structure strong enough to withstand wind. To build a waterproof structure. To understand the properties of glass and its uses. To understand that materials are used to create a variety of furniture. To explore a variety of fabrics and understand their different properties.	**ANIMALS, INCLUDING HUMANS - All about me** To understand animals and humans To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. To learn about eyes and sight To learn about ears and hearing To explore the tongue and taste To explore the sense of touch To discover how your nose smells	**ANIMALS, INCLUDING HUMANS – All about animals** To understand animals and humans To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) To learn about the differences Between amphibians, reptiles and fish To identify and name a variety of common animals that are	**SEASONAL CHANGES** To understand seasonal changes To understand there are four seasons To understand the changes that take place in autumn To understand the changes that take place in winter To understand the changes that take place in spring To understand the changes that take place in summer To observe and describe weather associated with	**PLANTS** To understand plants To become familiar with common names of flowers and plant structures including seeds To identify and describe the basic structure of a variety of common flowering plants, including trees To identify and name a variety of common wild and garden plants To identify and name a variety of deciduous and evergreen trees To understand how plants change over time To observe the growth of planted flowers

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	the basis of their simple physical properties. Describe the simple physical properties of a variety of everyday materials.	Explain the uses of materials and why they are suitable.		carnivores, herbivores and omnivores To explore the difference between wild animals and pets To explain the characteristics of an animal	the seasons and how day length varies	Become familiar with plant structures Keep records of how plants change over time
Working Scientifically	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions					
Rocket Words	material, fabric, wood, plastic, metal, object, glass, property, brick, elastic, opaque, transparent, dull, stiff, natural, manmade, factory, rubber, polyester, predict, float, sink, submerge, buoyant	solid, strong, brick, clay, wind, waterproof, absorbent, non-absorbent, roof, slate, transparent, opaque, suitable windowpane, window frame, fabric, furniture, cotton, mattress soft, wool, weather, jumper suitable, evaluate, material, properties, tile, garden	head, body, skeleton, limb, joint, brain, eyelash, eye, sight, pupil, sound, ear sign language, vibration, deafness, tongue, mouth, taste, flavour, sweet, touch, fingertips, skin, organ, brain smell, odour, nose, nostril, nose hair	fish, amphibian, reptile, mammal, bird, feather, warm-blooded, characteristic, backbone, hatchling, reptile, gills, scale, cold-blooded, herbivore, carnivore, omnivore, predator, canines, pet, wild, shelter, veterinary, natural, similarities, differences, compare, unsuitable, climate	season, spring, summer, autumn, winter, weather, protect, harvest, frost, sleet, temperature, compare, changes, grow, chick, warm, sun protection, temperature, heatwave, rainfall, measuring, record, results, graph	seed, plant, tree, soil, predict, stem, petal, leaf, root, flower, environment, weed, daisy, dandelion, wild, deciduous, evergreen, seasons, branch, bush, supermarket, fruit, vegetable, farm, tractor
YEAR 2	In Year 2, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to **Science programmes of study: key stages 1 and 2**: • Key stage 1 – year 2 (*pages 10 – 12*) • Developing Experts Year 2 Curriculum Map					

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	USES OF EVERYDAY MATERIALS	**ANIMALS, INCLUDING HUMANS – Health & survival**	**ANIMALS, INCLUDING HUMANS – Life Cycles**	**LIVING THINGS AND THEIR HABITATS**	**LIVING THINGS AND THEIR HABITATS – Habitats around the world**	**PLANTS**
	To investigate materials To identify different materials and their uses To understand how to select the right materials to build a bridge To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching To understand that materials can change their shape by twisting, bending, squashing or stretching To find out about Charles Macintosh and explore how materials are suitable for different purposes To discover which materials change shape when making a road with John McAdam	To understand animals and humans To describe the needs of animals for survival To describe the needs of humans, for survival To explore the importance of eating the right food To describe what a healthy, balanced diet looks like To investigate the impact of exercise on our bodies To investigate the importance of hygiene	To understand life cycles of different mammals To order the stages of the human life cycle To describe the stages of a human life cycle To identify the offspring and parent of an animal To explore the life cycle of a chicken To describe the life cycle of a butterfly To explore the life cycle of a frog	To investigate living things To explore and compare the differences between things that are living, dead, and things that have never been alive To identify and name a variety of plants and animals in a microhabitat Design a suitable microhabitat where living things could survive Find out what animals eat to survive in their habitats Understand a food chain Understand the journey food makes from the farm to the supermarket	To investigate habitats To learn about habitats To appreciate that environments are constantly changing To explore the rainforest and its problems To describe life in the Ocean To discover the Arctic and Antarctic habitat To create a model of a habitat	To understand plants To know the difference between seeds and bulbs To design an experiment to find out what plants need to grow To describe what plants need to grow and stay healthy To understand the requirements of plants for germination, growth and survival, as well as, the processes of reproduction and growth in plants To observe and record the growth of plants overtime To understand that plants adapt to suit their environment
Working Scientifically	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying					

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	• using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions					
Rocket Words	material, property, suitable, object, brick, bridge, triangle, obstacle, structure, construction, stretchy, elastic, floppy, hinder, limit, bend, twist, squash, stretch, force, mackintosh, protective, fluorescent, safety, waterproof, merchant, bound, highway, road	survival, shelter, nutrition, oxygen, essential, vital, non-essential, survive, grow, healthy, protein carbohydrate, dairy, vitamins, calcium, fat, balanced diet, nutrients, fresh food, pre-cooked, processed food, exercise, strength, flexibility, balance, coordination, hygiene, prevent, germs, bacteria, virus	adult, foetus, womb, helpless, toddler develop, offspring, inherit, gene resemble, differences, reproduction hatchling, chick, bar chart, predict, caterpillar, transformation, larva, chrysalis, metamorphosis, frog, amphibian, frogspawn, tadpole, froglet	survive, shelter, antennae, suitable, condition, colony, insect, producer, consumer, herbivore, carnivore, omnivore, food chain, life cycle, nutrients, rot, caterpillar, automated, frozen food, forklift truck, refrigerated, lorry, canned	organism, environment, mate, rainforest, moisture, extinct, climate, endangered, biodiversity, deforestation, poaching, pollution, rainforest, plankton, ocean, ecosystem coral reef, trench, Antarctic, Arctic, caribou, narwhal tundra, earthworm, desert lizard, cactus, pond	seeds, bulbs, growth, plant, compare predict, investigate, control, experiment, method, photosynthesis, carbon dioxide, oxygen, glucose, energy, pollination life cycle, germination, reproduction, seedling, manure, crop, insulate, thrive, healthy, forest, desert, adapt, condition, survive
YEAR 3	In Year 3, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to **Science programmes of study: key stages 1 and 2**: • Lower key stage 2 – year 3 (*pages 16 – 19*) • Developing Experts Year 3 Curriculum Map					
	ROCKS To understand rocks Explore the formation and properties of igneous rocks Explore the formation and properties of sedimentary and metamorphic rocks Weathering and the suitability of rocks for different purposes	**LIGHT** To understand light and seeing Identify the difference between light sources and non-light sources Explore the light that comes from the sun and how to stay safe Explore materials which are reflective	**FORCES AND MAGNETS** To understand movement, forces and magnets Explore contact and noncontact forces Compare how things move on different surfaces Explore different types of magnets	**ANIMALS, INCLUDING HUMANS** To understand animals and humans Explore the 5 key food groups Learn about the nutrition in the food we eat Learn about the different types of skeletons Learn about the human skeleton	**PLANTS** To understand plants Compare the effect of different factors on plant growth Identify and describe the functions of different parts of a flowering plant and how they are used in photosynthesis Investigate the way in which water is transported within plants	**SCIENTIFIC ENQUIRY** How can a solar oven be made more effective: posing questions and writing predictions How can a solar oven be made more effective: recording and presenting results Cleaning coins: writing a method and carrying out a practical test Cleaning coins: writing a conclusion

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	Explore how water contributes to the weathering of rocks Understand how fossils are formed Explore different types of soil	Discover how shadows are formed Investigate how shadows change throughout the day Investigate how you can change the size of a shadow	Explore the properties of magnets and everyday objects that are magnetic Understand that magnetic forces can act at a distance Explore the everyday uses of magnets	Learn about animals and their skeletons Explore the role of muscles	Explore the part that flowers play in the life cycle of flowering plants Understand the pollination process and the ways in which seeds are dispersed Compare the effect of different factors on plant growth	Making a cake: fair testing, controls and variables Making a cake: scientific enquiry
Working Scientifically	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings.					
Rocket Words	igneous rocks, intrusive igneous rock, extrusive igneous rock, crystals, magma, sedimentary rock metamorphic rock limestone marble sandstone weathering chemical weathering physical weathering biological weathering acid rain, appearance, texture submerged, erosion, receding fossil, extinct, sediment embedded, amber, decompose,	light, source, natural artificial, reflect, vitamin D ultraviolet, rays, sunburn exposure, protection fluorescent, high visibility reflective, surface, materials shadow, opaque, sundial rays, blocks, position, cast opposite, direction, length size, shape, closer, further puppet	force, contact, force, non-contact forces air resistance, friction, motion, surface resistance, texture, tilt, magnet, attract repel, bar, magnet, horseshoe magnet magnetism, magnetic, field, iron steel non-contact, forces, magnetism, attract non-magnetic, materials, recycle compass, magnetic needle	nutrition carbohydrate protein vitamin mineral nutrition label portion energy balanced diet vertebrate invertebrate endoskeleton exoskeleton hydrostatic skeleton humerus ulna radius tibia fibular endoskeleton vertebrate skull rib cage spine muscle contract hamstrings biceps diaphragm	nutrients fertiliser nursery potassium stunted chlorophyl stomata xylem photosynthesis UV light xylem phloem absorb stomata transpiration anther stigma style filament reproduction pollination pollen nectar seed dispersal pollinator germination vulnerable anchor sapling formation	solar renewable energy scientific investigation prediction plausible record results data table graph acid alkali PH method practical conclusion evidence explanation compare enquiry baking measurements fair test control experiment variable conclusive scientific knowledge equipment diagram collated

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

<table>
<tr><td></td><td>fragments, clay, soil, chalky, soil sandy soil</td><td></td><td>magnetic north direction orienteering</td><td></td><td></td><td></td></tr>
<tr><td>YEAR 4</td><td colspan="6">In Year 4, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <u>Science programmes of study: key stages 1 and 2</u>:
• Lower key stage 2 – year 4 (pages 20 – 23)
• Developing Experts Year 4 Curriculum Map</td></tr>
<tr><td></td><td><u>ELECTRICITY</u>
To understand electrical circuits

Explore electrical appliances and electrical safety

Learn about electrical components in a series circuit

Investigate electrical circuits

Explore conductors and insulators

Learn about electrical switches

Investigate how electrical components can change within a circuit</td><td><u>ANIMALS, INCLUDING HUMANS</u>
To understand animals and humans

Identify the organs in the digestive system

Describe the functions of the main organs in the digestive system

Identify the types of human teeth and their functions

Investigate the effects of different liquids on the teeth

Understand food chains

Explore food webs</td><td><u>STATES OF MATTER</u>
To investigate materials

Compare and group the 3 states of matter

Explore how particles behave in solids, liquids, and gases

Investigate melting points

Explore freezing and boiling points

Explore evaporation and condensation

Understand the water cycle</td><td><u>SOUND</u>
To investigate sounds and hearing

Identify how sounds are made

Explore how vibrations from sounds travel through a medium to the ear

Explore sound insulation

Explore volume

Explore pitch

Explore sounds from near and from far</td><td><u>LIVING THINGS AND THEIR HABITATS</u>
To investigate living things and their habitats

Explore different habitats

Research a habitat

Explore how animals can be classified

Create a classification key

Adaptations and classification within species

Explore and classify pond plants</td><td><u>LIVING THINGS AND THEIR HABITATS - CONSERVATION</u>
To investigate living things and their habitats

Describe ecosystems and how they are affected by changes in the seasons

Understand human impact on the environment through deforestation

Explore air pollution

Understand water pollution

Explore methods that can be used to conserve water

Understand that humans can have a positive impact on nature</td></tr>
<tr><td>Working Scientifically</td><td colspan="6">During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
• asking relevant questions and using different types of scientific enquiries to answer them
• setting up simple practical enquiries, comparative and fair tests
• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</td></tr>
</table>

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

<table>
<tr><td></td><td colspan="6">

- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

</td></tr>
<tr><td>Rocket Words</td><td>electricity batteries mains electricity appliance socket circuit series circuit component cell voltage current power battery wire bulb conductor insulator metal copper rubber switch current control complete circuit incomplete circuit non-renewable energy renewable energy wind turbines solar panels hydropower</td><td>digestive system oesophagus stomach small intestine large intestine saliva peristalsis absorb liver gall bladder incisors canines molars jaw gum enamel plaque tooth decay cavity fluoride ecosystem producer consumer prey predator food web tundra hide interdependence threatened</td><td>matter solid liquid gas volume particle bond arranged cooled heated particle melting point temperature thermometer freezing reverse boiling sublimation deposition evaporation condensation absorb water vapour process water cycle precipitation surface runoff transpiration groundwater</td><td>vibration medium waves eardrum signals source energy particles echo vacuum materials reflect absorb insulate defenders’ volume decibels decibel metre amplitude power pitch high pitch low pitch instruments orchestra energy particles travel sound source fade</td><td>habitat microhabitat conditions adapted camouflage coastal grassland environment climate exposure classify characteristics vertebrate invertebrate species sub-groups identify criteria classification keys organism adapted region features colouring blubber ecosystem oxygenised flowering plant non-flowering plant pond dipping</td><td>ecosystem Northern Hemisphere Southern Hemisphere migrate monsoon rainforest deforestation drought biodiversity recycling fossil fuels pollution greenhouse gases emissions climate change chemicals sewage contaminate pesticides water treatment plant conserve drought freshwater pure water butt endangered marine sanctuaries protect conservation areas recycling</td></tr>
<tr><td>YEAR 5</td><td colspan="6">In Year 5, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to <u>Science programmes of study: key stages 1 and 2</u>:
• Upper key stage 2 – year 5 (pages 27 – 30)
• Developing Experts Year 5 Curriculum Map</td></tr>
<tr><td></td><td><u>PROPERTIES OF MATERIALS</u>
To investigate materials

Exploring properties of materials

Explore thermal conductors and thermal insulators</td><td><u>CHANGE OF MATERIALS</u>
To investigate materials

Use evaporation to recover the solute from a solution

Recognise and describe reversible changes</td><td><u>FORCES</u>
To understand movement, forces and magnets

Explore gravity and the life and work of Isaac Newton</td><td><u>EARTH AND SPACE</u>
To understand the Earth’s movement in space

Explore the solar system and its planets

Understand the heliocentric model of the solar system</td><td><u>ANIMALS, INCLUDING HUMANS</u>
To understand animals and humans

Identify the key stages of a mammal’s life cycle

Explore the gestation periods</td><td><u>LIVING THINGS AND THEIR HABITATS</u>
To understand living things and their habitats

Understand the life process of a plant

Understand the life cycles of mammals</td></tr>
</table>

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

	Explore the hardness of materials Discover materials that become soluble in water Investigate the solubility of materials Explore how mixtures could be separated by filtering, sieving, evaporating or magnets	Observe chemical reactions and describe how we know new materials are made Investigate rusting reactions Investigate burning reactions Investigate chemical reactions - acids and bicarbonate of soda	Examine the connection between air resistance and parachutes Explore factors which affect an object's ability to resist water Investigate the effects of friction on different surfaces Investigate mechanisms - levers and pulleys Investigate mechanisms - gears	Explain the Earth's movement in space Explain the Earth's rotation and night and day Explain the movement of the Moon Design a planet using knowledge gained	of mammals Learn about foetal development Investigate the hand span of different aged children Learn about the changes experienced during puberty Describe the changes humans may experience during adulthood and old age	Compare the life cycles of insects and amphibians Understand the life cycle of birds and reptiles Know about the life and work of Jane Goodall and David Attenborough Research and present the life cycle of a creature
Working Scientifically	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					
Rocket Words	conductive magnetic durable transparent versatile thermal conduction molecules degrees Celsius (℃) insulator hardness force iron steel stone dissolve solute insoluble soluble solvent solute solvent solution substance saturation pure substance mixture filtering sieving evaporation	pure substance solute solvent solution evaporate reversible mixture physical change melting evaporate irreversible chemical change compare effervescence product fair test variable control variable corrosion rusting combustion fuel oxygen extinguish smother reaction predict	Sir Isaac Newton gravity astronomy weight mass Galileo Galilei air resistance opposing streamlined parachute water resistance streamlined upthrust buoyant sink friction resistance lubricant Newton meter Newton lever load pivot fulcrum pulley mechanism gear	terrestrial planet gas giant planets Solar System spherical orbit astronomy heliocentric geocentric dwarf planet orbit axis poles season hemisphere orbit sundial time zone gnomon dial shadow moon phase waxing waning eclipse rocky planet gas planet moon orbit solar system	foetus dependent adolescent puberty reproduce gestation pregnant duration extreme breeding womb umbilical chord embryo trimester midwife growth spurt childhood motor skills milk teeth constant adolescence puberty hormones mood swing develop lifestyle keratin elasticity cataracts neurodegenerative	reproduction asexual fertilisation tuber genes pouch mammary glands placental mammal monotreme mammal marsupial metamorphosis caterpillar amphibian larva pupa egg fledgling egg tooth hatch embryo documentary naturalist primatologist endangered natural

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

		acid bicarbonate of soda carbon dioxide	mesh rack and pinion bevel gear			sciences living organism reproduction life cycle vertebrate warmblooded
YEAR 6	In Year 6, we study the national curriculum and Developing Experts to ensure that knowledge and skills build on what has been taught before and towards our curricular goals outlined above. Please refer to **Science programmes of study: key stages 1 and 2**: • Upper key stage 2 – year 6 (*pages 31 – 34*) • Developing Experts Year 6 Curriculum Map					
	LIGHT To investigate light and seeing Explore how light travels Explore reflection Explore reflection and explain how it can be used to help us see Investigate how shadows can change Investigate how we can show why shadows have the same shape as the object that casts them Investigate how we see objects	**ELECTRICITY** To understand electrical circuits Describe the parts of an electric circuit Explore voltage and its effect on an electrical circuit Apply knowledge to identify and correct problems in a circuit Investigate what affects the output of a circuit Build a set of traffic lights Apply knowledge of conductors and insulators	**EVOLUTION AND INHERITANCE** To understand evolution and inheritance Understand how offspring vary and are not identical to their parents Learn about animal adaptations Learn about plant adaptations Explore what we can learn from fossils Explore the theory of evolution Explore human evolution	**LIVING THINGS AND THEIR HABITATS** To understand plants Classify living organisms Understand the kingdoms of life Classify living things using the Linnaean system Identify the characteristics of different types of microorganisms Investigate asexual reproduction through spore dispersal Classify and describe a living organism	**ANIMALS, INCLUDING HUMANS** To understand animals and humans Understand the function of the heart and its role in the circulatory system Identify and compare blood vessels Explore blood Learn how the body transports water and nutrients Investigate what affects your heart rate Learn about the impact of drugs and alcohol on the body	**LOOKING AFTER THE ENVIRONMENT** To understand animals and humans Learn about climate change Explore ways to reduce how much rubbish is sent to landfill Explore ways to reduce energy consumption Explore what happens when fuels are burnt Explore the outcomes of COP26 Compare data associated with the weather

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**

Working Scientifically	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 Developing Experts working scientifically in Year 6: Design an investigation to test hypothesis. Predict what will happen explaining why E.g. If my hypothesis is true, then I predict we will… Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Make the test fair (dependent and independent variables). Write an effective conclusion using PEEL.					
Rocket Words	light eye light source symbol scientific diagram reflected prediction fair test variable table periscope angle mirror line of sight utilise shadow block opaque transparent translucent plan sun shade real life problem rotate direction optical phenomena disperse spectrum refraction	symbol circuit circuit diagram battery wires electricity current voltage voltmeter brightness blown resistor variable resistor LED dimmer switch output variable fair test control test systematically synchronised traffic light signal sensor timer-based closed electric circuit indicating conductor insulator resistor	offspring characteristics inherit variation environmental adaptation habitat climate nutrition feature nutrients epiphytes toxic predators pollinate fossil Mary Anning Palaeontologist ichthyosaurus Jurassic coast Charles Darwin evolved extinct natural selection theory ancestor tools primate Homo sapien Neanderthal	classify microorganism fern living organism conifer kingdom mrs gren cell multicellular unicellular Carl Linnaeus classification Latin species domain microorganism bacteria fungi virus protozoa plant microscopic fungi mycelium ecosystem classify microorganism living organism habitat reproduction	circulatory system atrium ventricle vessel valves vessel artery vein capillary microscope blood plasma platelet white blood cell red blood cell absorb diffusion osmosis concentration nutrients diet exercise heart rate BPM pulse drug painkiller stimulant depressant hallucinogens	weather climate prevent global warming climate change recycle landfill rubbish biodegrade council net zero renewable nonrenewable greenhouse gases emissions industrial revolution fossil fuel coal combustion fuel COP sustainability conference pledge subsidy species sensitive natural disaster habitat vulnerable

LONG TERM OVERVIEW FOR SCIENCE

KEY: **PHYSICS STRAND BIOLOGY STRAND CHEMISTRY STRAND**