RIVERSIDE FEDERATION 2022 - 2023

BODIAM C E SCHOOL ETCHINGHAM C E SCHOOL

CURRICULUM - NATIONAL CURRICULUM – PROGRESSION OF SKILLS

SCIENCE

What is a scientist after all? It is a curious man looking through a keyhole, the keyhole of nature, trying to know what 's going on. Jacques-Yves Cousteau.

RIVERSIDE FEDERATION PRIORITIES – SCIENCE

RATIONALE

Our pupils will **think like scientists** as they understand that Science changes our lives and is vital to the world's prosperity.

We want them to recognize the power of rational explanation and to develop a sense of excitement and curiosity about natural phenomena: asking and suggesting answers to their own questions.

READING SKILLS – SCIENCE

Pupils may :

- carry out research
- follow instructions
- engage in peer to peer review / editing / co-operative improvement

LIFE SKILLS – SCIENCE

- Develop curiosity and the skill to find your own answers
- Increase experience and skills in working collaboratively and cooperatively.
- Develop independent research skills
- Respect for and valuing of views and opinions of others – peers and scientists

EYFS links

Understanding the World: The Natural World

- 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, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

NATIONAL CURRICULUM EXPECTATIONS

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.

Lower Key Stage 2 National Curriculum Working Scientifically Y3-4	Upper Key Stage 2 National Curriculum Working Scientifically Y5-6
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; ▪ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions;	**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

▪ 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.	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.

	EYFS	KS1	LKS2	UKS2
Asking questions and carrying out fair and comparative tests	**EYFS** Explore the natural world around them, making observations and recording what they observe.	**KS1 Science National Curriculum** Asking simple questions and recognising that they can be answered in different ways. Perfor ming simple tests.	**Lower KS2 Science National Curriculum** Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests.	**Upper KS2 Science National Curriculum** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Using test results to make predictions to set up further comparative and fair tests.
	Children can: 3-4 Use all their senses in hands-on exploration of natural materials. 3-4 Explore collections of materials with similar and / or different properties 3-4 Talk about what they see using a wide vocabulary R: Explore the natural world around them. R: Describe what they see hear and feel when outside R: Recognise some environments that are different to the one in which they live. R: Understand the effect of changing seasons on the natural world around them. ELG: Know some similarities and	Children can: a explore the world around them, leading them to ask some simple scientific questions about how and why things happen; b begin to recognise ways in which they might answer scientific questions; c ask people questions and use simple secondary sources to find answers; carry out simple practical tests, using simple equipment; d experience different types of scientific enquiries, including practical activities; e talk about the aim of scientific tests they are working on; f with support, start to recognise a fair test.	Children can: a start to raise their own relevant questions about the world around them in response to a range of scientific experiences; b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; c recognise when a fair test is necessary; d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of	Children can: a with growing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences; b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; c explore and talk about their ideas, raising different kinds of scientific questions; d ask their own questions about scientific phenomena; e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; f make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat

	differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.		simple equipment that might be used; e set up and carry out simple comparative and fair tests.	them; g plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary; h use their test results to identify when further tests and observations may be needed; j use test results to make predictions for further tests.

Observing and measuring changes	**EYFS** Explore the natural world around them, making observations and recording what they observe.	**KS1 Science National Curriculum** Observing closely, using simple equipment.	**Lower KS2 Science National Curriculum** Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	**Upper KS2 Science National Curriculum** Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
	Children can: 3-4 Use all their senses in hands-on exploration of natural materials. 3-4 Explore collections of materials with similar and / or different properties 3-4 Talk about what they see using a wide vocabulary R: Explore the natural world around them. R: Describe what they see hear and feel when outside R: Recognise some environments that are different to the one in which they live. R: Understand the effect of changing seasons on the natural world around them. ELG: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their	Children can: a observe the natural and humanly constructed world around them; b observe changes over time; use simple measurements and equipment; c make careful observations, sometimes using equipment to help them observe carefully.	Children can: a make systematic and careful observations; b observe changes over time; c use a range of equipment, including thermometers and data loggers; d ask their own questions about what they observe; e where appropriate, take accurate measurements using standard units using a range of equipment.	Children can: a choose the most appropriate equipment to make measurements and explain how to use it accurately; b take measurements using a range of scientific equipment with increasing accuracy and precision; c take repeat readings when appropriate; d understand why we take an average in repeat readings.

	experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			
Identifying, classifyingg, recording and presenting data	**EYFS** Explore the natural world around them, making observations and recording what they observe.	**KS1 Science National Curriculum** Identifying and classifying. gathering and recording data to help in answering questions.	**Lower KS2 Science National Curriculum** 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.	**Upper KS2 Science National Curriculum** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
	Children can: 3-4 Use all their senses in hands-on exploration of natural materials. 3-4 Explore collections of materials with similar and / or different properties 3-4 Talk about what they see using a wide vocabulary R: Explore the natural world around them. R: Describe what they see hear and feel when outside R: Recognise some environments	Children can: a use simple features to compare objects, materials and living things;decide how to sort and classify objects into simple groups with some help; b record and communicate findings in a range of ways with support; sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block	Children can: a talk about criteria for grouping, sorting and classifying; b group and classify things; c collect data from their own observations and measurements; d present data in a variety of ways to help in answering questions; e use, read and spell scientific vocabulary correctly and with	Children can: a independently group, classify and describe living things and materials; b use and develop keys and other information records to identify, classify and describe living things and materials; c decide how to record data from a choice of familiar approaches; d record data and results of increasing complexity using scientific diagrams and labels,

	that are different to the one in which they live. R: Understand the effect of changing seasons on the natural world around them. ELG: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	diagrams and simple tables.	confidence, using their growing word reading and spelling knowledge; f record findings using scientific language, drawings, labelled diagrams, keys, bar charts and tables.	classification keys, tables, scatter graphs, bar graphs and line graphs.

Drawing conclusions, noticing patterns and presenting findings	**EYFS** Explore the natural world around them, making observations and recording what they observe.	**KS1 Science National Curriculum** Using their observations and ideas to suggest answers to questions.	**Lower KS2 Science National Curriculum** Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	**Upper KS2 Science National Curriculum** 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.
	Children can: 3-4 Use all their senses in hands-on exploration of natural materials. 3-4 Explore collections of materials with similar and / or different properties 3-4 Talk about what they see using a wide vocabulary R: Explore the natural world around them. R: Describe what they see hear and feel when outside R: Recognise some environments that are different to the one in which they live. R: Understand the effect of changing seasons on the natural world around them.	Children can: a notice links between cause and effect with support; b begin to notice patterns and relationships with support; c begin to draw simple conclusions; d identify and discuss differences between their results; e use simple and scientific language; f read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1; talk about their findings to a variety of audiences in a variety of ways.	Children can: a draw simple conclusions from their results; b make predictions; c suggest improvements to investigations; d raise further questions which could be investigated; e first talk about, and then go on to write about, what they have found out; f report and present their results and conclusions to others in written and oral forms with increasing confidence.	Children can: a notice patterns; b draw conclusions based in their data and observations; c use their scientific knowledge and understanding to explain their findings; d read, spell and pronounce scientific vocabulary correctly; e identify patterns that might be found in the natural environment; f look for different causal relationships in their data; g discuss the degree of trust they can have in a set of results; h independently report and present their conclusions to others in oral and written forms.

	ELG: Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			
Using scientific evidence and			**Lower KS2 Science National Curriculum** Identifying differences, similarities or changes related to simple scientific ideas and processes. Using straightforward scientific evidence to answer questions or to support their findings.	**Upper KS2 Science National Curriculum** Identifying scientific evidence that has been used to support or refute ideas or arguments.

		Children can: a make links between their own science results and other scientific evidence; b use straightforward scientific evidence to answer questions or support their findings; c identify similarities, differences, patterns and changes relating to simple scientific ideas and processes; d recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	Children can: a use primary and secondary sources evidence to justify ideas; b identify evidence that refutes or supports their c ideas; d recognise where secondary sources will be most e useful to research ideas and begin to separate opinion from fact; f use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas; g talk about how scientific ideas have developed over time.

Key - Areas of Science

Biology-Animals including Humans, Living things and their habitats, Evolution and Inheritance.
Chemistry- Materials
Physics- Forces and Magnets, Energy (seasonal changes, light, sound) Electricity, Earth and Space

	EYFS	KS1 Science National Curriculum	Lower KS2 Science National Curriculum	Upper KS2 Science National Curriculum
Key Skills	*Integrated within Development Matters and ELG above and within the key knowledge below.* *Pupils will be taught to:* Observe that there are 4 seasons a year: Spring, Summer, Autumn, Winter Autumn is one of the four seasons of the year between summer and winter when temperatures get colder, it gets darker earlier leaves fall from the trees which eventually become bare. Winter is one of the four seasons of the year between autumn and spring when temperatures get much colder and we need to do things to stay warm. Spring is one of the four seasons of the year between winter and summer. Spring is the season when is gets warmer, we get longer days and more hours of sunlight. During spring, new life emerges such as buds and blossom.	Year A Plants and Seasons Pupils should be taught to: • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; • identify and describe the basic structure of a variety of common flowering plants, including trees. • observe and describe how seeds and bulbs grow into mature plants; • find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Pupils should be taught to: • observe changes across the 4 seasons; • observe and describe weather associated with the seasons and how day length varies. Everyday Materials Pupils should be taught to: • distinguish between an object and the material from which it is made;	Year A States of Matter Pupils should be taught to: • compare and group materials together, according to whether they are solids, liquids or gases; • observe 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); • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Living Things Pupils should be taught to: • recognise that living things can be grouped in a variety of ways; • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment;	Year A Living things and their habitats Pupils should be taught to: • 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. Earth and Space Pupils should be taught to: • 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

	Summer is one of the four seasons of the year between spring and autumn when temperatures get much warmer and we need to do things to stay cool. Start to recognise a Healthy Diet: Eating food that helps our bodies work well and stay well. I know some fruit and vegetables that will help me stay healthy. Know that Harvest is when Farmers cut down the crops/food to eat. I know that Harvest is about food, it happens in the Autumn and we celebrate it at church. Understand that Hibernation is when animals go to sleep for the winter. During the Autumn some animals such as hedgehogs begin to hibernate. Recognise that a habitat is a natural place where something lives, providing, food, shelter and water to survive. Camouflage within the context of habitat. Be aware of our environment: Our immediate and wider surroundings. We know how to care for our environment and why it is important. Observe life cycles: When animals develop from birth to death. Understand that caterpillars, chickens and frogs grow	• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock; • 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. • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses; • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Year B Habitats and Living things Pupils should be taught to: • explore and compare the differences between things that are living, dead, and things that have never been alive; • 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; • identify and name a variety of plants and animals in their habitats, including microhabitats; • 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.	• Recognise that environments can change and that this can sometimes pose dangers to living things. • Animals including Humans Pupils should be taught to: • describe the simple functions of the basic parts of the digestive system in humans; • identify the different types of teeth in humans and their simple functions; • Construct and interpret a variety of food chains, identifying producers, predators and prey. • Plants Pupils should be taught to: • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers; • explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant; • investigate the way in which water is transported within plants; • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Year B Light	Pupils should be taught to: • explain that unsupported objects fall towards the Earth because of the force 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. Light Pupils should be taught to: • recognise that light appears to travel in straight lines; • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye; • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes; • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Electricity Pupils should be taught to:

	from eggs into adults. Use words to describe parts of a flower: Stem = helps plant stand tall and carries nutrients Leaf = soaks up light and water to make food for the plant Roots = soaks up food and water and holds plant in the ground Flower = makes seeds to continue life cycle Seed = helps flower to reproduce Notice that there are a variety of landscapes around the world such as mountains, deserts, forests and cities. Some are hot, some are cold and some change throughout the year. Observe that energy makes things move. It makes machines work. Energy also makes living things grow. We get our energy from food, cars get their energy from petrol and many of the machines in our homes get their energy from electricity. Observe changing states: melting, freezing, colour-mixing, cooking. Use vocabulary to describe materials: hard, soft, rough, smooth, bumpy, heavy and light. Be aware of sinking and floating: what makes the best materials for a boat. Know that there are different parts of the body: humans.	Animals including Humans Pupils should be taught to: • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals; • identify and name a variety of common animals that are carnivores, herbivores and omnivores; • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets); • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Animals Including Humans (The Human Body and Survival) Pupils should be taught to: • notice that animals, including humans, have offspring which grow into adults; • find out about and describe the basic needs of animals, including humans, for survival (water, food and air); • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. •	Pupils should be taught to: • recognise that they need light in order to see things and that dark is the absence of light; • notice that light is reflected from surfaces; • recognise that light from the sun can be dangerous and that there are ways to protect their eyes; • recognise that shadows are formed when the light from a light source is blocked by an opaque object; • Find patterns in the way that the size of shadows change. • Sound Pupils should be taught to: • identify how sounds are made, associating some of them with something vibrating; • recognise that vibrations from sounds travel through a medium to the ear; • find patterns between the pitch of a sound and features of the object that produced it; • find patterns between the volume of a sound and the strength of the vibrations that produced it; • Recognise that sounds get fainter as the distance from the sound source increases. • Electricity Pupils should be taught to: • identify common appliances that run on 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. Year B Materials Properties and Changes of Materials Pupils should be taught to: • 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; • 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; • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic; • demonstrate that dissolving, mixing and changes of state are reversible changes;

			• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers; • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery; • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit; Recognise some common conductor and insulators, and associate metals with being good conductors Rocks Pupils should be taught to: • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties; • describe in simple terms how fossils are formed when things that have lived are trapped within rock; • Recognise that soils are made from rocks and organic matter. Forces and Magnets Pupils should be taught to: • compare how things move on different surfaces; • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance;	• 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. Evolution Pupils should be taught 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; • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents; • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Animals including Humans Pupils should be taught to: • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function; • Describe the ways in which nutrients and water are transported within animals, including humans.

			• observe how magnets attract or repel each other and attract some materials and not others; • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials; • describe magnets as having 2 poles; • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	•
Vocabulary	**EYFS**	**KS1 Science National Curriculum**	**Lower KS2 Science National Curriculum**	**Upper KS2 Science National Curriculum**
	There are 4 seasons a year: Spring, Summer, Autumn, Winter Autumn is one of the four seasons of the year between summer and winter when temperatures get colder, it gets darker earlier leaves fall from the trees which eventually become bare. Winter is one of the four seasons of the year between autumn and spring when temperatures get much colder and we need to do things to stay warm. Spring is one of the four seasons of the	Year A Plants and Seasons • Names of common plants: wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass. • Name some features of plants: e.g. flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, branch, root, seed, bulb, soil. • Name some common types of plant e.g. sunflower, daffodil.	Year A States of Matter • States of matter: solids, liquids, gases, particles. • State change: evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour. • Water cycle: precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail. Other: atmosphere. All Living Things	Year A Living things and their habitats • Reproduction: asexual reproduction, sexual reproduction, gestation, metamorphosis, gametes, tuber, runners/side branches, plantlet, cuttings, embryo, adolescent, penis, vagina, egg, pregnancy, gestation. Earth and Space • Solar system: star, planet. • Names of planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus. • Shape: spherical bodies, sphere.

	year between winter and summer. Spring is the season when is gets warmer, we get longer days and more hours of sunlight. During spring, new life emerges such as buds and blossom. Summer is one of the four seasons of the year between spring and autumn when temperatures get much warmer and we need to do things to stay cool. Healthy Diet: Eating food that helps our bodies work well and stay well. I know some fruit and vegetables that will help me stay healthy. Harvest is when Farmers cut down the crops/food to eat. I know that Harvest is about food, it happens in the Autumn and we celebrate it at church. Hibernation is when animals go to sleep for the winter. During the Autumn some animals such as hedgehogs begin to hibernate. A habitat is a natural place where something lives, providing, food, shelter and water to survive. Camouflage within the context of habitat. Environment: Our immediate and wider surroundings. We know how to care for our environment and why it is important.	• Growth of plants: germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling. • Needs of plants: sunlight, nutrition, light, healthy, space, air. • Name different types of plant: e.g. bean plant, cactus. • Names of different habitats: e.g. rainforest, desert. • Seasons: spring, summer, autumn, winter, seasonal change. • Weather: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast. • Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge. • Day length: night, day, daylight. Everyday Materials • plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric. • Properties of materials: hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff. • Other: object. • Changing shape: squash, bend, twist, stretch. • Properties of materials: e.g. strong, flexible, light, hard-wearing, elastic. • Other: suitability, recycle, pollution. Year B Animals Including Humans	• Living things: organisms, specimen, species. • Grouping living things: classification, classification keys, classify, characteristics. • Names of invertebrate animals: snails and slugs, worms, spiders, insects. • Invertebrate body parts: e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis, prolegs. • Environmental changes: environment, environmental dangers, adapt, natural changes, climate change, deforestation, pollution, urbanisation, invasive species, endangered species, extinct. Animals Including Humans • Digestive system: digest, digestion, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gall bladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ. • Types of teeth and dental care: molar, premolar, incisor, canine, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth. • Food chains and animal diets: decomposer, food web. Plants • Water transportation: transport, evaporation, evaporate, nutrients, absorb, anchor.	• Movement: rotate, axis, orbit, satellite. • Theories: geocentric model, heliocentric model, astronomer. • Day length: sunrise, sunset, midday, time zone. Forces • Types of forces: air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force. • Mechanisms: levers, pulleys, gears/cogs. • Measurements: weight, mass, kilograms (kg), Newtons (N), scales, speed, fast, slow. • Other: streamlined, Earth. Light • Reflection: periscope. • Seeing light: visible spectrum, prism. • How light travels: light waves, wavelength, straight line, refraction. Electricity • Flow and measure of electricity: voltage, amps, resistance, electrons, volts (V), current. • Circuits: symbol, circuit diagram, component, function, filament. • Variations: dimmer, brighter, louder, quieter. • Types of electricity: natural electricity, human-made electricity, solar panels, power station.

	Life cycle: When animals develop from birth to death. Understand that caterpillars, chickens and frogs grow from eggs into adults. Words to describe parts of a flower: Stem = helps plant stand tall and carries nutrients Leaf = soaks up light and water to make food for the plant Roots = soaks up food and water and holds plant in the ground Flower = makes seeds to continue life cycle Seed = helps flower to reproduce There are a variety of landscapes around the world such as mountains, deserts, forests and cities. Some are hot, some are cold and some change throughout the year. Energy makes things move. It makes machines work. Energy also makes living things grow. We get our energy from food, cars get their energy from petrol and many of the machines in our homes get their energy from electricity. Changing states: melting, freezing, colour-mixing, cooking. Vocabulary to describe materials: hard, soft, rough, smooth, bumpy, heavy and light. Sinking and floating: what makes the best materials for a boat.	(TheHuman Body and Survival) • Being born and growing: Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk. • Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck. • Life cycle stages: e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog. • Survival and staying healthy: basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs. • Food groups: fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. Habitats and Living things • Living or dead: living, dead, never living, not living, alive, never been alive, healthy. • Habitats including microhabitats: depend, shelter, safety, survive, suited, space, minibeast, air. • Life processes: movement, sensitivity, growth, reproduction, nutrition, excretion, respiration. • Food chains: food sources, food, producer, consumer, predator, prey. • Names of habitats and microhabitats: e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat.	• Life cycle of flowering plants: pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, anther, filament, carpel (pistil), stigma, style, ovary, ovule, sepal, carbon dioxide. Year B Light • Light and seeing: dark, absence of light, light source, illuminate, visible, shadow, translucent, energy, block. • Light sources: e.g. candle, torch, fire, lantern, lightning. • Reflective light: reflect, reflection, surface, ray, scatter, reverse, beam, angle, mirror, moon. • Sun safety: dangerous, glare, damage, UV light, UV rating, sunglasses, direct. Sound • Parts of the ear: eardrum. • Making sound: vibration, vocal cords, particles. • Measuring sound: pitch, volume, amplitude, sound wave, quiet, loud, high, low, travel, distance. • Other: soundproof, absorb sound. Electricity • Electricity: mains-powered, battery-powered, mains electricity, plug, appliances, devices. • Circuits: circuit, simple series circuit, complete circuit, incomplete circuit.	• Other: positive, negative. Year B Materials • Properties of materials: thermal conductor/insulator, magnetism, electrical resistance, transparency. • Mixtures and solutions: dissolving, substance, soluble, insoluble. • Changes of materials: reversible change, physical change, irreversible change, chemical change, burning, new material, product. • Separating: sieving, filtering, magnetic attraction. Evolution • Evolution and inheritance: evolve, adaptation, inherit, natural selection, adaptive traits, inherited traits, mutations, theory of evolution, ancestors, biological parent, chromosomes, genes, Charles Darwin. Other: selective breeding, artificial selection, breed, cross breeding, genetically modified food, cloning, DNA Animals including Humans • Circulatory system: circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump, transported, oxygenated blood,

	Parts of the body: humans	Previously introduced vocabulary: senses, carnivore, herbivore, omnivore, seed, water, names of materials Animals including Humans • Names of animal groups: fish, amphibians, reptiles, birds, mammals. • Animal diets: carnivore, herbivore, omnivore. • Human and animal body parts: e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills. • Human senses: sight, hearing, touch, smell, taste. • Exploring senses: loud, quiet, soft, rough. • Other: human, animal, pet. •	• Circuit parts: bulb, cell, wire, buzzer, switch, motor, battery. • Materials: electrical conductor, electrical insulator. • Other: safety. Rocks • Types of rock: sedimentary rock, igneous rock, metamorphic rock. • Properties of rocks: permeable, semi-permeable, impermeable, durable. • Names of rocks: e.g. marble, chalk, granite, sandstone, slate. • Formation of rocks and fossils: natural, human-made, magma, lava, molten rock, sediment, erosion, fossilisation, layers, bone, fossil. • Soil: sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, mineral, organic matter, compost. • Other: palaeontology. Forces and Magnets • How things move: move, movement, surface, distance, strength. • Types of forces: push, pull, contact force, non-contact force, friction. • Magnets: magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass. • Magnetic and non-magnetic materials: e.g. iron, nickel, cobalt.	deoxygenated blood, oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells. • Lifestyle: drug, alcohol, smoking, disease, calorie, energy input, energy output. • Other: water transportation, nutrient transportation, waste products.