HECKINGTON ST. ANDREW'S C OF E PRIMARY SCHOOL

SCIENCE CURRICULUM AND PROGRESSION DOCUMENTS

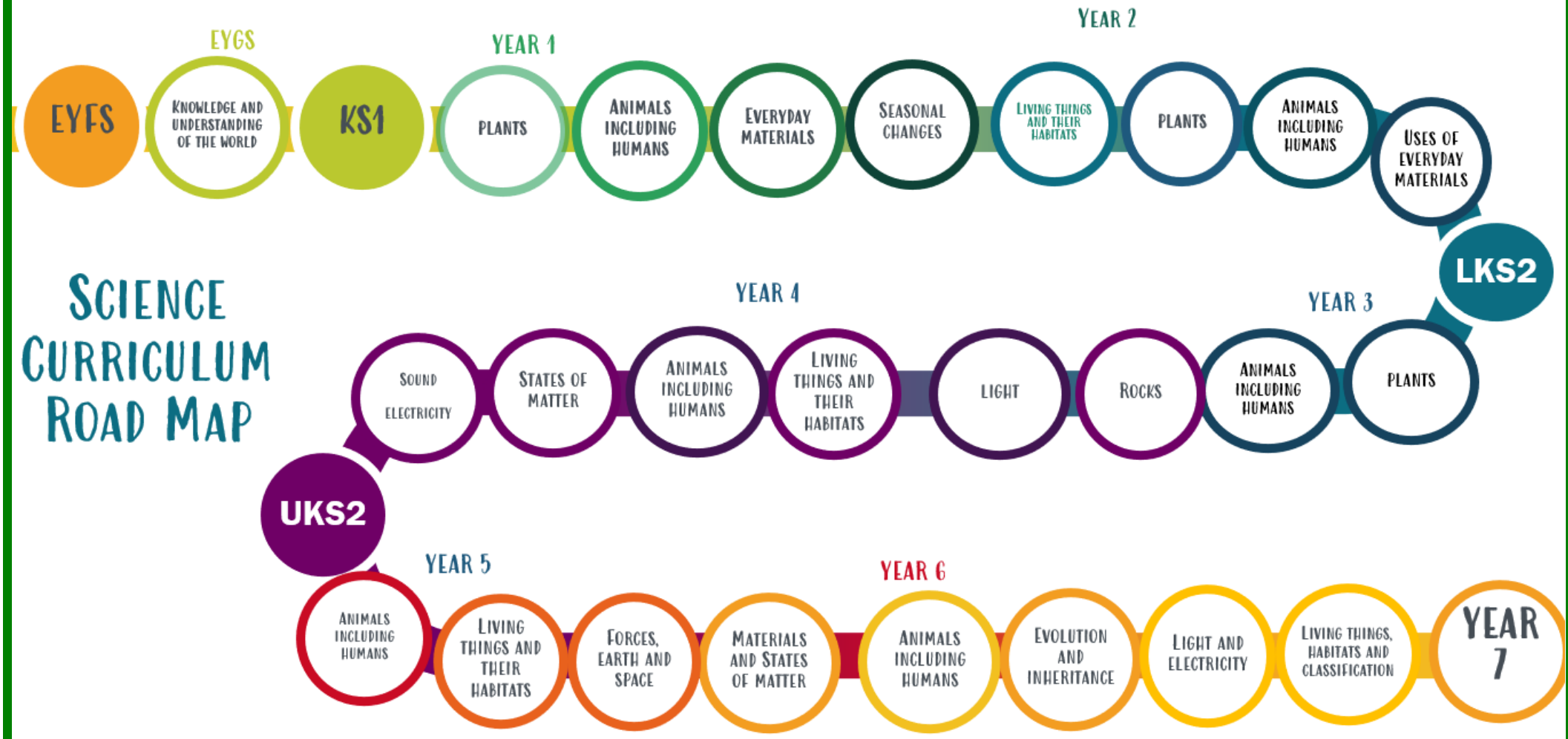
Intent

Our Science curriculum is underpinned by the **National Curriculum**. Teaching and learning in Science is usually taught discretely but it is integrated into our themes where possible. We generally develop scientific **knowledge** and **understanding** through an enquiry model. This means that pupils are constantly **thinking critically** as well as refining and developing working scientifically **skills** that enable them to explore emerging ideas and concepts in the subject and beyond, and ask new questions of their own. We enable pupils to know what being a scientist entails, to observe the world around them, and empower them to work scientifically and to explain how and why things happen using their scientific **knowledge, understanding** and **process knowledge (skills)** in progressively accurate ways.

Implementation

Class teachers follow our curriculum progression documents to underpin planning and teaching, ensuring subject knowledge is developed and retained. The progression document outlines the development of scientific knowledge and the enquiry skills that are taught. Knowledge organisers are used to set out the key knowledge that children will learn in a particular unit of work. Formative assessment practices enable teachers to adapt lessons within units of work to ensure that key knowledge is developed. Teachers provide support and guidance to pupils, enabling them to learn and retain the required knowledge and process knowledge (skills).

Science Curriculum Road Map



Our science curriculum is based on the English National Curriculum, Primary Science Teaching Trust and Developing Experts Science Curriculum.

We promote working scientifically throughout all science lessons embedding the following skills in our core science teaching and learning:

Asking questions	Making predictions	Setting up tests	Observing and measuring	Recording data	Interpreting and communicating results	Evaluation
						

Each unit contains lessons which are taught in sequential order, to ensure that knowledge and process knowledge builds across a unit and across year groups.

Golden Threads for Science

Relationships	Respect	Responsibility	Resilience	Reverence
• We are helpful • We work as a team • We are kind and caring • We are good communicators	• We are active listeners • We show good manners • We care for our environment • We show consideration for others	• We own our actions • We are self-motivated • We are good role models • We are in control of our learning	• We keep going • We believe in ourselves • We have a go • We persevere	• We show empathy • We are reflective • We experience awe and wonder • We practice stillness

EYFS

EYFS	Animals	Food	Forces	Health and Safety
Early Years Foundation Stage- Understanding the World	• Name different types of animals • Explore different habitats animals live in • Discover dinosaurs and how they are now extinct	• Know where food comes from • Informed about healthy food choices • Understand how animals are used for food production • Say why measuring ingredients is important	• Know what applying a force to an object means • Describe different forces • Discover which materials sink and float	• Know different ways to be safe • Know about taking precautions • Learn about how to help each other be safe • Describe how to be healthy and hygienic
Weather and seasons	**Plants**	**Space**	**The Beach**	**The Senses**
• Know the names of different seasons • State what weather is likely in different seasons • Recognise types of weather • Discuss ways to be safe in different types of weather	• Know what a plant looks like • Name different parts of a plant • Discuss how to look after plants • Understand how plants are made and grow	• Know what is in Space • Learn the names of some planets and features of Space • Know how Space travel is made possible	• Know about materials used to build a sandcastle • Understand how to measure length properly • Learn more about the beach environment and how to protect it	• Know the names of the senses • Describe what each of our senses does • Explore how to make sounds

Year 1

Year 1 National Curriculum Science subject content Pupils should be taught to:	**Plants** • 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	**Animals, including humans** • 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	**Everyday materials** • distinguish between an object and the material from which it is made • 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	**Seasonal changes** • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies

Working Scientifically areas	• **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**
Units of Work	Animals including humans- About Me Exploring everyday materials Animals including humans- About animals Seasonal changes Introduction to plants Using everyday materials

Year 2

Year 2 National Curriculum Science subject content Pupils should be taught to:	**Living Things and Their habitats** • 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	**Plants** • 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	**Animals, including humans** • 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	**Uses of everyday materials** • 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

Working Scientifically areas	• **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**
Units of Work	Living things and their habitats Everyday materials Animals including humans- growth Animals including humans- diet and health Plants- growth and care Living things and their habitats- habitats around the world

Year 3

Year 3 National Curriculum Science subject content Pupils should be taught to:	Plants • 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	**Animals, including humans** • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans and some other animals have skeletons and muscles for support, protection and movement	**Rocks** • 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	**Light:** • 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

Working Scientifically areas	• 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
Units of Work	Rocks Exploring the world of plants Animals including humans- what makes us Plants- life cycles Forces and magnets Light

Year 4

Year 4 National Curriculum Science subject content Pupils should be taught to:	**Living things and their habitats** 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 recognise that environments can change and that this can sometimes pose dangers to living things	**Animals, including humans** 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	**States of matter** 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	**Sound** 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** identify common appliances that run on electricity 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

			evaporation with temperature		recognise some common conductors and insulators, and associate metals with being good conductors
Working Scientifically areas	• 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				
Units of Work	Animals including humans- food and digestion States of matter Sound Electricity Living things and their habitats- nature and the environment Classifying- living things and their habitats				

Year 5

	Living things and their habitats	Animals, including humans	Properties and changes of materials	Earth and space	Forces
Year 5 National Curriculum Science subject content 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	describe the changes as humans develop to old age	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 explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible,	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	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

			including changes associated with burning and the action of acid on bicarbonate of soda	the sun across the sky	
Working Scientifically areas	• **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**				
Units of Work	Properties of materials Studying living things Earth and space Changes of materials Forces Animals including humans- the human life cycle				

Year 6

Year 6 National Curriculum Science subject content Pupils should be taught to:	**Living things and their habitats** describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals give reasons for classifying plants and animals based on specific characteristics	**Animals including humans** 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	**Evolution and inheritance** recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but 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	**Light** recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye explain that we see things because light travels from light sources to our eyes or 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	**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

				as the objects that cast them	simple circuit in a diagram
Working Scientifically areas	• **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**				
Units of Work	Electricity Animals including humans- blood and transportation Animals including humans- the heart and health Evolution and inheritance Living things and their habitats- classification				

Long Term Plan by Year Group

Year 1					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Animals including humans **About Me**	Exploring everyday materials	Animals including humans **About Animals**	Seasonal changes	Introduction to plants	Using everyday materials
Lesson 1 Learn about the senses: sight, taste and touch **Grouping and classifying** **Lesson 2** Learn about the senses of hearing and smell **Grouping and classifying** **Lesson 3** Identify, name, draw and label the basic parts of the human body **Performing simple tests** **Lesson 4**	**Lesson 1** Identify the material objects are made from **Identifying and classifying. Gathering and recording data to help in answering questions** **Lesson 2** Describe some simple physical properties of materials **Identifying and classifying. Observing closely using simple equipment** **Lesson 3**	**Lesson 1** Understand what animals need in order to grow **Identifying and classifying** **Lesson 2** Know where birds live and what they need **Use observations and ideas to suggest answers to questions** **Lesson 3** Explore how animals need to be cared for differently **Grouping and classifying** **Lesson 4**	**Lesson 1** Recognise different types of weather **Using observations and ideas to suggest answers to questions** **Lesson 2** Learn about clouds and rainfall **Using observations and ideas to suggest answers to questions** **Lesson 3** Recognise the different types of cold weather **Using observations and ideas to suggest answers to questions** **Lesson 4**	**Lesson 1** Understand what a plant needs in order to grow well **Observe closely to see how plants grow in different conditions** **Lesson 2** Know the basic parts of a plant **Observe closely and use simple scientific words** **Lesson 3** Identify and describe the basic structure of a variety of common flowering plants and trees **Observing closely**	**Lesson 1** Know everyday uses of magnets **Identifying and classifying. Gathering and recording data to help in answering questions** **Lesson 2** Recognise a variety of widely used materials **Identifying and classifying. Observing closely and using simple equipment** **Lesson 3** Understand why materials are chosen for specific tasks

Learn about changes in your body since you were born Observe changes over time **Lesson 5** Understand the importance of taking care of your body **Grouping and classifying** **Lesson 6** Show how humans mimic nature **Using observations and ideas to suggest answers to questions**	Group together materials by their physical properties **Classifying materials** **Lesson 4** Explore everyday materials which are opaque or transparent **Performing simple tests** **Lesson 5** Know the story of Wilbur and Orville Wright **Performing simple tests** **Lesson 6** Explore everyday materials which are absorbent or non-absorbent **Performing simple tests**	Discover how an animal's offspring is the same its parent **Grouping and classifying** **Lesson 5** Identify a variety of animals including fish, amphibians, reptiles, birds and mammals **Identifying and classifying** **Lesson 6** Identify a variety of common animals that are carnivores, herbivores and omnivores **Observing closely using simple equipment**	Explain how to keep safe during thunderstorms **Performing simple tests** **Lesson 5** Look at different types of weather and how it affects places on Earth **Gathering and recording data to help in answering questions** **Lesson 6** Identify the four seasons **Using observations and ideas to suggest answers to questions**	**Lesson 4** Know about different sources of food grown by farmers **Observe closely and using single equipment** **Lesson 5** Understand the difference between an evergreen and deciduous plant **Performing simple tests** **Lesson 6** Know how plants change over time **Identifying and classifying**	**Classifying materials** **Lesson 4** Understand that magnets only attract certain metals **Performing simple tests** **Lesson 5** Understand that magnets have a north and south pole **Performing simple tests** **Lesson 6** Know how to test materials for their strength; understand that some materials are natural and some are man-made **Performing simple tests**
Key vocabulary					
Ourselves sense living non-living compare same different describe	Object material wood plastic glass metal water rock brick paper fabrics	Fish amphibians reptiles birds mammals carnivores herbivores omnivores	Season spring summer autumn winter hot col weather cool warm	Leaf flower blossom petal fruit berry root bulb seed trunk branch stem	Magnet magnetic glass mined recycle cotton strong

sight hear taste touch smell see bright dim loud quiet high low repeating continuous exercise healthy grow baby bones design & naming body parts	elastic foil card/board rubber wool clay hard soft stretchy stiff bendy waterproof absorbent breaks/tears rough smooth shiny dull through flight structure transparent opaque translucent flexible rigid oil	wild animals pets fur beak feathers offspring care	sun sunny cloud cloudy wind windy hail snow sleet frost fog mist ice icy thunder rainbow lightning storm light dark day night temperature thermometer forecast	bark stalk vegetable growth seed seedling evergreen deciduous wild plant garden plant crop grain light water grow sunlight thistle coniferous	rubber leather paper wood plastic Retrieval of term 2 vocabulary: Object material wood plastic glass metal water rock brick paper fabrics elastic foil card/board rubber wool clay hard soft stretchy stiff bendy waterproof absorbent breaks/tears rough smooth shiny dull through flight structure transparent opaque translucent flexible rigid oil

Year 2					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Living things and their habitats	Everyday materials	Animals including humans **Growth**	Animals including humans **Diet and Health**	Plants- **Growth and Care**	Living things and their habitats- **Habitats around the world**
Lesson 1 Explore the differences between things that are living, dead and things that have never been alive **Identifying and classifying** **Lesson 2** Identify and name a variety of plants and animals in a microhabitat **Identifying and classifying** **Lesson 3** Describe how animals obtain their food from plants	**Lesson 1** Explore the work of Charles Macintosh; understand how the properties of materials can be changed **Performing simple tests** **Lesson 2** Know about John McAdam's invention, recognise that new materials are constantly being invented **Performing simple tests** **Lesson 3** Explore the work of John Dunlop; identify and compare the usefulness of certain	**Lesson 1** Learn about the life cycle of birth, growth, reproduction and death **Use scientific language and diagrams in a presentation** **Lesson 2** Learn about reproduction and growth in plants and animals **Measuring accurately and recording data with precision** **Lesson 3** Learn how humans grow by looking at how babies grow into adults	**Lesson 1** Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) **Ask simple questions and recognise that they can be answered in different ways** **Lesson 2** Learn the importance of nutrition for humans **Grouping, classifying and recording data** **Lesson 3** Know how to keep healthy through diet **Gather and record data** **Lesson 4** Discuss the importance of	**Lesson 1** Understand what plants need in order to thrive **Present information using labelled drawings** **Lesson 2** Understand that plants need water, light and a suitable temperature in order to grow well **Ask questions that help us to find out about growing plants from seeds** **Lesson 3** Understand the difference between a bulb and a seed **Gathering and recording data to**	**Lesson 1** Know that living things live in environments to which they are suited **Gather and record data to help answer questions** **Lesson 2** Appreciate that environments are constantly changing **Gather and record data to help answer questions** **Lesson 3** Describe life in the ocean **Identifying and classifying** **Lesson 4** Appreciate the dangers to ocean life

Sorting and classifying **Lesson 4** Know about different sources of food grown by farmers **Performing simple tests** **Lesson 5** Understand the journey food makes from the farm to the supermarket **Conducting a simple test** **Lesson 6** Learn about the food chain **Use observations and ideas to suggest answers to questions**	materials when forces are applied **Grouping and classifying** **Lesson 4** Explain why we use certain materials **Use observations and ideas to suggest answers to questions** **Lesson 5** Investigate squashing, bending, twisting and stretching **Performing simple tests** **Lesson 6** Compare the uses of everyday materials **Performing simple tests**	**Gather and record data to help answer questions** **Lesson 4** Describe the stages of life from adulthood to old age **Gather and record data to help answer questions** **Lesson 5** Know the life cycle of a frog **Make careful observations and present information** **Lesson 6** Describe the life cycle of a butterfly **Ask simple questions and recognise that they can be answered in different ways.** **Lesson 7** Compare generations of families to help understand how characteristics are inherited	exercise, a healthy diet, and hygiene **Perform a simple test and record results** **Lesson 5** Describe how animals obtain their food from other animals **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 6** Know how to keep healthy through daily exercise **Gather and record data** **Lesson 7** Appreciate the work of Edward Jenner; understand vaccination **Gather and record data** **Lesson 8**	**help answer questions** **Lesson 4** Understand that plants make their own food **Perform a simple test and observe results** **Lesson 5** Know how plants grow from a seed to a plant **Present information in the form of a model or diagram** **Lesson 6** Recognise the importance of flowers and seeds **Observing closely, using simple equipment**	**Use your observations and ideas to suggest answers to questions** **Lesson 5** Explore the Arctic and Antarctic habitat **Gather and record data to help answer questions** **Lesson 6** Explore the rainforest and its problems **Report on findings from enquiries, including oral and written explanations** **Lesson 7** Understand desert, underground and ocean habitats **Us your observations and ideas to suggest answers to questions**

		Use observations and ideas to suggest answers to questions	Know how diseases are cured and learn about the work of Louis Pasteur **Gather and record data**		
Key vocabulary					
Living dead excrete smartphone robot oil cereal root vegetable fruit sugarcane potato crop rotation sugar beet barley arable crate frozen food forklift truck refrigerated lorry canned fruit food chain caterpillar producer consumer life cycle	Charles Macintosh penetrate repel absorbent waterproof John McAdam metal tarmac maintenance rubber force pushing properties John Dunlop material suitable unsuitable transparent strong weak squash bend twist stretch force brick rubber fabric stone paper	Birth growth reproduction death life cycle live birth hatched growth pregnancy growth spurt child teenager adult elderly metamorphosis caterpillar butterfly larva chrysalis amphibian frog frogspawn tadpole absorb generation conscious workplace expertise learn characteristic resemblance similarities Gregor Mendel	Water food air needs survival exercise hygiene healthy eating allergy vitamins nutrition balanced diet protein carbohydrate active target equivalent pedometer portion food groups ingredients	Temperature insulate artificial natural absorb nutrient roots fertiliser produce bulb dormant onion daffodil tulip glucose Carbon dioxide oxygen conditions photosynthesis pollen ovule fertilised stigma anther blossom fruit vegetable seed flower	Polar bear habitat grub woodland woodpecker rainforest moisture extinct climate endangered living dead excrete smartphone robot marine continent litter oil tanker overfish Arctic Antarctic tundra narwhals caribou biodiversity deforestation poaching pollution earthworm desert lizard cactus pond

Year 3					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Rocks	**Exploring the world of plants**	Animals including humans- **What Makes Us**	Plants- **Life cycles**	Forces and magnets	Light
Lesson 1 Describe how mountains are formed **Use relevant scientific language to discuss ideas to communicate findings** **Lesson 2** Recognise the difference between igneous, sedimentary, and metamorphic rock **Create a comparative model** **Lesson 3** Observe rocks, including those	**Lesson 1** Describe the process of germination in seeds and bulbs **Observe closely and present information in a labelled drawing** **Lesson 2** Explain how water and food moves around a plant **Use relevant scientific language and illustrations to answer questions** **Lesson 3** Asexual reproduction in plants	**Lesson 1** Learn the importance of nutrition for humans **Groping, classifying and recording data** **Lesson 2** Know how to keep healthy through diet **Gather and record data** **Lesson 3** Learn about voluntary and involuntary muscles **Gather, record, classify and present data in a variety of**	**Lesson 1** Name the parts of the flower and describe what they do **Presenting information in a labelled model or diagram** **Lesson 2** Explain how plants make their own food **Observer and explain findings using scientific language** **Lesson 3** Describe the life cycle of a plant **Present information in a diagram**	**Lesson 1** Understand magnetism **Use results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions** **Lesson 2** Learn about the different types of magnets **Investigate the properties and uses of various magnets** **Lesson 3** Know that the Earth behaves like magnet	**Lesson 1** Explain how shadows are formed **Collecting data and identifying trends** **Lesson 2** Exploring light **Ask relevant questions and use different types of scientific enquiries to answer them** **Lesson 3** Understand different types of mirrors **Record findings using simple scientific language, drawings and labelled diagrams**

used in buildings and gravestones **Gather, record, classify and present data in a variety of ways to help in answering questions** **Lesson 4** Classify different types of weathering **Set up simple practical enquiries, comparative, and fair tests** **Lesson 5** Understand what a fossil is **Record findings using simple scientific language, drawings and labelled diagrams** **Lesson 6** Describe what soils are made of **Perform an investigative test**	**Observe closely and create a scientific drawing** **Lesson 4** Describe the features of non-vascular plants **Set up simple practical enquiry to observe and compare different types of moss** **Lesson 5** Explore extraordinary plants and fungi **Gather, record and present data and information in the form of a labelled model** **Lesson 6** Explore the rainforest and its problems **Report on findings from enquiries, including oral and**	**ways to answer questions** **Lesson 4** Introduction to the skeleton **Report on findings, create a display to present results** **Lesson 5** Know about the skeleton- tendons and ligaments **Use straightforward scientific evidence to answer questions to support your findings** **Lesson 6** Explore how skeletons and muscles are used for support, protection, and movement **Use scientific knowledge and language**	**Lesson 4** Describe the process of pollination **Presenting learning and knowledge in a dance or drama** **Lesson 5** Describe how plants soak up water **Use scientific equipment to observe and draw plants** **Lesson 6** Describe the different ways plants share their seeds **Set up a fair test, and gather, record and present data**	**Make systematic and careful observations. Take accurate measurements using standard units, use a range of equipment** **Lesson 4** Learn about magnetic fields; learn about the law of magnetic attraction **Set up a simple practical enquiries, comparative and fair tests** **Lesson 5** Know that magnetic needs always point magnetic north **Ask relevant questions to explore how magnets work** **Lesson 6**	**Lesson 4** Know what a periscope is and how it is used **Record findings using simple scientific language, drawings and labelled diagrams** **Lesson 5** Explain how reflective surfaces keep us safe **Use straightforward scientific evidence to answer questions or to support your findings** **Lesson 6** Recognise that light from the sun can be dangerous and that there are ways to protect your eyes **Setting up simple practical enquiries,**

Lesson 7 Identify common rocks **Use simple scientific language to explain your findings**	**written explanations**			Compare how things move on different surfaces **Ask relevant questions to explore how magnets work**	**comparative and fair tests**
Key vocabulary					
Mountain Europe hill Himalayas Alps metamorphic igneous sedimentary magma mineral lichen, acid rain, chemical weathering, physical weathering, biological weathering, marble sandstone limestone flake granite fossil amber Jurassic Coast seashell extinct	seed bulb germination shoot sapling sexual reproduction runner clone eye (potato) parent plants transpiration xylem phloem vascular stomata non-vascular moss spores moist liverwort fungi Venus flytrap insectivorous pitcher plant extraordinary rainforest	Nutrition vitamins balanced diet protein carbohydrate portion food groups ingredients involuntary muscles voluntary muscles biceps triceps hamstring muscle skeleton bones skull X-ray machine rib-cage Achilles' tendon Cartilage marrow ligament tendon support protect vertebrae	anther stigma petal style filament photosynthesis chlorophyll UV light Carbon dioxide glucose pollination fertilisation germination dispersal reproduction nectar pollen pollinator waggle dance root root hair absorb anchor store sycamore wind dispersal	North Pole Magnetic field Molten rock Compass Solar radiation Attract repel propulsion Maglev train High speed train Magnetic needle Direction Orienteering Magnetic North direction surface pendulum tilt friction	Position intermediate sundial clockwise indirectly transparent opaque light torch shadow mirror concave convex reflection telescope periscope submarine parallel viewer enlarge reflective material road safety fluorescent dark hi-vis ultraviolet rays

peat clay soil chalky soil sandy soil texture grain size	biodiversity deforestation poaching pollution	movement contract relax	water dispersal animal dispersal explosion dispersal		calcium sunglasses sunburn sun protection factor (SPF)

Year 4					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Animals including humans **Food and Digestion**	States of matter	sound	electricity	Living things and their habitats- **Nature and the environment**	**Classifying** Living things and their habitats
Lesson 1 Understand salivary glands and taste buds **Gathering and recording data in a variety of ways to help in answering questions** **Lesson 2** Know the different types of teeth **Group and classify living things,**	**Lesson 1** Compare and group solids, liquids and gases **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 2** Investigate the effect temperature	**Lesson 1** Describe how sound travels **Making systematic and careful observations, and where appropriate, taking accurate measurements using a range of equipment including data loggers** **Lesson 2**	**Lesson 1** Identify when a lamp will light in a simple series circuit **Identifying differences and similarities or changes related to scientific ideas and processes** **Lesson 2** Explore how electricity is transported	**Lesson 1** Know about the balance of nature **Making systematic and careful observations and recording findings using diagrams or keys** **Lesson 2** Describe ecosystems and how they are affected by	**Lesson 1** Understand habitats **Making systematic and careful observations and recordings findings using diagrams or keys** **Lesson 2** Know how scientists classify animals

conducting a comparative and fair test **Lesson 3** Understand the intestines **Setting up practical enquiries** **Lesson 4** Understand the food pyramid and why it is important **Asking relevant questions** **Lesson 5** Know about vitamins and minerals **Asking relevant questions** **Lesson 6** Understand the food chain, know how natural cycles work **Identifying differences, similarities or changes related to simple scientific ideas and processes**	has on changing state **Making systematic and careful observations, and where appropriate, taking accurate measurements using a range of equipment including thermometers and data loggers** **Lesson 3** Understand diluting and dissolving **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 4** Understand evaporation and condensation **Reporting on findings from enquiries, including oral and written explanations,**	Explain what causes sound **Identifying differences, similarities or changes related to simple scientific ideas and processes; Setting up practical enquiries, comparative and fair tests** **Lesson 3** Compare the speed of sound and the speed of light **Use knowledge to explain different phenomena** **Lesson 4** Compare sounds in solids, liquids and gases **Using straightforward evidence to answer questions or to support findings** **Lesson 5** Describe different sounds	**Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 3** Understand the difference between a series and parallel circuit **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 4** Explain how to recognise electrical conductors and insulators **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 5** Describe the basic parts of a circuit	changes in the environment **Observing changes over time** **Lesson 3** Understand human impact on the environment **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables** **Lesson 4** Explore air pollution **Setting up simple practical enquiries, comparative and fair tests** **Lesson 5** Understand water pollution **Gathering, recording, classifying and presenting data in a variety of ways to help answer questions**	**Making systematic and careful observations** **Lesson 3** Understand the difference between vertebrate and invertebrate **Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 4** Know about cold-blooded amphibians and reptiles **Grouping and classifying** **Lesson 5** Know about warm-blooded birds and mammals **Asking relevant questions and using different types of scientific enquiries to answer them** **Lesson 6**

	displays or presentations of results and conclusions **Lesson 5** Understand the water cycle **Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions** **Lesson 6** Describe freezing and melting **To describe and explain findings from an evaporation investigation, and grouping and classifying a variety of different materials**	**Reporting on findings from enquiries, including oral and written explanation** **Lesson 6** Explain how to protect your ears **Using results to draw simple conclusions**	**Identifying differences, similarities or changes related to simple scientific ideas and processes** **Lesson 6** Know how to work safely with electricity **Identifying differences, similarities or changes related to simple scientific ideas and processes**	**Lesson 6** Explore methods that can be used to conserve water **Gather and record information to suggest improvements**	Understand how fish are different from amphibians and reptiles **Making systematic and careful observations and recording findings using diagrams and keys**
Key vocabulary					
Saliva salivary glands	States of matter	Sound wave	Open circuit Closed circuit	Wetland ecology interdependent	Pond dipping sample sediment

taste buds digest bitter incisors canines chew molars dentist small intestine large intestine stomach appendix nutrient food pyramid natural sugar dairy product meat fruit and vegetables Vitamin (A, B, C, D) minerals producer consumer decomposer wheat soda bread	Particle volume matter bond temperature degrees Celsius melting point boiling point thermometer dissolve dilute soluble solvent solute evaporation condensation absorb heat water vapour water cycle precipitation transpiration surface run off groundwater melting freezing sublimination deposition reversible	Echo pinna diffraction fade loudspeaker voice box vibration supersonic Concorde speed of sound thunder lightning medium vacuum transmit clarity particles low-pitched high-pitched volume loud quiet ear defence baffling absorb muffled sensitivity	Switch component circuit diagram national grid Wind turbine electrons Cable parallel circuit current continuous represent conductor insulator resistance electrical shock Short circuit Electric circuit wire appliance bulb battery electrician electric shock precaution repair electrical socket	ecosystem environment air pollution climate change water pollution single use plastic deforestation climate change pollute greenhouse gases emission smog chemical contaminate conserve water treatment plant sewage water butt drought freshwater pure conserve	water lily newt classify vertebrate invertebrate species characteristics amphibian exoskeleton skeleton cold- blooded gills oxygen scales reptile bird mammal warm- blooded migration hibernation fish amphibian reptile cold-blooded shark

Year 5					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Properties of materials	Studying living things	Earth and space	Changes of materials	Animals including humans- **The human life cycle**	Forces
Lesson 1 Describe the properties of materials **Testing properties of materials** **Lesson 2** Compare the properties and uses of different materials **Use test results to make predictions to set up further comparative and fair tests** **Lesson 3** Make the perfect sandcastle **Plan a scientific enquiry to answer**	**Lesson 1** Know about the life and work of Sir David Attenborough **Report and present findings from enquiries in oral and written reports** **Lesson 2** Know about the life and work of Dame Jane Goodall **Report and present findings from enquiries in oral and written reports** **Lesson 3**	**Lesson 1** Describe Nicolaus Copernicus' ideas about planetary motion **Use existing knowledge to create a model** **Lesson 2** Describe the movement of Earth in space **Record data using scientific diagrams and labels** **Lesson 3** Describe the characteristics of the planets in our solar system	**Lesson 1** Understand that some changes to materials are not reversible **Report and present findings from enquiries, sharing conclusions** **Lesson 2** Know the difference between physical and chemical change **Use existing knowledge to identify physical and chemical processes** **Lesson 3**	**Lesson 1** Know about life cycles **Present information in a series of drawings** **Lesson 2** Know about the human reproductive organs **Report on findings from enquiries including oral and written explanations, displays of results** **Lesson 3** Exploring gestation periods **Report and present findings from**	**Lesson 1** Describe the life and work of Isaac Newton **Report and present findings using other presentations** **Lesson 2** Explore gravity and air resistance **Use test results to make predictions to set up further comparative and fair tests** **Lesson 3** Understand water resistance and friction

today's challenge, recognise the controlling variables **Lesson 4** Explore materials which can be derived from crude oil; explain the importance of carbon compounds in our lives **Use test results to make predictions to set up further comparative and fair tests** **Lesson 5** Explore extracting useful substances from natural resources **Report and present findings from enquiries by creating a display** **Lesson 6**	Learn about sexual reproduction **Write a report and present your findings** **Lesson 4** Describe the life cycles of a mammal, bird and reptile **Report and present findings from enquiries in oral and written reports** **Lesson 5** Describe the life cycle of an insect and amphibian **Comparing the life cycle of a butterfly with two other egg-laying animals** **Lesson 6**	**Apply knowledge and understanding** **Lesson 4** Describe the Big Bang Theory **Reporting and presenting findings from enquiries including conclusions, causal relationships of and degree of trust in results, in oral and written forms, such as displays and other presentations** **Lesson 5** Learn about gravitational force **Use test results to make predictions to set up further comparative and fair tests** **Lesson 6** Explore what causes different	Be able to explain the words dissolve and solution **Take measurements using a range of equipment with accuracy and precision, taking repeat readings** **Lesson 4** Understand the actions of filtering, sieving and evaporating **Describe laboratory processes** **Lesson 5** Understand that a chemical change alters a molecule permanently **Identifying chemical changes** **Lesson 6** Know the difference between elements,	**enquiries including conclusions in oral and written forms** **Lesson 4** Describe the changes which happen in childhood **Report and present findings from enquiries including conclusions in oral and written forms** **Lesson 5** Understand changes which happen in adolescence **Report and present findings from enquiries including conclusions in oral and written forms** **Lesson 6** Describe the changes as humans develop to old age	**Use test results to make predictions to set up further comparative and fair tests** **Lesson 4** Investigate mechanisms- levers and pulleys **Record data using scientific diagrams and labels** **Lesson 5** Investigate mechanisms- gears **Report and present findings use other presentations** **Lesson 6** Predict if an object will float or sink **Take measurements, use a range of scientific equipment, take**

Explore the thermal conductivity of materials to improve energy efficiency in buildings or other systems **Take measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings**	Learn about asexual reproduction **Plan different types of scientific enquiries to answer questions, including controlling variables where necessary**	phases of the Moon **To explain a natural process**	compounds and mixtures **Identify scientific evidence that has been used to support or refute ideas or arguments**	**Report and present findings from enquiries including conclusions in oral and written forms**	**repeat accurate readings**
Key vocabulary					
Conduction thermal conductivity kelvin insulation residential crude oil bitumen zooplankton fraction hydrocarbon resource non-renewable sustainable	Asexual plantlet bulb tuber bacteria metamorphosis larva pupa tadpole butterfly unborn egg hatch fledgling mammary gland fertilisation genes sexual	Heliocentric geocentric Nicolaus Copernicus orbit Ptolemy axis season poles eclipse hemisphere ocean tides gravitational force black hole mass celestial rocky planets gas	Bicarbonate of soda irreversible permanent burning activate physical change chemical change rust iron oxide properties solution dissolve solute saturated solvent separate	Cataract cardiovascular plasticity memory neurodegenerative adolescence bloodstream hormone growth appetite growth spur childhood motor skills milk teeth labour gestation	Sir Isaac Newton prism gravity theory curved mirror brake water resistance streamlined paddle friction parachute paragliding sky diving gravity drag mass volume buoyant floating

overexploited renewable bridge tamp imagination damp unmould elastic durable absorbency waterproof flexibility hardness transparency conductive magnetic solubility	reproduction pollination pollen Jane Goodall chimpanzee primatologist primate endangered David Attenborough natural sciences documentary naturalist lecture	planets dwarf planet moon solar system astronomy universe Milky Way expand Big Bang theory Phase orbit illuminate waxing waning	method filter sieve evaporate brand molecule product reaction atom compound element mixture helium methane	breeding elephant North American Opossum time period egg sperm ovary testes fertilisation reproduce adult foetus embryo puberty	sinking gear worm gear rack and pinion bevel gear mesh load effort lever pivo fulcrum

Year 6					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Light	Electricity	Animals including humans- **blood and transportation**	Animals including humans- **the heart and health**	Evolution and inheritance	Living things and their habitats- classification
Lesson 1 Compare materials of different transparencies **Identify scientific evidence that has been used to support or refute ideas or arguments** **Lesson 2** Explain how light travels in a straight line and shadows are formed **Taking measurements, using a range of scientific equipment with increasing accuracy and**	**Lesson 1** Explain how objects become charged **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys tables, scatter graphs and / or bar and line graphs.** **Lesson 2** Describe the parts of an electric circuit **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys**	**Lesson 1** Describe the composition of blood **Reporting and presenting findings from enquiries** **Lesson 2** Describe how oxygen is moved around the body **Reporting and presenting findings from enquiries, including conclusions and casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations** **Lesson 3**	**Lesson 1** Describe the function of blood **Identify scientific evidence that has been used to support or refute ideas or arguments** **Lesson 2** Describe the function of blood vessels **Record data and results of increasing complexity using scientific diagrams** **Lesson 3** Describe how your heart moves blood around the body	**Lesson 1** Explain how adaptations help animals and plants survive **Identify scientific evidence that has been used to support or refute ideas or arguments** **Lesson 2** Explain what fossils can tell us **Identify scientific evidence that has been used to support or refute ideas or arguments** **Lesson 3**	**Lesson 1** Classify living things **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys , tables, scatter graphs, and bar and line graphs.** **Lesson 2** Explore the kingdoms of life **Planning different types of enquiries to answer questions including recognising and controlling variables where necessary**

precision, taking repeat readings when appropriate **Lesson 3** Describe how lenses can be used **Noticing patterns** **Lesson 4** Show white light is a mixture **Predicting the effects of colour mixing** **Lesson 5** Explain how water can bend light **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **Lesson 6** Investigate light colour mixing	**tables, scatter graphs and / or bar and line graphs (over the two lessons).** **Lesson 3** Explain what affects the output of a circuit **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys tables, scatter graphs and / or bar and line graphs** **Lesson 4** Compare electrical conductors and insulators **Plan different types of scientific enquiries to answer questions, recognise control variables where necessary** **Lesson 5**	Explain how blood is filtered **Reporting and presenting findings from enquiries, including conclusions and casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations** **Lesson 4** Describe what a blood transfusion involves **Finding out things using a wide range of secondary sources of information** **Lesson 5** Describe how diabetes is managed **Report on findings from enquiries, including oral and written explanations, displays of results**	**Plan different types of scientific enquiries to answer questions** **Lesson 4** Describe what affects your heart rate **Reporting and presenting** **Lesson 5** Describe the consequences of an unhealthy lifestyle **Reporting and presenting findings from enquiries including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations** **Lesson 6**	Describe the process of genetic modification **Identify scientific evidence that has been used to support or refute ideas or arguments** **Lesson 4** Explain why animals can look different to their parents **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **Lesson 5** Describe the process of natural selection	**Lesson 3** **Describe the work of Carl Linnaeus** **Identifying scientific evidence that has been used to support or refute ideas or arguments** **Lesson 4** Identify different classes of vertebrates **Reporting and presenting findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays or other presentations, identifying scientific evidence that has been used to support or refute ideas** **Lesson 5**

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Build a set of traffic lights **Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **Lesson 6** Explain how variable resistors can work like a switch **Take measurements, use a range of scientific equipment, with increasing accuracy and precision and take repeat readings**	**Lesson 6** Describe the roles of bacteria **Report on findings from enquiries, including oral and written explanations, displays of results**	Explore the different food groups and identify ways to eat a balanced diet **Identify scientific evidence that has been used to support or refute ideas or arguments**	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **Lesson 6** Explore the work of palaeontologist Mary Anning **Identify scientific evidence that has been used to support or refute ideas or arguments**	Explore soil habitats **Grouping and classifying.** **Lesson 6** Describe different types of fungi **Record scientific data using diagrams**

Key vocabulary					
primary colours, secondary colour, light filter, magenta, cyan medium, magnify, rainbow, apparent, distorted spectrum, indigo, glass prism, mist, white light focal point, lens, refraction, refracting telescope, convex lens shadow, opposite, obstruct, light ray, fluorescent luminous, non-luminous, light source, transparent, opaque	static electricity, charge, electric shock, friction, discharge circuit, battery, component, series circuit, switch voltage, output, bulb, power, wind-up torch insulator, conductor, copper, short circuit, fuse signal, timer-based, synchronised, receiver, sensor dimmer switch, LED, adjust, variable resistor, resistor	red blood cell, platelet, haemoglobin, plasma, antibody trachea, bronchi, alveoli, capillary, diaphragm spleen, liver, filter, organ, microorganism transfusion, blood group, Karl Landsteiner, phlebotomist, patient pancreas, insulin, diabetes, type 1 diabetes, type 2 diabetes prokaryotes, microscope, bacteria, nucleus, probiotics	transportation, cell, nutrients, protein, circulatory system blood vessels, heart attack, artery, fatty deposits, vein involuntary, contract, relax, oxygenated, bloodstream blood pressure, general practitioner, pulse, heart rate, exercise addiction, black tar, cigarette, lung cancer, poison nutrients, carbohydrates, balanced diet, vitamins and minerals, protein	adaptation, desert, cactus, insulating, environment fossil, fossilisation, evidence, dinosaur, petrified genetically modified crops, toxin, resilience, breeding, yield generation, species, evolution, offspring, DNA Charles Darwin, habitat, ancestor, Natural Selection, extinct Mary Anning, specimen, prehistoric, Jurassic Coast, paleontologist	mycelium, fungi, mushrooms, yeasts, hyphae carbon dioxide, microorganism, plant, oxygen, microscopic vertebrate, cold-blooded, amphibian, reptile, mammal Latin, genus, Carl Linnaeus, class, species multicellular, unicellular, kingdom, cell, MRS GREN classify, spore, micro-organism, seed, similarities

PROGRESSION OF KNOWLEDGE AND PROCESS KNOWLEDGE (SKILLS)

Working Scientifically

Strand	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Planning and questioning 	**Creating and Thinking Critically** Having their own ideas– thinking of ideas; finding ways to solve problems; finding new ways to do things Making predictions Planning making decisions about how to solve a problem and reach a goal	**Ask simple questions when prompted**— Why are flowers different colours? Why do some animals eat meat and others do not? Suggest ways of answering a question	**Ask simple questions** such as: Why do some trees lose their leaves in Autumn and others do not? How long are roots of tall trees? Why do some animals have underground habitats? Recognise that questions can be answered in different ways	**Ask relevant questions when prompted** such as: Why does the moon appear as different shapes in the night sky? Why do shadows change during the day? Where does a fossil come from? **Set up simple and practical enquiries, comparative and fair tests**	**Ask relevant questions when prompted** such as: Why are steam and ice the same thing? What do we mean by 'pitch' when it comes to sound? Set up simple and practical enquiries, comparative and fair tests	**With prompting, plan different types of scientific enquiries to answer questions** With prompting, recognise and control variables where necessary Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not Set up a fair test when needed e.g. which surfaces create most friction? Set up an enquiry based investigation e.g. find out what adults/children can do now that they couldn't when a baby	**Plan different types of scientific enquiries to answer questions.** Know which type of investigation is needed to suit a particular scientific enquiry e.g. looking at the relationship between pulse and exercise. Recognise and control variables where necessary. Set up a fair test when needed e.g. does light travel in straight lines? Know how to set up an enquiry based investigation e.g. what is the relationship between oxygen and blood?
Conducting Experiments 	**Testing their ideas** Children use everyday language as they explore to talk about size, weight, capacity. They explore characteristics of	**Make relevant observations** **Conduct simple tests, with support** Set up a test	**Perform simple tests** **Observe closely, using simple equipment** Use equipment such as	**Make systematic observations, using simple equipment** Use standard units when taking measurements Observe at what time	**Make systematic observations, using simple equipment** Use standard units when taking	**Select, with prompting, and use appropriate equipment to take readings** Take precise measurements using standard	**Take measurements using a range of scientific equipment.** Take measurements with increasing accuracy and precision. Take repeat readings

	everyday objects and shapes Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	to see which materials keep things warmest, know if the test has been successful and can say what has been learned– discussion and application of scientific vocabulary throughout.	thermometers and rain gauges to help observe changes to local environment as the year progresses Use microscopes to find out more about small creatures and plants Know how to set up a fair test and do so when finding out about how seeds grow best	of day a shadow is likely to be at its longest and shortest. Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens etc. Using research to find out how reflection can help us see things that are around the corner. Use research to find out what the main differences are between sedimentary and igneous rocks Test to see which type of soil is most suitable when growing two similar plants. Test to see if their right hand is as efficient a their left hand Set up a fair test with different variables e.g. the best conditions for a plant to grow Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand etc.	measurements Use research to find out how much time it takes to digest most of our food. Use research to find out which materials make effective conductors and insulators of electricity Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water Set up a fair test with more than one variable e.g. using different materials to cut out sound Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts	units Know what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective parachutes are when made with different materials Use all measurements as set out in y5 maths including capacity and mass Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons)	when appropriate. Know what the variables are in a given enquiry and can isolate each one when investigating. Justify which variable has been isolated in scientific investigation.

					in different temperatures Measure carefully, taking account of mathematical knowledge up to year 4) and add to scientific learning Use a data logger to check on the time it takes tice to melt to water in different temperatures Use a thermometer to measure temperature and know there are two main scales used to measure temperatures		
Recording evidence 	**Developing ideas of grouping, sequencing, cause and effect** Children represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.	**With prompting, suggest how findings could be recorded** Use scientific vocabulary and refer to evidence in group and class discussion Gather and record data—	**Record and communicate their findings in a range of ways and begin to use simple scientific language** Measure carefully (taking account of mathematical knowledge for up to year 2) and add to scientific learning. **Gather and record**	With prompting, suggest how findings may be tabulated With prompting, use various ways of recording, grouping and displaying evidence Measure carefully (taking account of mathematical knowledge for up to year 3) and add to scientific learning. **Gather and record**	**Record findings in various ways** With prompting, suggest how findings may be tabulated With prompting, use various ways of recording, grouping and displaying evidence	**Record data and results** Take and process repeat readings Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs	**Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts, scatter graphs and line graphs.** Use all measurements as set out in Y6 Maths (measurement), including capacity, mass, ratio and proportion.

		pictograms, labelled diagrams, summative sentence, a 'what went well' sentence Use measures (within year 1 mathematical limits) to help find out more about the investigations undertaken	**data to help answer questions** Gather and record information using a table, matrix or tally chart, depending on what is most sensible.	**information** using a chart, matrix or tally chart, depending on what is most sensible. Group information according to common factors, e.g. plants that grow in woodlands or plants that grow in gardens Use bar charts and other statistical tables (in line with Y3 maths expectations) to record findings.	Gather and record information using a chart, matrix or tally chart, depending on what is most sensible Group information according to common factors e.g. materials that make good conductors or insulators Use bar charts and other statistical tables (in line with Y4 maths statistics expectations) to record findings		
Reporting findings	Making links and noticing patterns <u>Speaking:</u> Uses talk to organise, sequence and clarify thinking and ideas Gives meaning to marks they make as the draw, write and paint Children can make observations about plants and animals and explain why some things occur and	**Recognise findings** Use observations to suggest answers to questions Discuss measures (within year 1 mathematical limits) to help find out more about the investigations undertaken	**Classify a group of things according to a given criteria,** e.g. deciduous and coniferous trees Be able to discuss understanding of findings within a group or to the whole class using *because, if, so, and* in line with English expectations for year 2 to articulate their findings	**Suggest how findings could be reported** Know how to use a key to help interpret, understand and discuss information presented on a chart. Be confident to stand in front of others and explain what has been found out, for example about how the moon changes shape	**With prompting, suggest conclusions from enquiries** Suggest how findings could be reported Present findings using written explanations and include diagrams when needed Write up findings using a planning, doing and	Use diagrams as and when necessary to support writing Able to present information related to scientific enquiries in a range of ways including using IT such as power point and iMovie Is evaluative when exploring findings from scientific enquiry Clear about what has been found from recent enquiry	**Report and present findings from enquiries, including conclusions and causal relationships** Report and presents findings from enquiries in oral and written forms such as displays and other presentation Report and present findings from enquiries, including explanations of, and degree of, trust in results Present information related to enquiries in a range of ways including IT– power point, Animoto and iMovie

	talk about changes.				evaluating process	and can relate this to other enquiries, where appropriate Keep an ongoing record of new scientific words that they come across for the first time	Clear about what has been found out from their enquiry and relate this to others in class Explanations set out clearly why something has happened and its possible impact on other things Keep an ongoing record of new scientific words that they have come across for the first time and use these regularly in future scientific write ups
Conclusions and predictions 	Checking how well their activities are going Changing strategy as needed Reviewing how well the approach worked <u>Understanding:</u> Listens and responds to ideas expressed by others Children can discuss similarities and differences between living things, objects and materials.	Explain to someone what has been learned from an investigation they have been involved with and draw conclusions from the answers to the questions asked	**Use their observations and ideas to suggest answers to questions** Draw conclusions from fair test and explain what has been found out Use measures (within year 2 mathematical limits) to help find out more about the investigations they are engaged with	**With prompting, suggest conclusions from enquiries** Suggest possible improvements or further questions to investigate Present findings using written explanations and include diagrams when needed Make sense of findings and draw conclusions which help them to understand more about scientific information Amend predictions according to findings Be prepared to change ideas as a result of what has been found out during a scientific enquiry.	**Suggest possible improvements or further questions to investigate** Make sense of findings and draw conclusions which help them understand more about the scientific information that has been learned When making predictions there are plausible reasons as to why they have done so Able to amend predictions according to findings Prepared to	**Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships** With support, present findings from enquiries orally and in writing Explanations set out clearly why something has happened and its possible impact on other things Able to give an example of something focused when supporting a theory e.g. how much easier it is to lift a heavy object with pulleys Suggest further	**Use test results to make predictions to set up further comparative and fair tests** Identify scientific evidence that has been used to support or refute ideas or arguments Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases. Aware of the need to support conclusions with evidence Use diagrams as and when necessary to support writing and be confident enough to present findings orally in front of the class. Able to give an example of something they have focused on when supporting a scientific theory, e.g. classifying

		change ideas as a result of what has been found out during a scientific enquiry	comparative or fair tests Make predictions based on information gleaned from investigations Able to relate casual relationships when, for example, studying life cycles Create new investigations which take account of what has been learned previously.	vertebrate and invertebrate creatures or why certain creatures choose their unique habitats.

Biology

Plants

YEAR 1	YEAR 2	YEAR 3
• 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. • Know the conditions needed for healthy plant growth. • How to grow a plant from seed in the right conditions • Identify and name the roots, trunk, branches and leaves of a tree.	• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • Observe and describe how seeds and bulbs grow into mature plants. • Explore the local environment throughout the year to observe how plants grow. • Introduction to the requirements of germinations, growth and survival as well as the processes of reproduction and growth in plants.	• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • Investigate the way in which water is transported within plants • 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, room to grow) and how they vary from plant to plant.

Animals including humans

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals). • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Identify name, draw and label the basic parts of the body. • Pupils will use the local environment throughout the year to explore and answer questions about animals in their habitats. They will understand how to take care of animals taken from their local environment and the need to return them safely after study.	• Know that animals, including humans, have offspring which grow into adults • Know the basic stages in a life cycle for animals, including humans. • Find out 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.	• Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. • Know about the importance of a nutritious, balanced diet. • Identify that humans and some other animals have skeletons and muscles for support, protection and movement: Know about the skeletal and muscular system of a human.	• Describe the simple functions of the basic parts of the digestive system in humans. • Understand the food pyramid and why it is important. • Know about vitamins and minerals and why they are important for health and growth. • Identify the different types of teeth in humans and their simple functions. • Construct and interpret a variety of food chains, identifying producers, predators a prey	• Describe changes which occur during childhood and adolescence. • Describe the changes as humans develop to old age. • Understand and contrast life cycles. • Know about the human reproductive organs. • Explore gestation periods.	• 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. • Explore the different food groups and identify ways to eat a balanced diet. • Describe the ways in which nutrients and water are transported within animals, including humans.

Living Things and Their Habitats

YEAR 2	YEAR 4	YEAR 5	YEAR 6
• Explore and compare the difference 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 micro habitats. • Identify the dangers to ocean life and the rainforest. • Explore the Arctic and Antarctic habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.	• Recognise that living things can be grouped in a variety of ways including vertebrates and invertebrates, cold blooded and warm blooded and how fish are different from amphibians and reptiles. • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Recognise that environments can change and that this can sometimes pose danger to living things. • Pupils will explore examples of human impact (positive and negative) on environments including nature reserves, garden ponds, population growth, and littering.	• To know and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • To know and describe the life process of reproduction in some plants and animals including sexual and asexual reproduction. • Gain a deeper understanding of a biome as an ecological community. • Identify how animals and plants are adapted to suit their environment in different ways. • Consider the adaptations of living things in the biome and how their adaptations have enabled them to survive. • Explain the impact of Sir David Attenborough and Dame Jane Goodall	• Classify living things into broad groups according to observable characteristics and based on similarities and differences, including micro organisms, plants and animals. • Explore the work of Carl Linnaeus • Give reasons for classifying plants and animals based on specific characteristics. • Explore a broad range of habitats and decide where unfamiliar living things belong in the classification system.

Evolution and Inheritance

YEAR 6
• Know about evolution and can explain what it is. • 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. • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Know about the work of paleontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. • Know about Carl Linnaeus and his system of classification

Chemistry

Materials; States of Matter; Properties of Materials and Change

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
• Distinguish between and object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, metal, plastic, glass, 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 properties. • Explore everyday materials which are opaque or transparent. • Explore everyday materials which are absorbent and non-absorbent. • Explore the discoveries made by Mary Anning	• 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 shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Explore the work of	• Explain how and why rocks might have changed over time. • Research and discuss the different kinds of living things whose fossils are found in sedimentary rock. • Know how soil is made and fossils formed. • Know about and explain the difference between sedimentary, metamorphic and igneous rock. • Compare and group rocks based on their appearance and physical	• Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of	• 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. • Demonstrate that dissolving, mixing and changes of state are reversible changes. • 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 wood, metals and plastic. • Explain that some changes result in the formation of new materials, and this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

	Charles Macintosh, John McAdams and John Dunlop.	properties, giving a reason. .	evaporation with temperature. • Understand diluting and dissolving • Understand evaporation and condensation • Describe freezing and melting	• Explore the thermal conductivity of materials • Explore materials which can be derived from crude oi; Explain the importance of carbon compounds in our lives.

Physics

Light and sound

YEAR 1	YEAR 3	YEAR 4	YEAR 6
• Name the seasons and know about the type of weather in each season • Observe how day length varies with the seasons • Observe and talk about changes in weather • Observe changes across the four seasons • Know about clouds and rainfall	• 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 a solid object. • Find patterns in the way that the sizes of shadows change.	• Know how sound is made associating some of them with vibrating. • Know what happens to a sound as it travels from its source to our ears. • Know the correlation between the volume of a sound and the strength of the vibrations that produced it. • Know how sound travels from a source to our ears. • Know how to protect your ears • Know the correlation between pitch and the object producing a sound. • Compare sound in solids, liquids and gases.	• 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. • Compare materials of different transparencies. • 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. • Know that white light is a mixture and investigate light colour mixing • Explain how water can bend light • Describe how lenses can be used • Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc. • Explore the work of Isaac Newton.

Forces

YEAR 1	YEAR 3	YEAR 5
• Know about every day uses of magnets • Understand that magnets only attract certain metals • Understand that magnets have a north and south pole	• Compare how things move on different surfaces. • Know how a simple pulley works and use making lifting an object simpler • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract and 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 two poles. • Learn about the law of magnetic attraction and predict whether two magnets with attract or repel each other, depending on which poles are facing. • Know that the Earth behaves like a magnet • Explore the work of Chien- Shiung Wu	• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives. • Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. • Describe the Sun, Earth and Moon (using the term spherical). • Know and demonstrate how night and day are created. • Know about and explain the movement of the Moon relative to the Earth. • Know about and explain the movement of the Earth and other planets relative to the Sun. • Understand the contributions to science made by Copernicus, Galileo and Newton.

Electricity

YEAR 4	YEAR 6
• Identify common appliances that run on electricity. • Safety when using electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Understand the difference between a parallel and a series circuit. • 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 the circuit and associate this with whether or not a lamp lights in a simple series circuit.	• 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. • Explain how objects become charged

• Recognise some common conductors and insulators of electricity, and associate metals with being good conductors. • Know the difference between a conductor and an insulator; giving examples of each. • Explore the work of Thomas Edison and Nicholas Tesla	• Describe the parts of an electric circuit and explain what effects its output. • Explain how variable resistors can work like a switch. • Compare electrical conductors and insulators. • Explain and demonstrate how traffic lights work • Explain the work of Michael Faraday and Thomas Edison.

Science Assessment and Monitoring Arrangements

Implementation: January 2022 – Review date– July 2022

The Science Assessment and Monitoring Arrangement outlines our revised approach to assessment in science. This has been devised to ensure high quality approaches to assessment are embedded within units and across the academic year. We have recognised a need to formalise our approach to monitoring and assessment in science to promote cohesion in judgments made, to monitor progression and to promote excellent progress for all our pupils.

Pre-assessment

We use a range of strategies to elicit pre and misconceptions of a unit which will enable teachers to adapt short term planning to include time to address areas of need. Examples of tasks include discussion and response to concept cartoons, answering 'what if'?' questions, cloze passages and low stakes quizzes. (Appendix 1).

Ongoing formative assessment and feedback

Teachers observe and respond to pupils during a lesson, offering verbal feedback and prompting of deeper thinking using questioning for mastery (how could? what if?). Children are supported to use bespoke (or Developing Experts) knowledge organisers, teaching materials on interactive whiteboards, working walls, sentence stems and key vocabulary to explain their thinking and develop understanding. Ongoing teacher observation identifies pupil progress and attainment during lessons and enables learners to be challenged through response and feedback. At Heckington St Andrew's we recognise the value of teacher observation and of a dialogic, language rich learning environment.

Retrieval practice

Evidence (classroom) based research informed strategies are adopted by class teachers to promote metacognition. Pupils are offered carefully planned tasks to promote knowledge retrieval bringing core

knowledge and skills into long term and working memory. Children are explicitly taught these skills and they are reinforced in UKS2 where preparation for KS3 study is considered. We recognise the underpinning cognitive processes of these tasks, and the application of literacy skills, in developing good revision strategies and skills for life beyond primary school. (Appendix 2).

End of unit assessments

Teachers present a task requiring pupils to hypothesise, investigate, record findings and discuss findings, that are planned in line with our Science Progression Document Working Scientifically section, to draw all threads of the unit's key knowledge and skills together. Children access investigation based lessons where teacher observation and pupil outcomes are used alongside the summative assessments (below) to triangulate judgments. (Appendix 3).

Summative assessment- testing arrangements

Children complete science assessment papers at the end of terms 2, 4 and 6. (Term 3, 4 and 6 in 2021-22). We have adopted tests provided by Developing Experts, from which our breadth of knowledge and mastery of science is underpinned in our lesson sequences. There is a further year 5 formal assessment in the summer term using the PLAN year 5 assessment paper. (Appendix 4).

Term 3 and 5 whole school moderation.

All teachers attend an in-school moderation exercise contrasting our evidence to support judgments and our progression in action through a ladder style gallery of a selected sample of pupils. PLAN exemplar materials are used to contrast judgments with national expectations. This session forms part of ongoing science CPD for teachers. This promotes and supports shared dialogue amongst the team, shared best practice and to confirm our judgments for WTS, EXS, GD whilst also providing a conversation about the progress of SEND and PP pupils. (Appendix 5).

Appendix 1

Pre assessment tasks

These tasks are a guide and teachers are encouraged to research and source appropriate examples to promote the best outcomes for their pupils. We recognise that teachers know their classes best and these examples provide a basis from which to design pre assessment tasks.

Concept cartoons

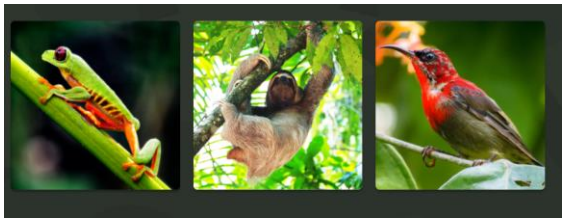
Concept cartoons are drawings that put forward a range of viewpoints about a particular scenario. They are designed to intrigue, provoke discussion and stimulate thinking. They include concepts that are problematic and stimulate further development of ideas. They can be used as free standing discussion and elicit misunderstandings. Children can create their own concept cartoons as a way of assessing and reviewing their current understanding. Children can consider why the different viewpoints are made by the children in the cartoons and add their own to a blank bubble. The task is designed to avoid being judgmental as children share their ideas. Children can explore, learn and consolidate their understanding of a concept. This tasks promotes a safe space for children to change their thinking and explain why they have done so. Teacher observation will inform areas that need addressing, explicitly teaching or where opportunities for challenge may lie for some children. https://www.stem.org.uk/resources/collection/385903/practical-action-concept-cartoons

Explorify

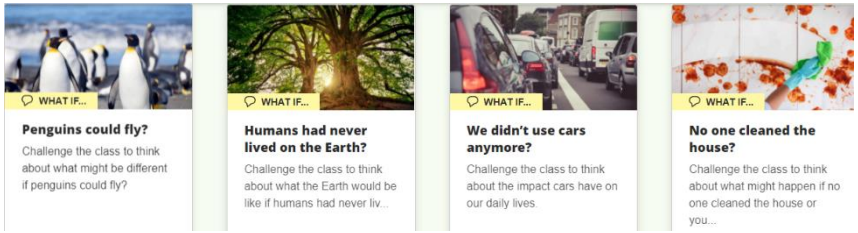
https://explorify.uk/en/activities

This site provides discussion and investigation rich tasks for the whole science curriculum. The samples can be used as starters, hinge questions, or investigation tasks.

Odd one out



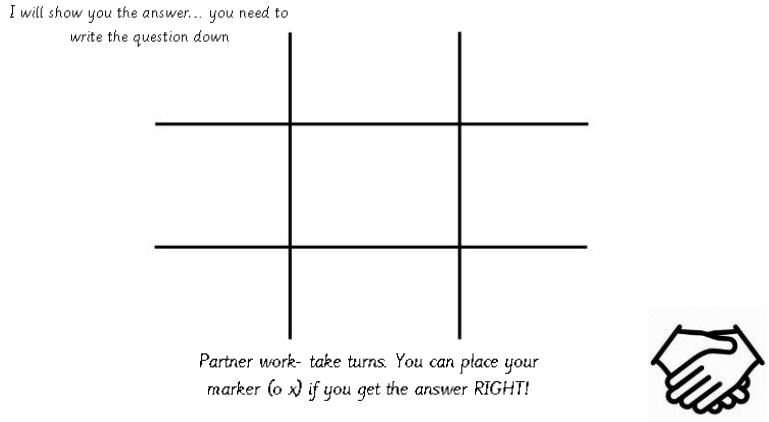
What if?

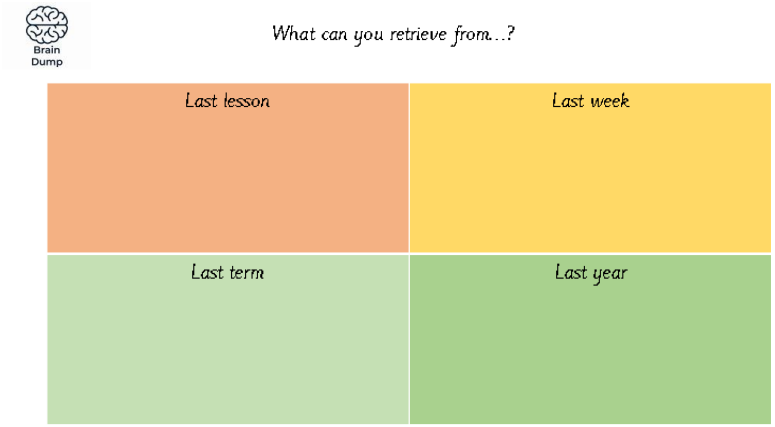


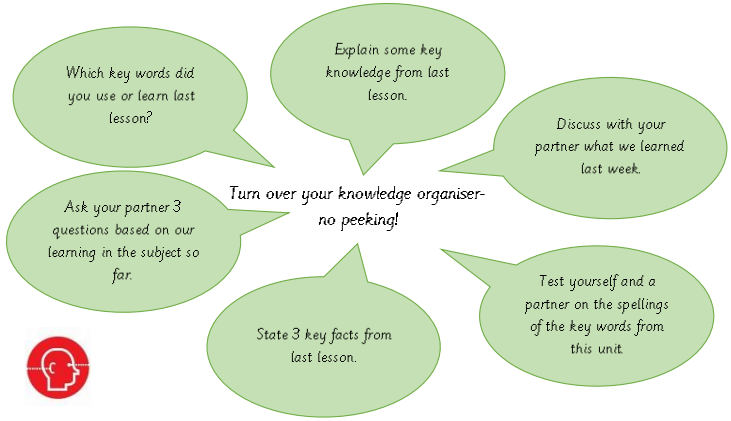
Zoom in

Appendix 2

Teachers have access to a range of prepared retrieval practice tasks that can be edited for each unit. These tasks are adaptable across the whole curriculum and can inform lesson starters, retrieval of prior lessons, units and year groups.





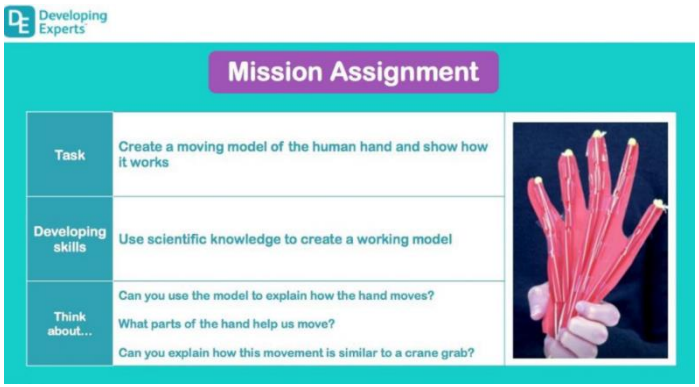


Kate Jones- *Retrieval Practice- Research and Resources for Every Classroom (2020)*

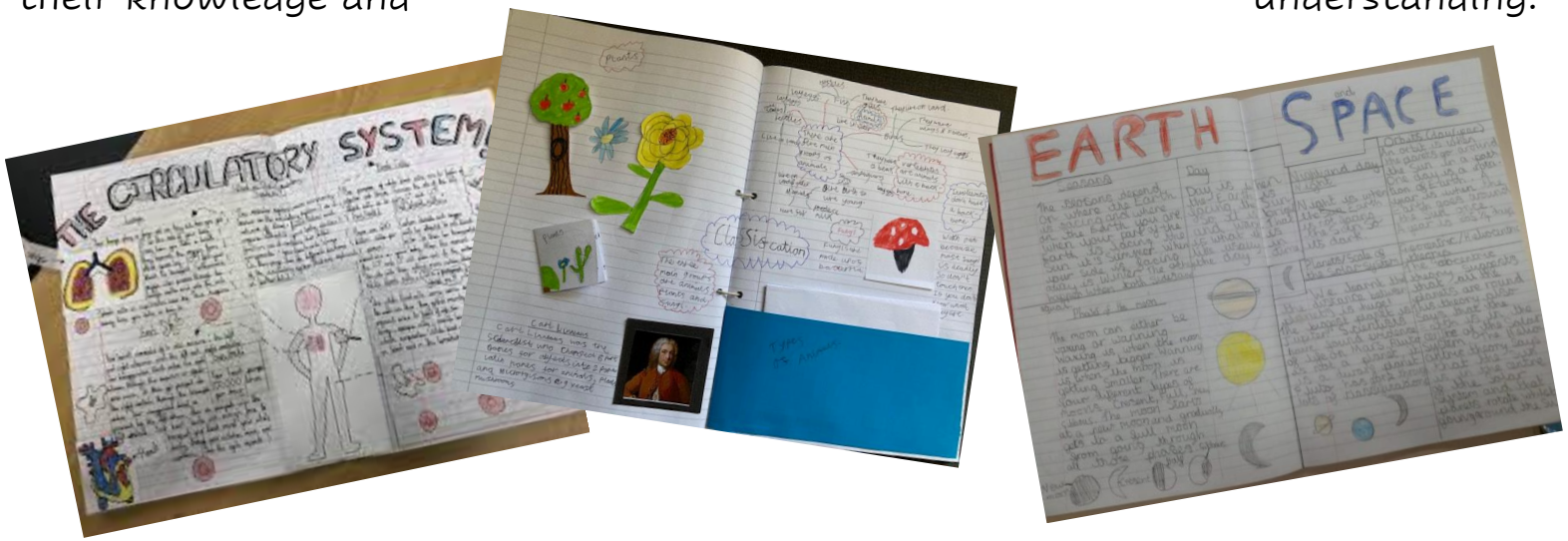
Anoara Mughal- *Think! Metacognition Empowered Primary Teaching (2021)*

Appendix 3

Pupils should complete a unit outcome task to showcase their learning. Developing Experts offers end of lesson and unit mission assignments where children apply their learning in practical and formal ways. These tasks are designed to promote assessment opportunities. The sample here is a lesson outcome for year 3: Identify that humans and some animals have skeletons and muscles for support, protections and movement.



Key unit knowledge can be applied to a creation of a knowledge organise by pupils to showcase their learning at the end of a unit. An A3/ double page spread allows children to demonstrate their knowledge and understanding.

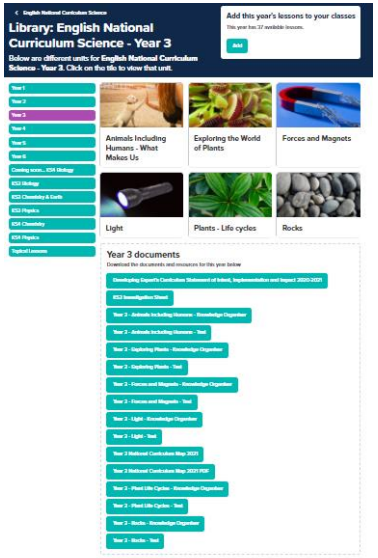


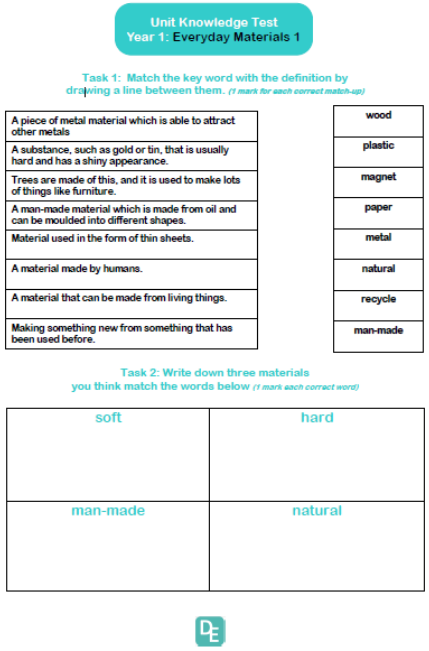
(Credit to Whitchurch and Farfield Primary)

Appendix 4

Term 2, 4 and 6 assessment- test papers

Our curriculum progression is developed further through use of Developing Experts. While teachers use their professional judgment for unit and short term planning, we make best use of the assessment materials to allow for a formal assessment to triangulate our judgments.





Teachers can access these through their Developing Experts log in, select their unit and the required end of unit tests. These tests, along with the accompanying unit content, promote mastery of our knowledge rich science curriculum.

https://www.developingexperts.com/

Appendix 5

Science Assessment and Monitoring

In line with our Science Assessment and Monitoring Arrangements (2022), these judgments are informed by observation, outcomes in pupil work, and end of unit assessments.

Date_____ Class: _____ Year group: _____

Units assessed.....Test papers completed.....End of unit outcome.....

Colour SEND, PP and SEND/PP

GD	EXS	WTS+	WTS

Whole Class Areas for Development (common themes that have emerged):

How I will target the above (specific chn and AfD):

Content that needs to be addressed before the end of the academic year	End of year transition to new year group- Specific learning outcomes to consider in subsequent year group's learning