Albert Bradbeer Primary Academy

Science Curriculum

Intention:

The intention of the science curriculum is to allow children to engage and understand the world around them through discovery, exploration and experimentation. The science curriculum will produce scientifically literate, independent and collaborative learners whose engagement with the world around them will make them feel valued, useful and knowledgeable.

Overview

	Autumn	Spring	Summer
Nursery	All About Me	Lets Grow	Under the sea
Reception	All About Me	Amazing Animals	Fun at the seaside
Year 1	Animals including humans	Plants Everyday Materials	Seasonal Changes Senses: Animals including humans
Year 2	Living things and their habitats	Plants Materials	Animals including humans Scientist: Nancy Johnson
Year 3	Forces and Magnets Scientist: Jane Goodall	Plants Light	Rocks and soils Animals including humans
Year 4	Living things and their habitats Electricity	Sound Scientist: Maggie Aderin -Pocock	Changing state Animals including humans
Year 5	Living things and their habitats Forces	Properties and changing materials	Earth and Space Animals including humans
Year 6	Living things and their habitats Electricity	Evolution and inheritance Light and shadows	Scientist: Katherine Johnson Animals including humans

	Intent	Implementation		Impact
In Foundation stage, the children will explore **In EYFS,** focus is taught through the children's development of understanding the world.	**Nursery-**	**<u>Substantive Knowledge:</u>** Explore natural materials indoors and outside. Explore and talk about natural things going on around them e.g. notice the weather. Interested in finding out how things work. Explore how things work. •Use all their senses in hands-on exploration of natural materials. •Plant seeds and care for growing plants. •Understand the key features of the life cycle of a plant and an animal.	**<u>Vocabulary:</u>**	**<u>Disciplinary Knowledge:</u>** **Working scientifically:** • Listen attentively and respond to what they hear with relevant questions. • Show ability to follow instructions • Use a range of small tools • Safely use and explore a variety of materials, tools and techniques • Explore the natural world around them, making observations and drawing pictures of animals and plants

		• Talk about the differences between materials and changes they notice. Explore collections of materials with similar and/or different properties. • Explore and talk about different forces they can feel. Begin to understand the need to respect and care for the natural environment and all living things. Talk about what they see, using a wide vocabulary.		• Participate in discussion, offering their own ideas, using recently introduced vocabulary • Offer explanations for why things might happen • Express their ideas and feelings about their experiences • Know some similarities and differences. Drawing on their experiences
	Reception-	**<u>Substantive Knowledge:</u>** Explore natural materials indoors and outside. Explore and talk about different forces they can feel. Begin to understand the need to respect and care for the natural environment and all living things. Talk about what they see, using a wide vocabulary. Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. Construct and build	**<u>Vocabulary:</u>**	**<u>Disciplinary Knowledge:</u>** **Working scientifically:** • Listen attentively and respond to what they hear with relevant questions. • Show ability to follow instructions • Use a range of small tools • Safely use and explore a variety of materials, tools and techniques • Explore the natural world around them, making observations and drawing pictures of animals and plants • Participate in discussion, offering their own ideas, using recently introduced vocabulary • Offer explanations for why things might happen • Express their ideas and feelings about their experiences • Know some similarities and differences. Drawing on their experiences

In KS1, children will explore Science through discovery, exploration and experimentation. In science they will work together, gather evidence, discuss issues, weigh up possibilities, listen to others and make conclusions that are based on evidence.	**In Year 1:** **Assessment:** In KS1, the children will start each lesson with a recall task which they complete verbally. Teachers use questioning to assess learning. Teachers plan in responsive teaching to address gaps. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps.	**Substantive Knowledge:** **Animals including humans** • Children can identify and name a variety of common animals. • Children can group animals in different ways using simple features. • Children can recognise animals that are fish, amphibians, reptiles, birds and mammals • Children can describe and compare how different kinds of animals move. • Children can explain the differences between animals that are carnivores, herbivores and omnivores.	**Vocabulary:** fish, amphibians, reptiles, birds, mammals, carnivores, herbivores, omnivores, data, tally charts, grouping and classifying.	**Disciplinary Knowledge:** **Animals including humans** **Working scientifically:** • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions.
		Plants Children can identify a plant is a living thing that usually grows from the ground. Children can explain that seeds were blown here by the wind or carried by animals. Children can identify different parts of a plant. Children can describe and compare the root systems of a variety of familiar plants. **Everyday materials** Children will be able to identify and name a variety of everyday materials. Children will be able to distinguish between an object and the material from which it is made. Children will recognise that most objects are made from more than one material. Children can suggest reasons why those different materials might be used. Children can explain that some materials are better for making some things than others. Children can identify and describe the physical properties of a selection of materials.	**Plants:** Root, plant, stem, leaves, seed, wind, animal and dispersal. **Everyday materials** Materials, wood, plastic, rock, brick, fabric, glass, metal absorbency, flexibility. hard, soft, rough, smooth, shiny, dull, light, heavy, transparent (or see-through), opaque, stretch,	**Plants** **Working scientifically:** • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment **Everyday materials** **Working scientifically:** • 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

			stretchy,stiff,bend,bendy,press,squash,twist,shape, hard, soft, flexible, rigid, waterproof, not waterproof, absorbent, not absorbent and soak.	
		Seasonal Changes Children will be able to identify and describe the different seasons. Children will be able to identify the similarities and differences between the seasons. Children will be able to explain how the seasons affect living things. **Senses: Animals including humans** Children will be able to identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense. Children will explore the concept of the five senses and link those senses to parts of their body.	**Seasonal Changes** Adapt, hibernate, Changes, seasons rotation, movement, light, darkness, temperature, Earth, Sun month and year. **Senses: Animals including humans** Parts of the body: head, neck, arms, elbows, hands, legs, knees, foot/feet, face, ears, eyes, nose, hair, mouth and teeth. Comparative language: tall, taller, short, shorter, big, bigger, small and smaller.	**Seasonal Changes** **Working scientifically:** • asking simple questions and recognising that they can be answered in different ways. • observing closely, using simple equipment. • gathering and recording data to help in answering questions. **Senses: Animals including humans** **Working scientifically:** • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions.

	In Year 2: **<u>Assessment:</u>** In KS1, the children will start each lesson with a recall task which they complete verbally. Teachers use questioning to assess learning. Teachers plan in responsive teaching to address gaps. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps. .	**<u>Substantive Knowledge:</u>** **<u>Living things and their habitats</u>** • Children will explore and compare the differences between things that are living, dead, and things that have never been alive. • Children will identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Children can identify and name a variety of plants and animals in their habitats, including micro-habitats. • Children can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**<u>Vocabulary:</u>** **<u>Living things and their habitats</u>** living, dead, never been alive, categories, classification, needs air, feeds, grows, reproduces, habitat, microhabitat, minibeasts damp/wet/dry, dark/light, features food chain, plants, animals, herbivores carnivores and omnivores.	**<u>Disciplinary Knowledge:</u>** **<u>Living things and their habitats</u>** **Working scientifically:** • asking simple questions and recognising that they can be answered in different ways • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions.
		<u>Plants</u> • Children can identify the main parts of a plant. • Children can observe and describe how seeds and bulbs grow into mature plants. • Children can investigate and describe how plants need water, light and a suitable temperature to grow and stay healthy. **<u>Materials</u>** • Children can distinguish between an object and the material it is made from.	**<u>Plants</u>** Seeds, bulbs, observe, seedling, mature plant, wilting, healthy, unhealthy, light, warmth, predict, observe, investigate and answer. **<u>Materials</u>** Flexible, stiff,rigid shiny, dull,	**<u>Plants</u>** **Working scientifically:** • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions. **<u>Materials</u>** **Working scientifically:**

		• Children can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Children can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Transparent, see through, man made, natural, materials, quashing, bending, twisting, stretching, suitability, table and column.	• 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.
		Animals including humans • Children will know that animals, including humans, have offspring which grow into adults • Children will investigate and describe the basic needs of animals, including humans, for survival (water, food and air). • Children will understand the importance for humans to exercise, eat the right amounts of different types of food, and hygiene	**Animals including humans** Offspring, young, birth, hatch, human, animal, grow, survive, water, shelter, air, baby, child, toddler, adult, change, differences, dependent, independent, healthy diet, dairy, meat, fish, fat, sugar, bread, carbohydrate an d proteins.	**Animals including humans** **Working scientifically:** 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.
In KS2, children will explore Science through discovery, exploration and experimentation. In science they will work together, gather	**In Year 3:** **Assessment:** In KS2, we assess the success of our intent using recall tasks which the	**Substantive Knowledge:** **Forces and Magnets** • Children will know how a force is required to make something start to move.	**Vocabulary:** **Forces and Magnets** Force metre, Newton metre	**Disciplinary Knowledge:** **Forces and Magnets** **Working scientifically:**

evidence, discuss issues, weigh up possibilities, listen to others and make conclusions that are based on evidence.	children complete in their books. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps.	• Children will investigate and compare how things move on different surfaces. • Children will know which materials are magnetic. • Children will know how to measure the strength of a magnet in different ways. • Children will be able to identify the two poles on a magnet and investigate how magnets attract or repel each other. • Children will know that force is measured in newtons (N) and how to use a Force meter.	force, surface, object, pull travel, magnet, attracts, magnetic material, non-magnetic material, metal, non-metal, north pole, south pole, attract and repel.	• 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 • using straightforward scientific evidence to answer questions or to support their findings
		Plants • Children will be able to identify and describe the functions of different parts of flowering plants. • Children will know the requirements of plants for life and growth and how they vary from plant to plant. • Children will investigate the way in which water is transported within plants. • Children will know the part that flowers play in the life cycle of flowering plants.	**Plants** Pollination, seed formation, seed dispersal, transportation, function, Nutrients, absorb, photosynthesis, chlorophyll, energy evaporate, sunlight,	**Plants** **Working scientifically:** • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • 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

		Light • Children will know we need light in order to see. • Children will know the Sun is a light source and can identify the difference between night and day. • Children will know different objects reflect different amounts of light. • Children will be able to explain that shadows are formed when the light from a light source is blocked by an opaque object.	**Light** Light, Light sources Darkness, reflect, dark, shadow, mirror, bright, dim, Opaque, shadow, darkness, ttransparent and translucent.	• using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings **Light** **Working scientifically:** • 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

		<u>Rocks and soils</u> • Children will be able to compare and group together different kinds of rocks based on their appearance and simple physical properties • Children will describe in simple terms how fossils are formed when things that have lived are trapped within rock • Children will know that soils are made from rocks and organic matter. **<u>Animals including humans</u>** • Children will know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food because they get nutrition from what they eat.	**<u>Rocks and soils</u>** Minerals, crystals, Man-made, natural, Igneous, Metamorphic, Sedimentary, erosion, fossil and fossilise. **<u>Animals including humans</u>** Growth, energy, nutrition,	**<u>Rocks and soils</u>** **Working scientifically:** • asking relevant questions and using different types of scientific enquiries to answer them • 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 **<u>Animals including humans</u>** • asking relevant questions and using different types of scientific enquiries to answer them • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a

		• Children will know that humans and some other animals have skeletons and muscles for support, protection and movement.	carbohydrates, protein, herbivore, omnivore, carnivore, predator, prey, diet, habitat, invertebrates, vertebrates, endoskeleton, skeleton, backbone, pelvis thigh bone, tibia skull, ribs, fibula vertebrae shoulder blade and collar bone.	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 • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings
	In year 4: **<u>Assessment:</u>** In KS2, we assess the success of our intent using recall tasks which the children complete in their books. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps.	**<u>Substantive Knowledge:</u>** **<u>Living things and their habitats</u>** • Children can group living things in a variety of ways. • Children can use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Children will recognise that environments can change and that this can sometimes pose dangers to living things.	**<u>Vocabulary:</u>** **<u>Living things and their habitat</u>** vertebrates, invertebrates, mammals, amphibians, reptiles, fish, birds insects, habitat, environment, organisms, environment, deforestation, natural, human, pollution, conservation and	**<u>Disciplinary Knowledge:</u>** **<u>Living things and their habitats</u>** **Working scientifically:** • asking relevant questions and using different types of scientific enquiries to answer them • 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

			recycling.	• identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings
		Electricity • Children will identify common appliances that run on electricity. • Children can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Children can identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. • Children will know that a switch opens and closes a circuit and associate this with whether a lamp lights in a simple series circuit. • Children will know some common conductors and insulators, and associate metals with being good conductors.	**Electricity** electricity, electrical, mains, plugged in, battery, power, sets, rechargeable, solar, wind up, sound, light, heat, movement, cell, wire, bulb, bulb holder, circuit, buzzer, motor, complete, break, metal, component, and short circuit.	**Electricity** **Working scientifically:** • 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 • using straightforward scientific evidence to answer questions or to support their findings

		Sound • Children will know how sounds are made, associating some of them with something vibrating. • Children will know that vibrations from sounds travel through a medium to the ear. • Children will identify patterns between the pitch of a sound and features of the object that produced it. • Children will identify patterns between the volume of a sound and the strength of the vibrations that produced it. • Children will know that sounds get fainter as the distance from the sound source increases.	**Sound** loud, quiet, high, low, repeating, continuous, vibrations, sound, travel , louder, quieter, waves, distance, volume, fainter, volume, pitch, amplitude and frequency.	**Sound** **Working scientifically:** • 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

		Changing state • Children will be able to compare and group materials together, according to whether they are solids, liquids or gases. • Children will know that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). • Children will identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Animals including humans** • Children will be able to explain the simple functions of the basic parts of the digestive system in humans. • Children will know the different types of teeth in humans and their simple functions. • Children will be able to construct and interpret a variety of food chains by identifying producers, predators and prey.	**Changing state** solid, liquid, hard, soft, pour, flow, pile, pool, surface, horizontal, runny, viscous, transparent, opaque, sticky, grain, powder, force, gas, substance, properties, lighter, heavier, carbon dioxide, evaporation, state, condensation and freezing. **Animals including humans** Teeth, incisors, canines, molars, premolars, calcium, producer, consumer, food	**Changing state** **Working scientifically:** • 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. **Animals including humans** **Working scientifically:** • asking relevant questions and using different types of scientific enquiries to answer them

			chain, energy, predator, prey Mechanical, process, chemical process, absorb, nutrients, water, saliva, chemicals, enzyme, mouth, oesophagus, stomach, small intestine, large intestine, rectum, and anus.	• 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 • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings
	In year 5: Children will **Assessment:** In KS2, we assess the success of our intent using recall tasks which the children complete in their books. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps.	**Substantive Knowledge:** **Living things and their habitats** • Children will be able to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Children will be able to describe the life process of reproduction in some plants and animals. **Forces** • Children will know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • Children will identify the effects of air resistance, water resistance and friction, that act between moving surfaces.	**Vocabulary:** **Living things and their habitats** Stamen, Ovule, germination,fertilization, carpel, reproduction, environments, life cycle, mammal, amphibian, insect, bird, fish, predator, prey, reproduce, habitat, and metamorphosis. **Forces** Gravity, Earth, objects, mass, Issac Newton, friction, Forcemetre,	**Disciplinary Knowledge:** **Living things and their habitats** **Working scientifically:** • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and 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. **Forces** **Working scientifically:** • planning different types of scientific enquiries to answer questions, including

		• Children will know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	surface, push, pull, heat, resistance, motion, air resistance, parachute, variable material, water resistance, streamline, pulley Levers, force, pivot and fulcrum.	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 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
		Properties and changing materials • Children will be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • Children will be able to give reasons, based on evidence from comparative and fair tests, for the uses of everyday materials, including metals, wood and plastic • Children will demonstrate that dissolving, mixing and changes of state are reversible change. • Children will be able to 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.	**Properties and changing materials** properties, material, structure, organic, natural, manufactured, man-made, weathering, decay, decompose, break down, brittle, fragile, metal, durable, durability, plastic, wood, ceramic, concrete,	**Properties and changing materials** **Working scientifically:** • 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

			insulate, insulation properties, material, compare, contrast, strength, weakness, durability, wear, tear, stretch, flexibility, weight, mass, plastic , hardness, durability, waterproof, washable, stain resistant, reusable, thermal conductor, manufacture , insulator, insulate, insulation	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
		Earth and Space • Children will be able to describe the movement of the Earth and other planets relative to the sun in the solar system. • Childre can describe the movement of the moon relative to the Earth. • Children describe the sun, Earth and moon as approximately spherical bodies. • Children can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	**Earth and Space** Earth, Sun, Moon,spherical, solar system, rotates, star, orbit,planets Moon phases Lunar,Satellite Axis,Anticlockwise,Sun, Moon, Orbit, spins	**Earth and Space** **Working scientifically:** • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • 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 degree of trust in results, in oral and written

		Animals including humans • Children can describe the changes as humans develop to old age. • Children can draw a timeline to indicate stages in the growth and development of humans and explain the changes experienced in puberty. • Children to know the stages in the gestation period of humans and compare them to other animals.	**Animals including humans** Childhood Lifecycle, Human Baby, Toddler Child, Dependent Develop,Puberty Hygiene, Changes	forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments **Animals including humans** **Working scientifically:** • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments
	In year 6: **Assessment:** In KS2, we assess the success of our intent using recall tasks which the children complete in their books. At the end of the unit, all children complete an online quiz which teachers analyse and plan teaching to address gaps.	**Substantive Knowledge:** **Living things and their habitats.** • Children will be able to 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. • Children will be able to give reasons for classifying plants and animals based on specific characteristics.	**Vocabulary:** **Living things and their habitats.** plant, mammal, amphibian, bird, fish, reptile, insect, crustacean, arachnid, mollusc Organisms Vertebrates Characteristics Invertebrates Features groups	**Disciplinary Knowledge:** **Living things and their habitats.** **Working scientifically:** • Children will be able to identify scientific evidence used to support or refute ideas or arguments. • Children will be able to record data and results of increasing complexity using scientific diagrams and labels, classification keys and tables. • Children will report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written

				forms such as displays and other presentations.
		Electricity. • Children will be able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Children will 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. • Children will use recognised symbols when representing a simple circuit in a diagram.	**Electricity.** Static, current, Electricity, atoms, flow, circuit, bulb, buzzer, battery, path, symbol, cell, voltage,electrons batteries, brightness, motors, switch	**Electricity.** **Working scientifically:** Children will plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Children will use test results to make predictions to set up further comparative and fair tests. Children will record data and results of increasing complexity using scientific diagrams, labels and tables. Children will take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
		Evolution and inheritance. • Children will be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Children can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Children can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**Evolution and inheritance.** Inheritance Genetics Offspring traits Adaptation Environments Evolution Extinct Suited Survive environment, natural selection, adaptation,	**Evolution and inheritance.** **Working scientifically:** • Children will identify scientific evidence that has been used to support or refute ideas or arguments. • Children will report and present findings from enquiries, including conclusions, causal relationships and explanations of, in oral and written forms such as displays and other presentations.

		extinction, population Fossils Mutations Species Climate Evolution Primate Behavior Adaptation Characteristics		
		Light shadows • Children will recognise that light appears to travel in straight lines. • Children will 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. • Children 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. • Children use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	**Light shadows** Shadow Light source Blocked opaque, predict, variable translucent transparent Iris Cornea pupil Sclera Vision Light rays light, mirror, reflect, image, reverse, inverted Spectrum Isaac Newton Absorb Reflect Prism Refracted reflected	**Light shadows** **Working scientifically:** • Children can identify scientific evidence that has been used to support or refute ideas or arguments. • Children will report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • Children will record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Children will plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
		Animals including humans.	**Animals including humans.**	**Animals including humans.** **Working scientifically:**

		• Children will identify and name the main parts of the human circulatory system and describe the heart's functions, blood vessels and blood. • Children will recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function. • Children will describe the ways in which nutrients and water are transported within animals, including humans.	Scurvy Diet Vitamin snack, drink, balanced diet, nutrition, energy, protein, carbohydrates, of which sugars, fats, of which saturates, fibre, sodium heart, blood vessels, veins, arteries, blood, system, lungs, circulatory system, skeletal system, muscular system, digestive system, oxygenated blood, deoxygenated blood, nutrients, water, aorta, artery, atrium, blood, capillaries, chamber, circulation, heart, heart valves, vein, ventricle, vessel, pump, oxygen, lungs, rest of body, chest cavity, circulatory system	• Children will record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Children will report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • Children will take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.