KO: Science

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Critical Concepts

1. Pupils understand concept of fair testing

2. Pupils able to hypothesise, respond to hypothesis and further develop hypothesis to investigate a new avenue

Curriculum Threads

Sense of belonging Appreciation of difference

Appreciation of the World Awe and Wonder

FOUNDATION STAGE

Understanding the World

Past and Present ELG (History)

Children at the expected level of development will:

- Talk about the lives of the people around them and their roles in society;
- Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class;
- Understand the past through settings, characters and events encountered in books read in class and storytelling;
- Key Vocab:- Now, next, old, new, past, future

People Culture and Communities ELG (Geography/RE)

Children at the expected level of development will:

- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts, and maps;
- Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class;
- Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and when appropriate maps.
- Key Vocab
- Location and place knowledge: World, earth, environment, place, journey
- Human Geography: Road, shop, church, school, library
- Physical Geography: Weather, seasons, mountain, beach, sea
- Fieldwork: Map, globe, directions, explore

`The Natural World ELG (Science)

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Key Vocab

- Working Scientifically: Science, experiment, explain, change, why?
- Animals including humans: Smell, touch, hear, taste, see
- Plants: Plant, Seed, Grow, Flower, Leaf
- Materials: Touch, shiny, hard, rough and smooth

	Autumn	Spring	Summer
N u r s e r y	 Foundational Knowledge: Changes in Season - Autumn Use senses to describe different natural materials (conkers, leaves, acorns etc) - hands on exploration Talk about what they can see (notice) Notice differences between people Describe places that are familiar (e.g. nursery, home, park etc) Christmas as celebration of the birth of Jesus Diwali Talk about what happened during the holidays Talk about our families and people who are important to us 	 Changes in Season - Spring Recognise and name different animals and some features (through exploration and stories) - hibernation Know that animals have different habitats (under the ground, in the sea, on a farm). Recognise and name your own body parts and their function (nose, eyes, head, toes). Describe things that they can see, hear, smell, taste and touch. Describe what is similar and different between materials/objects Begin to understand the need to respect and care for the natural environment and all living things Earth:Day Know that there are different countries in the World and talk about some differences Chinese New Year Easter Celebration of Mummies or special women in our lives (Mother's Day) 	 Changes in Season - Summer Be able to talk about and describe different types of plants and how they grow and change over time (e.g. big tree/ little flower, green bush, dead plant) To talk about changes and make close observations of the life cycle of an animal or insects (e.g. caterpillars, tadpoles) People who help us (different occupations) Celebration of Daddies or special men in our lives (Father's Day)

	Talk about things that have happened in the past (yesterday, last week, when we were little, birthdays, holidays) – introduce To know that things have happened in the past (related to personal experiences).		
	Notice and describe different types of weather and how it feels/what we wear in different weather.		
	Know the difference between day and night and talk about what happens at night and in the day.		
	Children will be able to describe what they see. Children will learn no	bw to observe what they see. Children will ask questions about	it what they see.
	Recognise that there are special people in our ramilies.		
	Recognise that there are similarities and differences between people i	(develop positive attitudes) through stories and discussion.	Consider
R e c p t i o	 All About Me Box / Photos timeline Know that we were babies and have grown up (and will continue to grow up) To know that things have happened in the past in own families (birth of siblings, moving house, getting a pet etc). To know where I live and how I get to school To talk about the special people in my life Autumn natural materials - conkers, leaves, pine cones etc, name and explore properties Explore significant events e.g. Remembrance Day 11th November. Christmas as celebration of the birth of Jesus Diwali To know about God - creation 	 Ice/ cold / weather To know what a life cycle is - insects, frogs, plants etc Recognise and describe different animals in their local habitat and from around the world - same / difference Recognise and name a variety of different animals including insects Recognise that people have different beliefs and celebrate special times in different ways (special stories) Recognise that stories can tell us about what different people believe Easter Chinese New Year To know that the world is made up of different countries (globes/ maps) 	 Growing To know that plants grow from a seed/bulb To name the main parts of a plant (including trees) eg stem and leaves, flowers have petals To know what a plant needs to grow Sort and group animals according to key features (e.g. these animals live in the sea, these fly). Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read or shown in class Grandparents day - how things were different when Grandma was a child. Notice and describe similarities and differences between where they live with other places. Special places - church link
	Notice and describe different weather patterns across the year / so Understand that the sun gives us light - explore the solar system (sun	easons and planets)	
	Children will be able to describe what they see. Children will learn he	ow to observe what they see. Children will ask questions abou	it what they see.
	Understand the past through settings, characters and events encount	ered in books read in class, storytelling and sharing images	
	Recognise that people have different beliefs and celebrate special	times in different ways e.g. Christmas, Easter, Diwali, Lunar Ne	ew Year, Eid.

KEY STAGE ONE			
Торіс	Disciplinary Knowledge:	Substantive Knowledge / thread/ experiences	Vocabulary
Working Scientifically (Yr 1) Ice hands	<u>Critical concept: Fair testing</u> During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills	*To understand an investigation to be a search for facts *To have an opinion about what might happen during the experiment * To understand 'results' as the facts of what happened in an experiment * To understand data as observations and measurements taken from an experiment. They should be listed in the form of a chart or graph so that children can visually and clearly see the results from the data	<u>Vocab re discipline:</u> <u>Scientist:</u> An expert in science. A scientist tests out ideas and gains knowledge <u>Question</u> : sentences that that we ask or write to gain further information <u>Observe</u> : To look closely and carefully <u>Record:</u> To keep evidence

	 through the teaching of the programme of study content: Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 		Similar: having things in common/ alike <u>Different:</u> not the same/ unlike <u>Predict:</u> A good guess about what might happen
Animals inc humans (Y1) Birds,	Critical concept: Fair testingi) asking simple questions and recognising that they can be answered in different waysii) observing closely, using simple equipmentiii) performing simple testsiv) identifying and classifyingv) using their observations and ideas to suggest answers to questionsvi) gathering and recording data to help in answering questions	Curriculum Link: Hummingbird POR Link to previous learning: Development Matters: Understand the key features of the life cycle of a plant and an animal. Reception- Antarctica- remind re animals in their habitats Opportunities to explore spirituality/ thread: key experiences:- reading book/ videos of African savannah - wonder at the variety of life. Trip to Bristol Zoo Project. Visitor in. key reflection:- our DNA shows we are related to all living things-how does that make you feel? Retrieval docs Elicitation - Heard the word- repeated Quiz re vocab Science Knowledge: identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals- resource 	Vocab re substantive knowledge animals <u>Fish</u> : a limbless cold-blooded vertebrate animal with gills, scales and fins living wholly in water. They don't breathe air. Most fish lay eggs. <u>Amphibian</u> : a cold-blooded animal living both in water and on land. Nearly all lay eggs, usually near or in water. When they hatch, they have gills which means that they can breathe underwater. As they get older, they develop lungs, which means that they can breathe air on land. Most have 4 legs, but there are a few with no legs. They have smooth skin and no hair. <u>Reptile:</u> a cold-blooded vertebrate animal. Reptiles are snakes, lizards, crocodiles, turtles, and tortoises. They have dry scaly skin and most lay soft eggs on land. They all have lungs and breathe air. <u>Bird:</u> A bird is a warm-blooded animal with a beak, feathers, two wings and two legs. Birds lay eggs. Most birds can fly except for birds like ostriches and penguins who use their wings (which we call flippers) to swim. They have lungs and breathe air. <u>Mammal</u> : a warm-blooded vertebrate animal, they have hair

		 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) resource link identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. resource link 	mammals have live babies. Mammals have lungs and breathe air. They either have no legs or 4 legs. <u>Carnivore:</u> An animal that only eats meat <u>Herbivore:</u> An animal that only eats plants <u>Omnivore:</u> An animal that eats both meat and plants <u>Animal:</u> Living thing that feeds off plants or other animals <u>Pet:</u> an animal kept by humans at home for company and pleasure. <u>Vertebrate:</u> animals that have a backbone inside of their body <u>Invertebrate</u> : don't have a backbone <u>Vocab re substantive knowledge humans :</u> <u>Senses:</u> sight, smell, taste, touch, hearing Body parts: knees, elbow, wrist, shin, hips, ribs, shoulders
Plants (Y1) Identifying Plants Structure of Flowering Plants and Trees	Critical concept: Fair testing i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions	 Curriculum Link: Outdoor learning Link to previous learning: Development Matters: Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant. Begin to understand the need to respect and care for the natural environment and all living things Opportunities to explore spirituality/ thread: key experiences:- planting bulbs and seeds, watching their plants grow and nurturing them. Trip to Box Woods. key reflection:- Plants and trees provide us humans with oxygen and clean air. We must protect and take care of them. Many also provide us with food and medicine. Science Knowledge: 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. 	Vocab re substantive knowledge: Wild plants: plants which are not planted by people Garden plants: plants grown in a garden on purpose by people Weed: A plant that is growing where it is not wanted Deciduous: A plant which loses its leaves in the autumn Evergreen: A plant which loses its greenery throughout the year Seeds: the small parts produced by plants from which new plants grow Roots: the leafless underground part of a plant that holds the plant in place Pollen: a fine powder which helps to produce new plants Flower: The part of the plant that blossoms and produces seeds Stem: The part of a plant from which leaves and the flower grow Leaf: The part of a plant that takes in light and turns it into food for the rest of the plant Bark: The outside covering of a tree trunk Trunk: The main stem of a tree

Seasonal	Critical concept: Fair testing	Curriculum Link:	Vocab re substantive knowledge:
changes (Y1)	· · · · · · · · · · · · · · · · · · ·	Outdoor Learning	Season: one of the four periods of the year (spring, summer,
	i asking simple questions and recognising		autumn, and winter).
Annually		Link to previous learning:	Weather: The conditions outside
	that they can be answered in different	Development Matters: Explore and talk about different forces they	Forecast: predicted weather
	ways	can feel.	Rain: Water that falls from the clouds to the earth
			Cloud: A large collection of tiny droplets of water
	ii. observing closely, using simple	Opportunities to explore spirituality/ thread:	Sun: The star that gives our planet warmth and helps things
	equipment	key experiences:- Outdoor learning, measuring rainfall and the	to grow
		temperature, using equipment. Making a weather book. Watching	Thunder: a loud cracking noise or rumble that follows a flash
	iii performing simple tests	the weather forecast.	of lightning
	in performing simple tests	key reflection:- the world around us is always changing- we must	Lightning: natural electricity produced in thunderclouds
	in identifying and electifying	try and notice the differences. See poetry re seasons- talk about	Storm: a disturbance in the atmosphere or air
	iv. identifying and classifying	personal responses to/ how different seasons make us feel.	<u>Wind</u> : moving air
			Snow: Soft, white flakes of ice that fall from the clouds to the
	v. using their observations and ideas to	Science Knowledge:	earth
	suggest answers to questions	Observe changes across the four seasons	Temperature: A measure of heat or cold
		• Observe and describe weather associated with the	Thermometer: Something we use to measure the
	vi) gathering and recording data to help in	seasons and how day length varies	temperature
	answering questions		
	<u> </u>		
Materials (Y1)	Critical concept: Fair testing	Curriculum Link:	Vocab re substantive knowledge:
	<u>_</u>	DT	Object: a thing that can be seen and touched
			Material: what an object is made of
	A solution of the set	Link to previous learning:	Properties: Things about an object or material that make it
	I) asking simple questions and recognising that	Development Matters:	what it is like
	they can be answered in different ways	Use all their senses in hands-on exploration of natural materials.	Absorbent: able to soak up liquid easily
		Explore collections of materials with similar and/or different	Waterproof: not letting water through
	ii) observing closely, using simple equipment	properties. Talk about what they see, using a wide vocabulary.	Lightweight: weighing little
		Talk about the differences between materials and changes they	
	iii) performing simple tests	notice.	
	iv) identifying and classifying	Opportunities to explore spirituality/ thread:	
		key experiences:- gathering equipment from around the school to	
	A set of the track of the set of	use for their lesson. Taking ownership of preparing the lesson.	
	v) using their observations and ideas to suggest	key reflection:- where do materials come from? - see Wonder Why	
	answers to questions	series	
		Science Knowledge:	

	vi) gathering and recording data to help in answering questions	 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 	
Year 2 Working Scientifically (Will be a separate unit as well as filter through rest of Y2 units)	 <u>Critical concept: Fair testing</u> During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment Performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions Gathering and recording data to help in answering questions. 	*To understand an investigation to be a search for facts *To have an opinion about what might happen during the experiment * To understand 'results' as the facts of what happened in an experiment * To understand data as observations and measurements taken from an experiment. They should be listed in the form of a chart or graph so that children can visually and clearly see the results from the data.	Vocab re discipline: Scientist: An expert in science. A scientist tests out ideas and gains knowledge Question: sentences that that we ask or write to gain further information Observe: To look closely and carefully Record: To keep evidence Similar: having things in common/ alike Different: not the same/ unlike Predict: A good guess about what might happen Compare: look at what is similar or different Scientific test: A test to find something out Enquiry: asking for information

Where have all the trees MoEE Unit- Where have all the trees gone The Last Wolf (PoR) Seeds: the small parts produced by plants from plants grow Where have all the trees they can be answered in different ways all the trees Link to previous learning: Y1 plants Where have plants grow	m which new me plants, from
i) asking simple questions and recognising that The Last Wolf (PoR) plants grow Where have they can be answered in different ways Link to previous learning: which the plant grows all the trees V1 plants Service Germination: the seed starting to grow	me plants, from
Where have all the trees they can be answered in different ways Link to previous learning: V1 plants Bulb: a round root found at the bottom of sor which the plant grows	ne plants, from
all the trees Unput the seed starting to grow	
V1 plants Germination: the seed starting to grow	
Generation description of the seed starting to grow	
<u>Leaf:</u> The part of a plant that takes in light and	d turns it into
Opportunities to explore spirituality/ thread: food for the rest of the plant	
iii) performing simple tests <u>key experiences</u> :- planting bulbs and seeds, watching their plants <u>Soil:</u> Earth containing nutrients that plants ner	ed to grow
grow and nurturing them. Writing a bean diary. Trip to Box Woods. Pollen: a fine powder which helps to produce	new plants
iv) identifying and classifying <u>key reflection:</u> - Plants and trees provide us humans and animals <u>Pollination:</u> pollen is carried by insects or blov	vn by the wind
with oxygen, clean air and habitats. We must protect and take care from one flower to another	
v) using their observations and ideas to suggest of them. Many also provide us with food and medicine. Discuss	
answers to questions	***
Science knowledge: Roots: the leafless underground part of a plan	it that holds the
 Observe and describe now seeds and builds grow into plant in place vi) gathering and recording data to bein in mature plants 	nd the flower
answering questions	nu the nower
suitable temperature to grow and stay healthy	
suitable temperature to grow and stay nearing.	
Azimalaina o tutuluu u Eutuutu Ounindum tidu. Vaaala sa aykataatiina luusudadaa.	
Animais inc <u>Critical concept: Fair testing</u> Curriculum Link: Vocab re substantive knowledge:	
PE Baby: a very young child	
PSTE A person's child/rep or an animal's	Volung
i) asking simple questions and recognising that	young.
they can be answered in different ways V1: Animals inc Humans	
Nutrition: the things (substances) that we tak	e into our
ii) observing closely, using simple equipment Opportunities to explore spirituality/thread:	h
key experiences:- watching caternillars turn to chrysalis and then A balanced diet: a mixture of the correct type	s and amounts
iii) performing simple tests observing the butterflies before releasing them all in the open. of food.	
Pause and look at nature Dairy: foods that are made from the milk of co	ows (or goats or
iv) identifying and classifying key reflection:- Without these basic needs. we die. They are more sheep)	
important than any diamond.	
v) using their observations and ideas to suggest Wonder at metamorphosis. Wonder at the beauty all around us.	
answers to questions The importance of pausing to appreciate beauty.	
vi) gathering and recording data to help in Science Knowledge:	
answering questions Notice that animals, including humans, have offspring 	
which grow into adults	

		 Find out about/describe the basic needs of animals, including humans, for survival (food, water, air) Describe the importance for humans of exercise, eating the right amount of different types of food (nutrition) and hygiene 	
Materials (Y2) See Hamilton for planning Absorbency	Critical concept: Fair testing i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in	 Curriculum Link: Link to previous learning: Y1 Materials Opportunities to explore spirituality/ thread: key experiences:- key reflection:- We must be careful with all items and belongings. Some items can easily be altered by squashing them etc. This effect could be permanent and irreversible. Science Knowledge: Identify and compare the suitability of a variety of everyday materials, inc 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 	Vocab re substantive knowledge: <u>Object</u> : a thing that can be seen and touched <u>Material</u> : what an object is made of <u>Properties</u> : Things about an object or material that make it what it is like <u>Absorbent</u> : able to soak up liquid easily <u>Waterproof</u> : not letting water through <u>Lightweight</u> : weighing little <u>Solid</u> : hard or firm; keeping a clear shape
	answering questions	and stretching.	
Living things and their habitats (Y2)	Critical concept: Fair testing	Curriculum Link: One Day on our Blue Planet: In the Savannah (PoR) Outdoor learning	Vocab re substantive knowledge: <u>Habitat:</u> A place where an animal or plant lives. <u>Micro-habitat:</u> A very small part of a habitat, such as a clump of grass or a space between rocks. It is home to tiny animals
One day on our blue planet in the savannah (PoR)	 i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment 	Link to previous learning: Y1 Animals inc Humans Y1 Plants Y2 Plants Opportunities to explore spirituality/ thread:	like woodlice and butterflies. <u>Carnivore:</u> an animal that feeds on other animals <u>Herbivore:</u> an animal that feeds on plants <u>Omnivore</u> : an animal or person that eats both plants and animals. <u>Predator</u> : an animal that hunts, kills and eats other animals

	 iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions 	 key experiences:- Outdoor learning opportunities- finding natural materials that have never been alive etc /are currently living-minibeast hunts. Trip to Bristol Zoo Project. Visitor in. key reflection:- marvel at the harmony of life- we are all designed to be able to live where we are. Everything works together in order to make this possible. Science Knowledge: Explore and compare differences between things that are living, dead and things that have never been alive. Identify that most living things live in habitats in which they are suited and describe how different kinds of animals and plants, and 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 to name different sources of food. 	Prey: an animal that is hunted and killed for food by another animal
		LOWER KEY STAGE TWO	
Year 3/4 Working Scientifically (Will be a separate unit as well as filter through rest of Y3/4 units) Taught as an explicit unit at the start of every year (Autumn 1)	Critical concept: Fair testing Pupils understand the concept of fair testing In a fair test you only change 1 variable at a time while keeping all other variables the same. A variable is a change in the product Pupils can set up simple practical enquiries, comparative and fair tests	 *Ask relevant questions and use different types of scientific enquiries to answer them. Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Identify differences, similarities or changes related to simple, scientific ideas and processes. 	 <u>Vocab re discipline:</u> 1 Scientist: An expert in science. A scientist gathers and uses research and evidence, making a hypothesis and testing it, to gain knowledge. 2 Enquiry: asking/posing a question to gain information/knowledge 3 Hypothesis: An idea or explanation for something that is a starting point for further investigation (but it has not yet been proved). 4 Fair test: A fair test is a test which only changes one variable. (This means the person carrying out the test is able to know that no other variable has affected the results of the test). 5 Variable: A number, amount, or factor that can change.

	 Use straightforward, scientific evidence to answer questions or to support their findings. *Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To understand a conclusion comes at the end of the experiment and is your opinion about what happened. *To understand a hypothesis as a suggested explanation made on the basis of limited evidence as a starting point for further investigation. Pupils begin to hypothesise. 	 6 Observation(s): Closely monitor/observe something , looking for specific details 7 Prediction: A forecast of what will happen under specific conditions. 8 Evidence: body of facts/information indicating whether something is true or not. Does it support the hypothesis? 9 Conclusion: when scientists reveal whether the hypothesis was proven correct and why/why not this might be.
Forces and magnetsCritical concept: Fair testingY3/4Working Scientifically (LKS2) i. asking relevant questions and using different types of scientific enquiries to answer them ii. setting up simple practical enquiries, comparative and fair tests iii. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment iv. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions v. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables vi. reporting on findings from enquiries, including oral and written explanations, displays or presentations for new values, suggest 	Curriculum link: Link to previous learning: Y1 Materials:Let's Build Y1: Materials: Marvellous Materials Y2 Materials: Use of everyday materials Y2 Materials: Squash, Bend, Twist, Stretch Opportunities to explore spirituality/ thread: key experience:- making and using own compasses key reflection:- Magnetic forces beyond us – Wonder at the fact that the Earth is one giant magnet! Science Knowledge: • notice some forces need contact between two objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other & attract some materials & not others • compare & group variety of materials on basis of attraction to a magnet & identify magnetic materials • describe magnets as having two poles • predict if two magnets will attract or repel each other, depending on which poles are facing	 Forces: pushes or pulls Push: to exert force on something to move it away Pull: to exert force on something to bring it closer Gravity: a force of attraction between 2 objects Friction: A force that acts between 2 surfaces or objects that are moving/trying to move across each other Magnet: An object that produces a magnetic force that pulls certain objects towards it Magnetism: an invisible force or field that causes objects to attract or repel one another Magnetic: relating to magnetism Non-magnetic: not able to attract objects or materials containing iron or steel Magnetic field: The area around a magnet Repel: to push back or away by a force Repulsion: When two poles or charges pushes away each other Attract: to pull objects together Poles (north and south): each of the two points or regions of a magnet to and from which the lines of magnetic force are directed.

	viii. identifying differences, similarities or changes related to simple scientific ideas and processes ix. using straightforward scientific evidence to answer questions or to support their findings.		
Living things and habitats	Critical concept: Fair testing	Curriculum Link: Climate Change MoEE unit	Living thing: A living thing must have the features movement, respiration, sensitivity, growth, reproduction, excretion and nutrition
Y3/4	Working Scientifically (LKS2)	Link to previous learning: Y2 Habitats - Gardens and Allotments Y2 Habitats - Animal life cycles	Alive: made of cells, able to grow and develop, reproduce, metabolise, respond to the environment, and over time, evolve.
Spring 2024 Spring 2026	 i) asking relevant questions and using different types of scientific enquiries to answer them 	Opportunities to explore spirituality/ thread: <u>key experiences</u> :- Science day - local environment habitat study <u>key reflection</u> :- We are the shepherds of our planet = values of	<u>Dead:</u> total cessation of life processes that eventually occurs in all living organisms <u>Vertebrate:</u> animals with backbones/spines <u>Invertebrate:</u> Animals lacking backbones/spines
	 ii) setting up simple practical enquiries, comparative and fair tests iii) making systematic and careful observations and, where appropriate, taking accurate 	 Responsibility & Compassion Science Knowledge: 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 	MRS GREN:- Movement: All living things move - animals move from place to place. Plants move towards the sunlight Respiration: Plants and animals use oxygen in the air to turn the food they eat into energy. Sensitivity: Every living thing can detect changes in their surroundings. Growth: All living things grow - animals grow from babies to
	measurements using standard units, using a range of equipment, including thermometers and data loggers iv) gathering, recording, classifying and	 recognise that environments can change and that this can sometimes pose dangers to living things. 	adults, seeds grow into plants <u>Reproduction:</u> All living things reproduce - animals have young, plants produce seeds <u>Excretion</u> : Waste products are removed from the body. Both plants and animals have to get rid of excess gas and water <u>Nutrients:</u> a substance that is important for life and growth.
	presenting data in a variety of ways to help in answering questions		Food is eaten to provide energy to live. Green plants make their own food using sunlight.
			<u>Classify</u>: To arrange/group things according to characteristics <u>Adapt</u> : animals have developed certain characteristics over time to help them be suited to their environment. <u>Branching database</u> : a way of classifying a group of objects <u>Environment</u> : The natural world <u>Local</u> : related to one's particular area/neighbourhood

y) recording findings using simple scientific Habitat: A natural environme	ent or home of plants and
language drawings labelled diagrams keys bar	
Dange: possibility of suffering	g harm or injury
charts, and tables	nifts in temperatures and
weather patterns	
Greenhouse effect: process t	hrough which heat is trapped
vi) reporting on findings from enquiries, near Earth's surface by substa	ances known as 'greenhouse
including oral and written explanations, displays gases'	
or presentations of results and conclusions <u>Threat</u> : a person/thing likely	to cause harm or danger
Impact: force of impression of	of one thing on another
vii) using results to draw simple conclusions,	
make predictions for new values, suggest	
improvements and raise further questions	
wiii) identifying differences, similarities or	
viii) identifying differences, similarities of	
changes related to simple scientific ideas and	
processes	
ix) using straightforward scientific evidence to	
answer questions or to support their findings	
Vear 3/4 Critical concent: Fair testing Curriculum Link: Seed: The part that the plant	grows from
Plants DT cooking - seasonality of food/ingredients Elower: The part and the plant	that holds the seeds and the
PSHE - RSE	that holds the seeds and the
Spring 2024 Geography: Plastic planet Leaf: The flat, green part that	t grows from the stem.
Roots: attaches the plant to t	the ground for support.
Spring 2026 Link to previous learning: Stem: The supporting part of	the plant that is usually above
i asking relevant questions and using different Y1 Plants: What is Growing in our Gardens the ground.	
Y2 Plants: Ready Steady Grow! <u>Stigma:</u> part of the female re	productive system of a flower. It
is found in the centre of a flor	wer and helps to collect pollen
Opportunities to explore spirituality/ thread: Style: Style: Starter	the stigma and connects it to
ii. setting up simple practical enquiries.	
videos, Box Woods visit, Y4 residential Stamen: The pollen producing Stamen: The pollen producing Common and fair tests	g part of a flower
comparative and rail tests <u>key reflections</u> - we field plants more than they field us. We have <u>Ovary:</u> a part of the remaining of the remaini	eproductive organ of the nower.
some Diver in common with plants.	
some DNA in common with plants.	

iii. making systematic and careful observations	Discuss how growing things/ tending to life can be good for us	Ovule: the organ within the plant that produces and houses
and, where appropriate, taking accurate		egg cells
measurements using standard units, using a		Carpel: seed-bearing structure
range of equipment including thermometers	Colonea Knowledge	Petal: leaf that protects and surrounds the reproductive parts
	Science Knowledge:	of a flower
and data loggers	flowering plants: roots stem/trunk leaves and flowers	MRS GREN -
	 Explore the requirements of plants for life and growth 	Movement: All living things move - animals move from place
iv gathering recording classifying and	(air, light, water, nutrients from soil, room to grow) and	to place. Plants move towards the sunlight
presenting data in a variaty of ways to hole in	how they vary from plant to plant	<u>Respiration</u> : Plants and animals use oxygen in the air to turn
presenting data in a variety of ways to help in	 Investigate the way in which water is transported within 	the food they eat into energy.
answering questions	plants	Sensitivity: Every living thing can detect changes in their
	 Explore the part that flowers play in the life cycle of 	surroundings.
v recording findings using simple scientific	flowering plants, inc pollination, seed formation and seed	<u>Growth:</u> All living things grow - animals grow from babies to
	dispersal.	adults, seeds grow into plants
language, drawings, labelled diagrams, bar		voung plants produce seeds
charts, and tables		Excretion : Waste products are removed from the body. Both
		plants and animals have to get rid of excess gas and water
vi reporting on findings from anguirios		Nutrients: a substance that is important for life and growth.
		Food is eaten to provide energy to live. Green plants make
including oral and written explanations, displays		their own food using sunlight.
or presentations of results and conclusions		
		<u>Transportation:</u> the movement of water and minerals from
vii using results to draw simple conclusions		the roots to different parts of the plants
vii. using results to draw simple conclusions,		Pollen: Fine, nowdery substance that is usually yellow
make predictions for new values, suggest		Dispersal: Transport of seeds. Can be transported via
improvements and raise further questions		animals, water, wind or seeds explode and are projected
		away from parent plant.
viii identifying differences, similarities or		Germination: the development of a plant from a seed.
vin. Identifying differences, similarities of		Pollination: The transfer of pollen to another plant.
changes related to simple scientific ideas and		Fertilisation: Pollen reaches the new flower and travels to
processes		the ovary where it fertilises egg cells (ovules) to make seeds
		Shoot: above ground part of the plant that hears the
iv using straightforward scientific ouidance to		flowering buds, lateral buds and flowering stems
		Fruit: fleshy or dry ripened ovary of a flowering plant,
answer questions or to support their findings.		enclosing the seed or seeds
		Buds: a swelling on a plant that can grow into new parts

Animals inc humans Y3/4	Critical concept: Fair testing	Curriculum Links: PE units - health and fitness	Nutrition: the nutrients in food and how the body uses them Diet: the kinds of food that a person, animal, or community
Summer 2024 Summer 2026	Working Scientifically (LKS2)	PSHE - Keeping Healthy Link to previous learning: Y1 Animals inc Humans: Ourselves	nabitually eats <u>Carbohydrates:</u> the body's major source of energy <u>Proteins:</u> made up of molecules called amino acids <u>Dairy:</u> food products made from (or containing) milk
	 i) asking relevant questions and using different types of scientific enquiries to answer them 	Y1 Animals inc Humans: Our Pets Y2 Animals inc Humans: Healthy Animals Y2 Animals inc Humans: Animal Life Cycles	<u>Fats:</u> nutrients in food that the body uses to build cell membranes, nerve tissue (including the brain), and hormones Sugars: provide a source of energy in our diet
	ii) setting up simple practical enquiries, comparative and fair tests	Opportunities to explore spirituality/ thread: <u>key experiences</u> :- owl pellets dissection, recreation of digestive system, visit from dentist <u>key reflection</u> :	<u>Vitamins:</u> nutrients that humans need in order to grow, reproduce, and be healthy <u>Minerals:</u> the elements present in food that are required by our body to develop and function properly <u>Fibre:</u> to keep the digestive system healthy
	 iii) making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 	How many animal species are there on earth? how many more are there to discover? Discuss Buddhist saying- 'you should think with your belly- ('You must not think with your head but with your abdomen, think with your belly' the abdominal part where the viscera are contained is controlled by the involuntary nerves and represents the most primitive stage of evolution in the structure of the body) What impact do humans have on food chains?	<u>Vertebrate:</u> animals with backbones/spines <u>Invertebrate:</u> Animals lacking backbones/spines <u>Digestive system</u> : The process of breaking down food into small particles that can be absorbed by the body. <u>Digestion:</u> The food that we eat has to be broken down into other substances that our bodies can use, and any waste removed
	iv) gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	 Science Knowledge: 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. describe the simple functions of the basic parts of the digestive system in humans 	<u>Mouth:</u> opening to the digestive system <u>Saliva</u> : a fluid produced in the mouth that contains enzymes that help digest food. <u>Enzymes</u> : They help to break down molecules so that they can be absorbed by the body. <u>Oesophagus</u> : This squeezes food and pushes it from the mouth to the stomach <u>Stomach:</u> Enzymes and digestive acids break down the food and nutrients are released. <u>Small intestine:</u> where nutrients is absorbed and passed into the bloodstream.

v) recording findings using simple scientific	 identify the different types of teeth in humans and their 	large intectine: Left over water is absorbed and waste is
language drawings labelled diagrams have been	simple functions	removed.
language, drawings, labelled diagrams, keys, bar	 construct and interpret a variety of food chains, 	<u>Rectum:</u> Part of the digestive system where faeces are stored
charts, and tables	identifying producers, predators and prey.	before leaving the body through the anus
		Anus: opening at the far end of the digestive tract through
vi) reporting on findings from enquiries		which stool leaves the body
including and unitary and unitary and		Faeces: waste that remains after food has been digested and
including oral and written explanations, displays		its nutrients absorbed by the body
or presentations of results and conclusions		Skeleton: hones of the body that form a framework
		Bone :provide support for our bodies and help form our shape
vii) using results to draw simple conclusions		Skull: set of bones that make up the head of a vertebrate
wells are disting for powerfunctions,		Pelvis: basin-shaped complex of bones that connects the
make predictions for new values, suggest		trunk and the legs
improvements and raise further questions		Femur: ong bone that runs the length of your upper leg
		Ribcage: name for the group of 12 pairs of ribs that protect
viii) identifying differences similarities or		the organs in your chest and help you breathe
changes related to simple scientific ideas and		Endoskeleton: a skeleton that is on the inside of a body, like
changes related to simple scientific ideas and		Exoskeleton: ri gid external covering for the body in some
processes		invertebrate animals
		Hydrostatic skeleton: one that contains no rigid, hard
ix) using straightforward scientific evidence to		structures or bones for support, but rather relies on a fluid-
answer questions or to support their findings		filled cavity surrounded by muscles
answer questions of to support their minings.		<u>Muscles:</u> soft tissues in the body that contract and relax to
		cause movement
		Joints: where two bones meet Tendons: cord of tissue that attaches the end of a muscle to a
		bone or other part of the body
		Biceps: large flexor muscle of the front of the upper arm
		Triceps: large muscle at the back of the upper arm
		Teeth: Hard structures in the mouth that help with biting
		and chewing food.
		Canine: tears and rips
		Promolar: bolds and crushes
		Incisor: bites and cuts
		Jaw: either or both of the two bones that frame the mouth
		and hold the teeth.

		Predator: an animal that naturally preys on others Prey: an animal that is hunted or killed by another animal for food Producer: An organism, such as a plant, that produces its own food. Food chain: series of organisms each dependent on the next as a source of food Consumer: organism that cannot produce its own food and must eat other plants and/or animals to get energy Herbivore: An animal that feeds on other animals. Omnivore: An animal that eats plants and animals.
Sound Critical concept: Fair testing	Curriculum Link:	Eardrum: The part of the ear that vibrates when receiving
V3/4	Previous Power of Reading units - Libba, Karl Nova Computing: Digital music. Music units.	sounds. Sound: vibrations that travel through the air or another
Working Scientifically (LKS2)		medium and can be heard when they reach a person's or
Autumn 2024	Link to previous learning:	animal's ear
1 days 2026	Opportunities to explore spirituality/thread:	<u>Ear:</u> organ of hearing and balance in humans and other
Autumn 2026 vii) setting up simple practical enquiries,	key experiences:- musical instruments,	Sound waves: Sound waves are formed by objects vibrating.
comparative and fair tests	key reflection:-	These sound waves travel through air, water and solid
	Discuss what active listening means- come up with some rules for	objects. When they reach our ears, the sound waves make
viii) making systematic and careful observation	Mindfulness based on sounds	the delicate skin of our eardrums vibrate.
and where appropriate taking accurate	Consider thunder and lightning- why you see the lightning first	Fcho: Where the sound is repeated because the sound has
measurements using standard units using a	How can I see something before I can hear it?	reflected back. Sound waves can bounce off of smooth, hard
measurements using standard dints, using a		objects. The direction of the sound changes but the echo
range of equipment, including thermometers		sounds the same as the original sound. Soft surfaces will
and data loggers	Science Knowledge:	absorb the sound and it will not echo.
	 identify how sounds are made, associating some of them with something vibrating 	<u>Transmit</u> : to send or convey from one person or place to
ix) gathering, recording, classifying and	 recognise that vibrations from sounds travel through a 	Particles: a minute portion of matter
presenting data in a variety of ways to help in	medium to the ear	Medium: These include air, water and solids. Where there is
answering questions	• find patterns between the pitch of a sound and features	no medium (such as in a vacuum), the sound waves do not
	of the object that produced it	have anything to travel through and so would not be heard.
	 find patterns between the volume of a sound and the struggth of the vibrations that are dueed it 	Sound Insulation: Using materials to absorb sound to make it
	strength of the vibrations that produced it	quieter.
	the sound source increases.	sound.

	 x) recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables xi) reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 		Noise Pollution: Unwanted or harmful levels of sound. Pitch: How high or low a sound is. The narrower the sound waves, the higher the pitch. Amplitude: maximum extent of a vibration Frequency: rate per second of a vibration constituting a wave, in a material (as in sound waves) Volume: How loud or quiet a sound is. The taller the sound waves, the louder the sound. Noise: a sound, especially one that is loud or unpleasant or that causes disturbance Loudness: making a lot of noise, or the amount of noise
	make predictions for new values, suggest improvements and raise further questions		Silent: not making or accompanied by any sound Muffle: to wrap with something to deaden or prevent sound
	xiii) identifying differences, similarities or changes related to simple scientific ideas and processes		
	xiv) using straightforward scientific evidence to answer questions or to support their findings		
Electricity Y3/4	Critical concept: Fair testing Working Scientifically (LKS2)	Curriculum Link: DT unit: electrical toys Link to previous learning:	<u>Electricity</u> : It is a type of energy that is created by generators which can be powered by gas, coal, oil, wind, water or solar. It can be converted into other types of energy such as light, heat, sound or movement.
Spring 2025 Spring 2027	i) asking relevant questions and using different types of scientific enquiries to answer them	Opportunities to explore spirituality/ thread: key experiences:- making electrical toys, key reflection:- What is the future of electricity? What is our carbon footprint?	Power: Power is a measure of how fast electrical energy is turned into another type of electrical energy such as light or heat. Power is measured in a unit called watts. Appliances: device or piece of equipment designed to perform a specific task
	ii) setting up simple practical enquiries,comparative and fair testsiii) making systematic and careful observations	Consider the difference the discovery of electricity has made to us Science Knowledge:	<u>Electrical circuit</u> : A complete path through which electricity can flow. A circuit always needs a power source with wires connected to both the negative and positive ends. <u>Current</u> : The flow of an electric charge.
	and, where appropriate, taking accurate	· identity common appliances that full of electricity	

	measurements using standard units, using a range of equipment, including thermometers and data loggers	 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 	Battery: container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power Wire: metal drawn out into the form of a thin flexible thread or rod
	iv) gathering, recording, classifying and	of a complete loop with a battery	Crocodile clip: a sprung metal clip with long, serrated jaws,
	answering questions	 recognise that a switch opens and closes a circuit and 	used attached to an electric cable for making a temporary
		simple series circuit	Cells: A device used to create electricity. A battery is one or
	v) recording findings using simple scientific	 recognise some common conductors and insulators, and 	more cells connected.
	language, drawings, labelled diagrams, keys, bar	associate metals with being good conductors.	Wires: They are plastic coated and conduct the electricity to
	charts, and tables		different components within the circuit.
			Bulb: The metal filament conducts electricity and causes the
	vi) reporting on findings from enquiries,		light build to light up.
	including oral and written explanations, displays		current to either pass through (closed circuit) or it prevents it
	or presentations of results and conclusions		from passing through (open circuit).
			Buzzer: A component that makes a sound when electricity
	vii) using results to draw simple conclusions,		passes through it.
	make predictions for new values, suggest		Motor: A component which moves/spins when electricity
	improvements and raise further questions		Conductors: a material that lets electricity pass through it
			easily. Good electrical conductors include many metals such
	viii) identifying differences, similarities or		as copper, iron and steel.
	changes related to simple scientific ideas and		Insulators: Materials that do not allow electricity to pass
	processes		through them. Good insulators include wood, glass, plastic
			and rubber. Electrocute: to kill or severely injure by electric shock
	ix) using straightforward scientific evidence to		<u>Lieurocute</u> . to kin of severely injure by electric shock
	answer questions or to support their findings		
Light and	Critical concent: Fair testing	Curriculum Link:	Light: A type of energy that travels in waves. It allows us to
shadows	<u>entical concept. Fail testing</u>	Art unit on silhouettes: Jan Pienkowski	see the world around us.Light travels in straight lines.
		RE: Symbolising of light across religions	Dark: The absence of light.
Y3/4	Working scientifically		White light: complete mixture of all of the wavelengths of
	working scientifically	Link to previous learning:	the visible spectrum
Spring 2025		Opportunities to explore spirituality/ thread:	visione right: the segment of the electromagnetic spectrum that the human eve can view
Spring 2027	i. asking relevant questions and using different	key experiences:- shadows on the moon	Spectrum: band of colours, as seen in a rainbow. produced by
3pr 111g 2027	types of scientific enquiries to answer them	key reflections:-	separation of the components of light by their different
		We never see the dark side of the Moon.	degrees of refraction according to wavelength.
		Can you run from your own shadow?	

 ii. setting up simple practical enquiries, comparative and fair tests iii. making systematic and careful observ and, where appropriate, taking accurate measurements using standard units, iv. gathering, recording, classifying and presenting data in a variety of ways to be answering questions 	Images- beautiful light effects:-reflections/ shadows/rainbows/ Aurora Borealis ations Science Knowledge: • 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	Colour:Our eyes see different wavelengths of light as different colours.Source:Light comes from different sources. Our main natural light source is the sun. Other light sources include fire, light bulbs and torches. A light source produces its own light.Reflection:When light hits the surface of an object and bounces back into our eyes.Reflector:something that reflectsRefraction:when light changes direction, or bends, when it moves from one material to anotherConcave:shape that curves inwardsConvex:curved outwards like the surface of a sphere, so its middle is thicker than its edges
 v. recording findings using simple scientifilanguage, drawings, labelled diagrams, at tables vi. reporting on findings from enquiries, including oral and written explanations, vii. using results to draw simple conclusion make predictions for new values, sugges improvements and raise further question viii. identifying differences, similarities on changes related to simple scientific ideas processes ix.using straightforward scientific eviden answer questions or to support their find 	change. fic nd ons, t is and ce to lings	 <u>Shadows:</u> created when an opaque object blocks the light source. <u>Opaque:</u> A material which does not allow light to pass through so objects behind cannot be seen. <u>Transparent:</u> A material which allows light to pass through so that objects behind can be seen clearly. <u>Translucent</u>: an object or substance which allows some light to pass through. Fluorescent:

Rocks and	Critical concept: Fair testing	Curriculum Link:	Rocks: the solid mineral material forming part of the surface
Fossils		Power of Reading : The Pebble in My Pocket	of the earth and other similar planets, exposed on the surface
	Working Scientifically (LKS2)		or underlying the soil
Y3/4		Link to previous learning:	Mineral: a solid chemical compound that occurs naturally in
-	i, asking relevant questions and using different	Y1 Materials:Let's Build	pure form.
Summer 2025	types of scientific enquiries to answer them	Y1: Materials: Marvellous Materials	Properties: an attribute, quality, or characteristic of
	types of scientific enquines to answer them	Y2 Materials: Use of everyday materials	something
Summer 2027	ii setting un simple practical enquiries	Y2 Materials: Squash, Bend, Twist, Stretch	Sandstone: sedimentary rock and is formed over thousands
	comparative and fair tests		of years of sand being compacted together
		Opportunities to explore spirituality/ thread:	Limestone: type of rock that is made up of bits of animal
	iii making systematic and careful observations	key experiences:- rock hunt, geologist visitor	shells
		key reflection:- How old is the pebble in my hand?	<u>Chalk:</u> soft, whitish rock
	and, where appropriate, taking accurate	Consider there is a limestone layer just below summit of Everest	Granite: igneous rock; forms when magma (molten rock)
	measurements using standard units, using a	Consider deep time—the geological timeframe – create a timeline	cools
	range of equipment, gathering, recording,	to show how brief has been human time on earth	Slate: metamorphic rock that is made up of quartz and other
	classifying and presenting data in a variety of		minerais Markley motomorphic rock that forms when limestone is
	ways to help in answering questions	Colonse Knowledge	Marble: metamorphic rock that forms when innestone is
		Science Knowledge:	chomical processes
	iv. recording findings using simple scientific	compare and group together different kinds of rocks of	Man-made rocks: rock that is made modified and moved by
	language, drawings, labelled diagrams, keys,	the basis of their appearance and simple physical	humans
		properties	Brick: a small, rectangular block, usually made of clay that
	v. reporting on findings from enquiries,	 describe in simple terms how fossils are formed when 	has been burned in a kiln for strength, hardness, and heat
	including oral and written explanations, displays	things that have lived are tranned within rock	resistance
	or presentations of results and conclusions		Tile: flat piece of material that's used to cover a roof, floor, or
		 recognise that soils are made from rocks and organic 	wall
	vi. identifying differences, similarities or	matter.	Concrete: artificial, or human-made, stone
	changes related to simple scientific ideas and		Metamorphic: a rock that has undergone transformation by
	nrocesses		heat, pressure, or other natural agencies
			Sedimentary: rock that has formed from sediment deposited
	vij using straightforward scientific evidence to		by water or air.
	answer questions or to support their findings		Volcanic: rock produced by a volcano or volcanoes.
	answer questions of to support their maings		Igneous: rock produced having solidified from lava or
			magma.
			Permeable: A material which allows water or liquids to flow
			through
			Impermeable: will not allow fluid to pass through it
			<u>Erosion:</u> process of natural features being gradually worn
			down, perhaps by wind, water or rocks, and this material
			of an accorn
			or an ocean

			Fossil: the remains or impression of a prehistoric plant or animal embedded in rock and preserved in petrified form. <u>Ammonite: f</u> ossil, especially one of a later type found chiefly in the Jurassic and Cretaceous periods, typically with intricately frilled suture lines <u>Sediment:</u> matter that settles to the bottom of a liquid <u>Soil:</u> the upper layer of earth in which plants grow, a black or dark brown material typically consisting of a mixture of organic remains, clay, and rock particles <u>Organic:</u> relating to or derived from living matter. <u>Particles:</u> minute portion of matter <u>Sand:</u> loose fragments of minerals or rocks <u>Silt:</u> solid, dust-like sediment that water, ice, and wind transport and deposit
States of matter	Critical concept: Fair testing	Curriculum Link:	<u>Matter</u> : Matter makes up our planet and the whole universe.
Y3/4	working Scientifically (LKS2)	Geography unit: Rivers and pollution	Solid: A state that can hold its shape
	i) asking relevant questions and using different		Liquid: A state that flows and runs
Summer 202	types of scientific enquiries to answer them	Link to previous learning: V1 Materials:Let's Build	Gas: A state that has no fixed shape and expands to fill the
Summer 2027		Y1: Materials: Marvellous Materials	Particle: tiny piece of matter
Summer 2027		Y2 Materials: Use of everyday materials	<u>Evaporation</u> : The process of a liquid changing into a gas.
	ii) setting up simple practical enquiries,	Y2 Materials: Squash, Bend, Twist, Stretch	<u>Condensation</u> : The process of a gas changing into a liquid.
	comparative and fair tests	Opportunities to explore spirituality/thread:	<u>IVIEITING:</u> Process of a solid changing into a liquid. Freezing: Process of a liquid changing into a solid
		key experiences:- river study, Waterways Museum trip	Dissolving: A process that mixes a solid and a liquid to create
	iii) making systematic and careful observations	key reflections:-	a solution.
	and, where appropriate, taking accurate	Rivers know this: there is no hurry. We shall get there some day."	Solidification: when a molten liquid becomes a solid
	measurements using standard units, using a		again.

-			T
	range of equipment, including thermometers	"Water does not resist. Water flows. When you plunge your hand into	Irreversible: This is a change in state that can't be changed
	and data loggers	it, all you feel is a caress. Water is not a solid wall, it will not stop you.	back again.
		But water always goes where it wants to go, and nothing in the end	Degrees (Celsius): The measurement unit of temperature.
		can stand against it. Water is patient. Dripping water wears away a	Water cycle: The continuous journey of water from the sea,
	iv) recording findings using simple scientific	stone. Remember that, my child. Remember you are half water. If you can't go through an obstacle, go around it. Water does." — Margaret	to the sky, to the land and then back to the sea again. Precipitation: any liquid or frozen water that forms in the
	language, drawings, labelled diagrams, keys, bar	Atwood	atmosphere and falls back to the earth
	charts, and tables	How is a river like life itself? "They both listened silently to the water, which to them was not just water, but the voice of life, the voice of Being"— Hermann Hesse, Siddhartha.	Rain:Liquid water that falls from the sky Cloud: large collection of water droplets or frozen water crystals that have been turned into vapour when the weather
	v) reporting on findings from enquiries,		gets warmer
	including oral and written explanations displays	Science Knowledge:	Vapour: water in its gas state
	including of a and written explanations, aspirays	 compare and group materials together, according to 	Transpiration: process by which water is pulled from the
	or presentations of results and conclusions vi) using straightforward scientific evidence to	 compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) 	roots of the plant through the stems and leaves and released through microscopic holes in the leaves
	answer questions or to support their findings	 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	
		UPPER KEY STAGE TWO	
Year 5 /6	Critical concept: Fair testing	Link to previous learning:	Vocab re discipline
	Plan enquiries, including recognising	Y3/4 Working Scientifically	1 Scientist: An expert in science. A scientist gathers and uses
Working	and controlling variables where		research and evidence, making a hypothesis and testing it, to
Scientifically		Opportunities to explore spirituality/ thread:	gain knowledge.
	necessary.	key experiences:-	2 Enquiry: asking/posing a question to gain
(linked to	•To understand that a 'dependent	key reflection:-	information/knowledge
Forces)	variable' – is what is being measured in		3 Hypothesis: An idea or explanation for something that is a
	an experiment		starting point for further investigation (but it has not yet
	To understand that the Independent		been proved).
			4 Fair test: A fair test is a test which only changes one
	variable is a variable that stands alone		variable. (This means the person carrying out the test is able
	and isn't changed by the other		to know that no other variable has affected the results of
	variables you are trying to measure		the test).
	To understand 'controls' are things		5 Variable: A number, amount, or factor that can change.
	that stay the same during an		 Independent variable: a variable that
	that stay the same during an		 Independent variable: a variable that stands alone and isn't changed by the
	that stay the same during an experiment. To know that 'constant'		 Independent variable: a variable that stands alone and isn't changed by the other variables you are trying to measure

means to keep something the same in	- Dependent variable: what is being
an experiment	measured in an experiment
·Ask relevant questions. To plan	6 Observation(s): Closely monitor/observe something ,
different types of scientific enquiries to	looking for specific details
answer questions, including	7 Prediction: A forecast of what will happen under specific conditions
recognising and controlling variables	8 Evidence: body of facts/information indicating whether
where necessary.	something is true or not. Does it support the hypothesis?
	9 Conclusion: when scientists reveal whether the hypothesis
• Use appropriate techniques,	was proven correct and why/why not this might be.
apparatus, and materials during	
fieldwork and laboratory work.	
• Take measurements, using a range of	
scientific equipment, with increasing	
accuracy and precision: taking repeat	
readings when appropriate (eg	
Pinhole cameras)	
Record data and results of increasing	
complexity using scientific diagrams	
and labels, classification keys, tables	
har and line graphs Understand X-axis:	
The line on a graph that runs	
horizontally (left-right) through zero. It	
is used as a reference line so you can	
measure from it Understand V-axis:	
The line on a granh that runs vertically	
(up-down) through zero. It is used as a	
reference line se you can measure	
from it	
Report findings from enquiries	
- report multigs from enquines,	
overlapations of and degree of trust in	
explanations of and ugree of trust in	
results, in oral and written forms.	

	 *Use results to draw conclusions. In their conclusions to try to give explanations involving causal relationships. To make predictions for new values, suggest improvements, raise further questions to set up further comparative and fair tests. Pupils are able to hypothesise, respond to a hypothesis and further develop a hypothesis to investigate a new avenue. 		
5/6	Critical concept: Fair testing	Curriculum Link:	gravity: a pulling force created by objects of mass. The
Forest	Working scientifically (KS2 MS)	Link to previous learning: V3 Forces and Magnets	greater the mass, the greater the force of gravity.
Forces	working scientifically (KS2 WS)		air resistance: a form of friction between an object and air
	i. planning different types	Opportunities to explore spirituality/ thread:	
	of scientific enquiries to answer	key experiences:-	water resistance: a form of friction between an object and
	questions, including recognising	small is beautiful	water
	and controlling variables where	What are the forces that bind us together/ that drive us apart?	friction: the resistance that one object or surface encounters
	necessary	Star Wars- 'feel the force' what was the force? Consider epiphanies – the miracle of learning- eg Galileo/ Newton	when moving over another.
	ii. taking measurements		balancing force : when two opposing forces are equal
	using a range of scientific	Science Knowledge: 1. Explain that unsupported objects fall towards the Earth	Newtons: unit of measurement of force
	accuracy and precision, taking	because of the force of gravity acting between the Earth and the falling object	mechanisms: simple machines that transfer forces
	repeat readings when appropriate	 Identify the effects of air resistance, water resistance and friction, that act between moving surfaces 	levers: a simple mechanism that uses an arm and a fulcrum to lift a load
			pulleys: : simple machine that is used to lift a load using ropes and wheels

iii. recording results using	3. Recognise that some mechanisms, including levers,	
scientific diagrams and labels	pulleys and gears, allow a smaller force to have a greater	gears: simple machine that uses cogs and chains to
	effect	move a load
iv. Using test results to		
make predictions to set up		
further comparative and fair tests		
v. reporting and		
presenting findings from		
enquiries, including conclusions,		
causal relationships and		
explanations of and degree of		
trust in results, in oral and		
written forms such as displays		
and other presentations		
vi identifying scientific		
vi. Identifying scientific		
evidence that has been used to		
support of refute ideas of		
arguments		

5/6	Critical concept: Fair testing	Curriculum Link:	fossils: The remains or impression of a prehistoric plant or
		Link to previous learning:	animal embedded in rock and preserved.
Evolution and	i. planning different types of scientific	Y3 Keeping healthy (bones((Animals inc Humans)	
Inheritance	enquiries to answer questions, including	Y4 Teeth and digestive system (Animals inc Humans)	adapted/adaptation: The action or process of changing to survive in a given environment.
	recognising and controlling variables	Opportunities to explore spirituality/ thread:	
	where necessary	key experiences:-	evolution: The process by which different kinds of living
		key reflection:-	organisms are believed to have developed from earlier forms
	ii. taking measurements, using a range of	Find out and marvel at what we share DNA with	during the history of planet Earth.
	scientific equipment, with increasing	Contemplate that the top of Everest is made out of limestone	
	accuracy and provision taking report		characteristics: a feature or quality that belongs to a living
	accuracy and precision, taking repeat	Science Knowledge:	organism that can be used to identify them.
	readings when appropriate	Science Knowledge.	vary/variation: a change in species from generation to
		i Recognise that living things have changed over	generation.
	iii. recording data and results of increasing	time and that fossils provide information about	
	complexity using scientific diagrams and	living things that inhabited the Earth millions of	inheritance: the name of passing of same characteristics
	labels, classification keys, tables, scatter	vears and	from parents to offspring
	graphs, bar and line graphs	years ago	
	8. ap, and 8. ap	ii Pecognise that living things produce offspring of	environment: all the physical surroundings on Earth
	iv using test results to make predictions	the same kind, but normally offenring vary and are	
	to get up further componenting and fair	not identical to their parents	natural selection : a process by which a species changes over
	to set up further comparative and fair	not identical to their parents	time in response to changes in the environment, or competition
	tests	iii Identify how animals and plants are adapted to suit	between organisms, in order for the species to survive.
		their environment in different ways and that	offspring: children or young of a parent
	v. reporting and presenting findings from	adaptation may lead to evolution	
	enquiries, including conclusions, causal		
	relationships and explanations of and		
	degree of trust in results, in oral and		
	written forms such as displays and other		
	written forms such as displays and other		
	presentations		
	and the set of the set of the set down of the these		
	vi. Identifying scientific evidence that has		
	been used to support or refute ideas or		
	arguments		

Year 5/6	Critical concept: Fair testing	Curriculum Link:	Earth: The third planet from the Sun- our home in the solar
			system.
Earth and	i. planning different types of scientific	Link to previous learning:	Sun: A large yellow burning star.
Space	enquiries to answer questions including	Y1 Seasonal Changes	Moon: A celestial body that orbits a planet.
	recognicing and controlling variables where	Y3 Light and Shadows	Axis: An imaginary line about which a body rotates
	recognising and controlling variables where		Rotation: A description of circular movement about a central
	necessary	Opportunities to explore spirituality/ thread:	point.
		key experiences:- telescope at night, visit by Space agency	<u>Orbit:</u> The path of an object around a particular point in
	ii. taking measurements, using a range of	Key reflection:-	space
	scientific equipment, with increasing	Look at images from Hubble telescope	Day. A diff of time that measures from one sumse to the
	accuracy and precision, taking repeat	Debate if there is other life in the universe	Night: A unit of time that measures how long a planet's
	readings when appropriate		surface is on the opposite side of the neighbouring star.
		Science Knowledge:	Phases of the Moon: Lunar phases that observe the sunlit
	iii recording results using colontific	i. Describe the movement of the Earth, and other planets,	portions of the moon throughout a Lunar month.
	III. recording results using scientific	relative to the Sun in the solar system	geocentric model: when Earth is placed in the middle of
	diagrams and labels	ii. Describe the movement of the Moon relative to the	the universe, while the rest of the universe orbits and moves
		Earth	around it
	iv. using test results to make predictions to	iii. Describe the Sun, Earth and Moon as approximately	heliocentric model: when the Sun is placed at the
	set up further comparative and fair tests	spherical bodies	centre of the universe and the planets orbit around it
		iv. Use the idea of the Earth's rotation to explain day and	
	v. reporting and presenting findings from	night and the apparent movement of the sun across the sky	
	enquiries, including conclusions, causal		
	relationships and explanations of and		
	degree of trust in results in oral and		
	witten forme such as displays and other		
	written forms such as displays and other		
	presentations		
	vi, identifying scientific evidence that has		
	heen used to support or refute ideas or		
	organizate		
	arguments		

5/6	Critical concept: Fair testing	Curriculum Link:	taxonomy : the science of naming and classifying organisms.
			classification- sorting living things by their characteristics
Living things	i. planning different types of scientific		Kingdom: the highest classification into which living
and habitats /	enquiries to answer questions, including	Link to previous learning:	organisms are grouped
classification	recognising and controlling variables	Y4 Help our Habitats (living things and habitats)	<u>Phylum</u> ; a group of animals (or plants) sharing one or more characteristic
	where necessary	14 Name that Living Thing (living things and habitats)	Class: animals (or plants) sharing more characteristics with
	where necessary	Opportunities to explore spirituality/thread:	each other than they do with other organisms in the same
	ii taking magauramenta using a ranga of	key experiences:- pond dipping	phylum
	II. taking measurements, using a range of	key reflection:- Spend time in nature	Order : the next rank in classification
	scientific equipment, with increasing	Consider food webs/ ecosystems – how living things rely on each	Family: the next rank of animals (or plants) sharing a
	accuracy and precision, taking repeat	other	common attribute.
	readings when appropriate		Genus: the rank between family and species
			Species: the lowest-level groups are the species. Members of
	iii. recording data and results of increasing	Science Knowledge:	a species have many common traits, and they can produce
	complexity using scientific diagrams and	I. Describe how living things are classified into broad	organism: any living thing
	labels classification keys tables scatter	groups according to common observable characteristics and	microorganism A microscopic organism, especially a
	labels, classification keys, tables, scatter	based on similarities and differences, including	bacterium, virus or fungus (invisible to the naked eve).
	graphs, bar and line graphs	microorganisms, plants and animals	
		ii Cive receive for cloself includes and enimals based on	
	iv. using test results to make predictions	II. Give reasons for classifying plants and animals based on	
	to set up further comparative and fair	specific characteristics	
	tests		
	v. reporting and presenting findings from		
	enquiries, including conclusions, causal		
	relationships and evplanations of and		
	de ano est transfilment in anal and		
	degree of trust in results, in oral and		
	written forms such as displays and other		
	presentations		
	vi. identifying scientific evidence that has		
	been used to support or refute ideas or		
	arguments		

5/6	Critical concept: Fair testing	Curriculum Link:	sexual reproduction: a form of reproduction in which genetic
Living things and their habitats - The art of living	 i. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iii. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations iv. identifying scientific evidence that has been used to support or refute ideas or arguments 	 Link to previous learning: Y4 Help our Habitats (living things and habitats) Y4 Name that Living Thing (living things and habitats) Opportunities to explore spirituality/ thread: key experiences:- key reflection:- Consider in what ways humans have stepped out of dependent relationship / out of the food web- in what ways is this good? In what ways might this be a problem? Science Knowledge: 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 	Sector reproduction: a form of reproduction in which genetic material from 2 individuals of opposite sexes mix to create offspring asexual reproduction: a type of reproduction that creates offspring genetically identical to the parent but only requires one parent non flowering : plants that don't produce flowers such as ferns and mosses corm: the ripened ovary of a flowering plant, containing one or more seeds bulb : the underground bud or stem of a seed plant at resting stage spores: cells that can develop into new individuals without uniting with another reproductive cell cutting: when part of a plant is cut from the parent plant so that it can regenerate by itself making a whole new plant tubers : fleshy enlarged underground organs of some plants and are used to store energy (as starch) metamorphosis: changes in form of some living things as they grow vertebrates: An animal with a backbone. invertebrates: An animal without a backbone. invertebrates: An animal with a backbone. invertebrates: An animal with a backbone. invertebrates: An animal with a backbone. invertebrates: An animal without a backbone. invertebrates: An animal with a backbone. invertebrates: An animal without a backbone. invertebrates: An animal that has six legs and often one or two pairs of wings. birds: a vertebrate with wings, feathers and a beak which lays eggs and usually is able to fly.
5 / 6 Animals including humans (Life explorers)	Critical concept: Fair testing i. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Curriculum Link: RSHE curriculum (taught explicitly each year) PSHE Link to previous learning: Y3/4 Working Scientifically	<u>reproduction</u> : to have babies or offspring <u>gestation period</u> : the time between egg fertilisation and birth <u>embryo</u> : An unborn or unhatched offspring of a mammal in the process of development. <u>foetus</u> : an embryo from 8 weeks to birth

	 ii. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs iv. using test results to make predictions to set up further comparative and fair tests v. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations vi. identifying scientific evidence that has been used to support or refute ideas or arguments . 	Opportunities to explore spirituality/ thread: key experiences:- key reflection:- Consider miracle that is lifethat is reproduction Interview adults re time they held a child of theirs for the first time Science Knowledge: • Describe the changes as humans develop to old age	sperm: the male sex cell egg: a single female reproductive cell uterus: the organ where a baby grows during pregnancy life cycle: the different stages of life for a living thing nutrition: the study of food and how it works in your body juvenile: an organism that hasn't reached its adult form. adolescence: the process of changing from a child to an adult puberty: the process of the body changes from a child to an adult
5 / 6 (Cycle B)	Critical concept: Fair testing	Curriculum Link: Microplastics unit MOEE	Vocab re discipline 1 Scientist: An expert in science. A scientist gathers and uses
Thinking	i. planning different types of scientific		research and evidence, making a hypothesis and testing it, to
scientifically	enquiries to answer questions, including	Link to previous learning:	gain knowledge.
linked to:	recognising and controlling variables	Y4 Changing State	2 Enquiry: asking/posing a question to gain
	where necessary	Y3/4 Geog- plastic pollution	information/knowledge
Materials	-	Our stantities to surface activity of the state	3 Hypothesis: An idea or explanation for something that is a
		Opportunities to explore spirituality/ thread:	starting point for further investigation (but it has not yet
		key experiences:- guest speakers-e.g SLG	been proved).

ii. taking measurements, using a range of	key reflection:-	4 Fair test: A fair test is a test which only changes one
scientific equipment, with increasing	How can we save the planet from microplastics?	variable. (This means the person carrying out the test is able
accuracy and precision, taking repeat	How can we be agents of change?	to know that no other variable has affected the results of
readings when appropriate		the test).
	Science Knowledge:	- Independent variable: a variable that
iii. recording data and results of increasing	i. Compare and group together everyday materials	stands alone and isn't changed by the
complexity using scientific diagrams and	on the basis of their properties including their	other variables you are trying to measure
abels, classification keys, tables, scatter	hardness transparency and conductivity (electrical	- Dependent variable: what is being
graphs, bar and inte graphs	and thermal)	measured in an experiment
iv. using test results to make predictions	and thermal)	6 Observation(s): Closely monitor/observe something ,
to set up further comparative and fair	IV. Give reasons, based on evidence from	looking for specific details
tests	comparative and fair tests, for the particular uses of	7 Prediction: A forecast of what will happen under specific
	everyday materials, including metals, wood and plastic	conditions. 8 Evidence: hody of facts/information indicating whether
v. reporting and presenting findings from	i. Compare and group together everyday	something is true or not. Does it support the hypothesis?
enquiries, including conclusions, causal	materials on the basis of their properties,	9 Conclusion: when scientists reveal whether the hypothesis
degree of trust in results, in oral and	including their solubility and response to	was proven correct and why/why not this might be.
written forms such as displays and other	magnets	
presentations	ii Know that some materials will dissolve in	properties: defining characteristics that make up a material.
	II. Know that some materials will dissolve in	solubility: the ability to be dissolved, especially in water.
vi. identifying scientific evidence that has	liquid to form a solution, and describe how to	solid- a form of matter that keeps its shape because its
been used to support or refute ideas or	recover a substance from a solution	liquid- a form of matter that takes the shape of its
arguments	iii. Use knowledge of solids, liquids and gases	container; it will flow but can be contained
	to decide how mixtures might be separated,	gas- a state of matter with no fixed shape or volume
	including through filtering, sieving and	<u>solute-</u> a substance that will dissolve into a liquid
	evaporating	dissolved into another
	v Demonstrate that dissolving, mixing and	soluble- it can be dissolved in a liquid eg salt and sugar
	changes of state are reversible changes	insoluble- it can't be dissolved in liquid even with mixing eg
	vi Evolain that some changes result in the	sand filter - removing small particles of undissolved material from
	vi. Explain that some changes result in the	a liquid
	formation of new materials, and that this	sieve - a separating process using a barrier with small to
	kind of change is not usually reversible,	medium holes
	including changes associated with burning	evaporate- when water (liquid) is neated and turns to water vapour (gas)
	and the action of acid on bicarbonate of soda	

			<u>reversible/irreversible -</u> when you can (not) get back the substance you started with <u>thermal conductor -</u> let heat pass through easily thermal insulator- wont let heat pass through easily eg
5 / 6 Light (pinhole camera photography)	Critical concept: Fair testing i) planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii) taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii) recording results using scientific diagrams and labels, tables, scatter graphs, bar and line graphs	Curriculum Link: Link to previous learning: Y3 Light and Shadows Opportunities to explore spirituality/ thread: <u>key experiences</u> :- <u>key reflection</u> :- Consider the importance of 'letting in light'- be on the look out for beauty- in places, in people, in moments. What would the world be like without light? And God said, "Let there be light," and there was light. Genesis 1:3 In what way was Jesus the light of the world? "When Jesus spoke again to the people, He said, 'I am the Light of the World. Whoever follows me will never walk in darknessJohn 8:12 In what way are we opaque to ourselves? Because you are opaque to yourself, you are never finished with yourself: this is the quest for meaning.' - Donahue Divine Beauty	light source- anything natural or artificial that produces light dark/ darkness- the absence of light reflect / reflective- the casting back of light causing it to change direction- Reflection: an image that has been cast back without any loss of light . mirror- any glass or other smooth, polished surface that forms an image by reflection shadow- a dark shape made when light is stopped or blocked by an object or a person absorb- when the object soaks up some light waves. The absorbed light cannot be seen by the human eye. Opaque: A material which does not allow light to pass through so objects behind cannot be seen. Transparent: A material which allows light to pass through so that objects or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through so that object or substance which allows some light to pass through
	 iv) using test results to make predictions to set up further comparative and fair tests v) reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations 	 Science Knowledge: i. Recognise that light appears to travel in straight lines ii. 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 iii. 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 	

	vi) identifying scientific evidence that has been used to support or refute ideas or arguments		
5 / 6 Animals including humans (RSed)	Critical concept: Fair testing i. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ii. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate iii. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations iv. identifying scientific evidence that has	Curriculum Link: PSHE Link to previous learning: Y3 Keeping healthy (bones((Animals inc Humans) Y4 Teeth and digestive system (Animals inc Humans) Opportunities to explore spirituality/ thread: key experiences:- key reflection:- Consider how to keep healthy ref heart and circulatory system Why do people need to give blood? Science Knowledge: • i) Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • ii) Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • iii) Describe the ways in which nutrients and water are transported within animals, including humans	Circulatory system: A system which includes the heart, veins, arteries and blood transporting substances around the body. <u>Heart:</u> An organ which constantly pumps blood around the circulatory system. <u>Blood:</u> transports materials around the body and protects against disease. It contains red blood cells, white blood cells, platelets, plasma <u>Blood vessels:</u> The tube-like structures that carry blood through the tissues and organs. Veins, arteries and capillaries are the three types of blood vessels. <u>Vein</u> : veins carry blood to the heart. Most veins carry blood that is low in oxygen <u>Artery</u> : An artery is a blood vessel that carries blood away from the heart to other parts of the body. Almost all arteries carry blood with a lot of oxygen in it. <u>Capillaries-</u> tiny passages that connect the arteries and veins to the body's tissues <u>Oxygenated:</u> Oxygenated blood has more oxygen. It is pumped from the heart to the rest of the body. <u>Deoxygenated blood</u> is blood where most of the oxygen has already been transferred to the rest of the body. <u>Lungs-</u> baglike organs which help us to breathe <u>Nutrients-</u> important substances you get from food that help your body survive and grow
	arguments		and two atoms of oxygen.

5/6	Critical concept: Fair testing	Curriculum Link:	electricity: A form of energy
			cell: A single power source within a circuit.
Electricity	i. plan different types of scientific enquiries		wires: Metal drawn out into a thin, flexible thread or rod,
	to answer questions, including recognising	Link to previous learning:	often encased with plastic or rubber insulation.
	and controlling variables where necessary	Y4 Electricity	crocodile clip: A wire with spring-loaded teeth
	and controlling variables where necessary	Opportunities to evalue opicituality/thready	connectors.
	ii, tako moasuromonts, using a rango of	key experiences:-	bulbs: A glass bulb inserted into a lamp or ceiling socket
		key reflection:-	which provides light by passing an electrical current through
	scientific equipment, with increasing	Consider the problems that the need for electricity is causing the	a filament.
	accuracy and precision, taking repeat	planet	<u>battery</u> . A container consisting of one of more cens, in which chemical energy is converted into electricity for a source of
	readings when appropriate	Consider how to save electricity/ the subject of personal	power.
		responsibility	complete Circuit: An unbroken route along which an
	iii. record results using scientific diagrams		electrical current can travel.
	and labels		series: A circuit whereby the current passes through each
		Science Knowledge:	component successively.
	iv, use test results to make predictions to	i Associate the brightness of a lamp or the volume of	conductors: Materials that allow electrical/heat energy to
	set up further comparative and fair tests	a buzzer with the number and voltage of cells used in the	pass through them.
		circuit	Insulators: Materials that do not allow electrical/heat energy
	a second and a second finalized for an	ii. Compare and give reasons for variations in how	circuit symbol: Symbols used to represent electrical
	v. report and present findings from	components function, including the brightness of bulbs,	components
	enquiries, including conclusions, causal	the loudness of buzzers and the on/off position of	components : Additions to a circuit that alter electrical
	relationships and explanations of and	switches	energy or change it into light sound heat or
	degree of trust in results, in oral and	iii. Use recognised symbols when representing a simple	movement
	written forms such as displays and other	circuit in a diagram	huzzer: A component that converts electrical energy
	presentations	-	into sound
	P		motor: A component that converts electrical energy
	vi identify scientific evidence that has been		into kinetic energy (movement energy)
	used to support or refute ideas or		switches: A device for making and breaking the connection in
	used to support or refute ideas or		an electrical circuit.
	arguments		resistance: A component that causes a slowing of
			electrical current through a circuit.