

Science Long-term Plan– Whole School









<u>Year Group</u>	<u>Autumn 1</u>	<u>Autumn 2</u>	<u>Spring 1</u>	<u>Spring 2</u> <u>SCIENCE WEEK</u>	<u>Summer 1</u>	<u>Summer 2</u>
<u>EYFS</u>	Seasons Animals including Humans	Seasons Forces/Magnets	Seasons Materials	Seasons Materials	Living Things and Their Habitats Seasons	Plants Seasons
<u>Reception</u>	Seasons Animals including Humans	Seasons Forces/Magnets	Seasons Materials	Seasons Materials	Living Things and Their Habitats Seasons	Plants Seasons
<u>Year 1</u>	Seasonal Changes	Animals including humans	Everyday Materials	Everyday Materials	Plants	Plants
<u>Year 2</u>	All living things and their habitats	Animals including humans	Everyday Materials	Everyday Materials	Plants	Plants
<u>Year 3</u>	Light and Shadow	Animals including humans (Nutrition and Skeletal)	Magnets and Forces	Plants	Rocks	Science retrieval
<u>Year 4</u>	States of Matter	Animals including humans (Digestive System)	Electricity	Living things and their habitats	Sound as Vibration	Science retrieval

Five Scientific Enquiry Types:

During science lessons at Oxhey, we promote working scientifically through these five strands as we believe these allow our children to work and think like a scientist.



Working Scientifically Skills

- Asking questions 
- Planning an enquiry (Key Stage 2 only) 
- Making predictions (Key Stage 2 only) 
- Gathering data 
- Recording data 
- Presenting data (Key Stage 2 only) 
- Drawing conclusions 
- Evaluating an enquiry (Key Stage 2 only) 

EYFS	
Living Things and Their Habitats	<p>UW- (2-3) 1 Explore and respond to different phenomena in their setting and on trips</p> <p>UW- (3-4) 2— Talk about what they see, using a wide vocabulary</p> <p>UW- (3-4) 2— Begin to make sense of their own life-story and family's history</p> <p>UW- (3-4) 4—Begin to understand the need to respect and care for the natural environment and all living things</p>
Animals including humans	<p>UW—(3-4) 1—Make healthy choices about food, drink, activity and tooth brushing</p> <p>PD —(3-4) 2—Be increasingly independent in meeting their own care needs, e.g. brushing teeth, using the toilet, washing and drying their hands thoroughly.</p>
Seasons	<p>UW- (REC) - 1— Understand the effect of changing seasons on the natural world around them</p> <p>UW- (REC) - 2 — Describe what they see, hear and feel while they are outside</p>

EYFS

LEARNING PROGRESSION

Living Things and Their Habitats

Animals including humans

Seasons

UW- (2-3) 1 Explore and respond to different phenomena in their setting and on trips

UW- (3-4) 2— Talk about what they see, using a wide vocabulary

UW- (3-4) 2— Begin to make sense of their own life-story and family's history

UW- (3-4) 4—Begin to understand the need to respect and care for the natural environment and all living things

UW- (REC) - 1— Explore the natural world around them

UW- (REC) - 2 — Describe what they see, hear and feel while they are outside

UW- (REC) - 3 — Recognise some environments that are different to the one in which they live

UW—(REC) 4—Name and describe people who are familiar to them.

UW—(REC) 5- Talk about members of their immediate family and community.

UW—(3-4) 1—Make healthy choices about food, drink, activity and tooth brushing

PD —(3-4) 2—Be increasingly independent in meeting their own care needs, e.g. brushing teeth, using the toilet, washing and drying their hands thoroughly.

PD—(REC) - 1 Further develop the skills they need to manage the school day successfully: - lining up and queuing - mealtimes including personal hygiene

PD—(REC) - 2—Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - tooth brushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian


UW- (REC) - 1— Understand the effect of changing seasons on the natural world around them

UW- (REC) - 2 — Describe what they see, hear and feel while they are outside

Science - Curriculum Progression

EYFS		
Plants	<p>UW- (3-4) 1—Plant seeds and care for growing plants UW- (3-4) 2— identify the features of the life cycle of a plant and an animal C & L (3-4) - Understand questions like: “Why do you think the caterpillar got so fat?”</p>	<p>UW—(REC) - 1—Identify the natural world around them, making observations and drawing pictures of animals and plants. UW—(REC) - 2—Identify similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p>
Materials	<p>UW- (3-4) 1— Explore and talk about different forces they can feel UW- (3-4) 2—Use all their senses in hands-on exploration of natural materials UW- (3-4) 3— Explore and identify how things work UW- (3-4) 4 — Talk about the differences between materials and changes they notice and seek patterns UW- (3-4) 5 — Talk about the differences between materials and changes they notice UW- (3-4) 6— Explore collections of materials with similar and/or different properties EA&D—1 - (3-4) 7—Explore different materials freely, in order to develop their ideas about how to use them and what to make.</p>	<p>EA&D—(REC) 1—use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. EA&D—(REC) 2—Make use of props and materials when role playing characters in narratives and stories</p>
Magnets	<p>UW (3-4) 1—Explore and talk about different forces they can feel</p>	<p>UW—(REC) 1—Exploring using magnetic toys and metal detectors understanding that some materials will stick and some will not</p>

Science - Curriculum Progression

	EYFS
	
Working Scientifically	1 I can think of ideas
	2 I can find ways to solve problems
	3 I can learn new vocabulary
	4 I can make links and notice patterns in my experience
	5 I can make predictions and articulate my ideas
	6 I can test my ideas
	7 I can develop ideas of grouping, sequences, cause and effect
	8 I can plan, make decisions about how to approach a task, solve a problem and reach a goal
	9 I can check how well my activities are going
	10 I can change strategy as needed
	11 I can review how well the approach worked


Working Scientifically vocab	What can you see? What does it sound like? What does it smell like?
	What does it taste like? What does it feel like? What does it do? What is happening? How did it happen? What have we found out?

EYFS - Nursery/Reception - Science


Cycle A						
	This is Me! Animal including Humans Seasons—ongoing	Super Celebrations Forces/Magnets	Out of this world! Seasons/Materials	Once upon a time... Seasons/Materials	All creatures great and small. Living things and their habitats Seasons	Let the adventures begin! Plants Seasons
I know that/ how to...	<p>*can make healthy choices about food, drink, activities and tooth brushing</p> <p>*Know how to care of their own needs. E.G brushing teeth, using the toilet, washing and drying their hands thoroughly.</p> <p>*talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian</p> <p>*Know and talk about the different factors that support their overall health and wellbeing:</p>	<p>* Know and explore and talk about different forces they can feel</p>	<p>*To know the effect of changing seasons on the natural world around them</p> <p>*To describe what they see, hear and feel while they are outside*</p> <p>know and talk about different forces they can feel</p> <p>*Know how magnets work through practical exploration</p> <p>*know all their senses in hands-on exploration of natural materials</p> <p>*know how things work</p> <p>*know about the differences between materials and changes they notice</p> <p>*know the names of collections of materials with similar and/or different properties</p>	<p>*know and talk about different forces they can feel</p> <p>*Know how magnets work through practical exploration</p> <p>*know all their senses in hands-on exploration of natural materials</p> <p>*know how things work</p> <p>*know about the differences between materials and changes they notice</p> <p>*know the names of collections of materials with similar and/or different properties</p>	<p>*To know the effect of changing seasons on the natural world around them</p> <p>*To describe what they see, hear and feel while they are outside</p>	<p>*To know how to care for growing plants</p> <p>*To know the key features of the life cycle of a plant and an animal</p> <p>* To 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.</p> <p>*To know the effect of changing seasons on the natural world around them</p> <p>*To describe what they see, hear and feel while they are outside</p>

EYFS - Nursery/Reception - Science

Cycle B						
	All about Me! Animals including Humans Seasons—ongoing	Let's have a party! Forces/Magnets	A world of pure Imagination Seasons/Materials	Happily Ever After... Seasons/Materials	All things bright and beautiful! Living things and their habitats	Me! .. Lets go on an adventure! Plants
I know that/ how to...	<ul style="list-style-type: none"> *To make healthy choices about food, drink, activity and tooth brushing *To know how to be increasingly independent in meeting their own care needs, e.g. brushing teeth, using the toilet, washing and drying their hands thoroughly. *To know the skills they need to manage the school day successfully: - lining up and queuing - mealtimes including personal hygiene * To know and talk about the different factors that support their overall health and well-being 	<ul style="list-style-type: none"> * Know and explore and talk about different forces they can feel *To know the effect of changing seasons on the natural world around them *To describe what they see, hear and feel while they are outside 	<ul style="list-style-type: none"> *To know the effect of changing seasons on the natural world around them *To describe what they see, hear and feel while they are outside* know all their senses in hands-on exploration of natural materials *know how things work *know about the differences between materials and changes they notice *know the names of collections of materials with similar and/or different properties 	<ul style="list-style-type: none"> *know all their senses in hands-on exploration of natural materials *know how things work *know about the differences between materials and changes they notice *know the names of collections of materials with similar and/or different properties 	<ul style="list-style-type: none"> *To know the effect of changing seasons on the natural world around them *To describe what they see, hear and feel while they are outside 	<ul style="list-style-type: none"> *To know how to care for growing plants *To know the key features of the life cycle of a plant and an animal * To 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. *To know the effect of changing seasons on the natural world around them *To describe what they see, hear and feel while they are outside

Key Stage 1		
LEARNING PROGRESSION 		
Plants	I can identify and name a variety of common wild and garden plants, including deciduous and evergreen.	I can observe and describe how seeds and bulbs grow into mature plants
	I can identify and describe the basic structure of a variety of common flowering plants, including trees.	I can find out and identify how plants need water, light and a suitable temperature to grow and stay healthy drawing on comparisons where appropriate.
Animals including humans	I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	I can identify that animals, including humans, have offspring which grow into adults.
	I can identify and name a variety of common animals that are carnivores, herbivores and omnivores.	I can identify and describe the basic needs of animals, including humans, for survival (water, food and air).
	I can compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).	I can observe and look for patterns in the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
	I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	
Seasons (Year 1)	I can observe changes across the four seasons.	
	I can look for patterns in seasonal changes using scientific vocabulary in my explanations.	
	I can observe and describe weather associated with the seasons and how day length varies	

KS1 - Science - Curriculum Progression

Key Stage 1		
LEARNING PROGRESSION 		
Everyday materials/Uses of everyday materials	I can distinguish between an object and the material from which it is made by looking for patterns.	I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
	I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.	I can identify how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. I can look for patterns between materials.
	I can identify and observe the simple physical properties of a variety of everyday materials and look for patterns.	
	I can compare and classify together a variety of everyday materials on the basis of their simple physical properties.	
Living things and their habitats (Year 2)	I can explore and compare the differences between things that are living, dead, and things that have never been alive.	
	I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other	
	I can identify and name a variety of plants and animals in their habitats, including micro-habitats.	
	I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	

KS1 - Science

Year 1—Vocabulary				
	Everyday materials	Animals including humans	Plants	
Significant Person	Benjamin Franklin and Chester Greenwood	Miller Hutchinson—inventor of the first electric hearing aid	Maria Sibylla Merian	Maria Sibylla Merian
Vocabulary introduced/embedded	Material, wood, plastic, glass, paper, fabric, metal, rock, hard, soft, smooth, shiny, rough, bendy (flexible).	Fish, reptiles, mammals, birds, amphibians (= examples of each.) Herbivore, carnivore, omnivore, head, ear, eye, mouth, nose, leg, knee, arm, elbow, back, neck, face, teeth, hair, wings, beak.	Evergreen & deciduous trees, branches, trunk, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, stem.	Spring, Summer, Autumn, Winter, season, sun, dry, moon, night, light, dark, rain, wind, snow, frost, sleet, fog and cloud (y).
Scientific vocabulary	<p><u>Question, prediction, method, variables, fair test, recording, report, conclude, evaluate (NC)</u></p> <p>Investigation, enquiry, what to change, what we used, what we did, what we found out</p> <p>Investigation cycle, question, prediction, method, answer, observe, observing, equipment, identify, classify, sort, group, record, diagram, chart, map, data, compare, contrast, describe, biology, predict, method, results</p>			

KS1 - Science

Year 1				
	Everyday materials	Animals including humans	Plants / Seasons	
I know that/ how to...	<ul style="list-style-type: none"> • What objects are made from • The names of different materials • How to describe materials such as hard, rough, soft, twist, bend • How to group materials in different ways • How to ask questions • How my questions may be answered using different sources • The meaning of the scientific words for each topic and will be reading, writing and using them confidently • How to spot patterns and how and why things happen 	<ul style="list-style-type: none"> • The names of different mammals, birds, fish, amphibians and reptiles • What omnivore means and name omnivores • What herbivore means and name herbivores • What carnivore means and name carnivores • The names and parts of different animals such as wings and a fin • The names of the parts of the human body • The names of the 5 senses and which body parts belong to them • How to ask questions • How my questions may be answered using different sources • The meaning of the scientific words for each topic and will be reading, writing and using them confidently • How to spot patterns and how and why things happen 	<ul style="list-style-type: none"> • The names of common wild plants • The names of common garden plants • What deciduous means • What evergreen means • The parts of a plant and tree and will be able to label them e.g. stem, leaf, roots • How to ask questions • How my questions may be answered using different sources • The meaning of the scientific words for each topic and will be reading, writing and using them confidently • How to spot patterns and how and why things happen 	<ul style="list-style-type: none"> • The names of the four seasons • What happens in each season and describe what happens e.g. in Autumn the leaves change colour, it gets colder. In Spring the seeds begin to grow, trees get blossom etc • Name the different types of weather • Which weather types go with each season • That in Autumn and Winter the daylight hours get shorter • That in Spring and Summer the daylight hours get longer

KS1 - Science

Year 2—Vocabulary				
	Uses of everyday materials	Animals including humans/Living things and their habitats		Plants
Significant Person	Charles Macintosh	Florence Nightingale/Elizabeth Garrett Anderson	William Kirby/ Prem Singh Gill	Dr Ben Woodcock
Vocabulary introduced/ embedded	As for Y1+ stiff, shiny, dull, rough, smooth, waterproof, absorbent, transparent, opaque, brick, fabric, foil, squashing, bending, twisting, stretching, elastic.	Survival, water, air (oxygen), food, adult, baby, offspring, kitten, calf, puppy, foal. Exercise, hygiene. Types of food.	Living, dead, never been alive, habitat, micro-habitat, energy, food chain, prey, predator. Woodland, pond, desert, seashore, ocean, rainforest.	Seeds, bulb, water, light, temperature, growth. Revise roots, stem, leaves, petals from Y1.
Working Scientifically Skills KS1	<p><u>Question, prediction, method, variables, fair test, recording, report, conclude, evaluate (NC)</u></p> <p>Investigation, enquiry, what to change, what we used, what we did, what we found out</p> <p>Investigation cycle, question, prediction, method, answer, observe, observing, equipment, identify, classify, sort, group, record, diagram, chart, map, data, compare, contrast, describe, biology, predict, method, results</p> <ul style="list-style-type: none"> • 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. 			

KS1 - Science

Year 2—Vocabulary

	Uses of everyday materials	Animals including humans/Living things and their habitats	Plants	
I know that/ how to...	<ul style="list-style-type: none"> The names of different materials Why certain materials are used/ chosen for specific objects and purposes Which materials are natural and which are man made How to investigate how some solid objects can be changed by squashing, bending, twisting How to begin to carry out a simple test to find out which materials are best for a question set How to observe (look at) how materials change 	<ul style="list-style-type: none"> The names of adult and baby animals and be able to match them The stages of life in a human—baby, toddler, child, teenager, adult, pensioner That animals and humans need water, food, shelter and oxygen to survive The names of the different food groups Which food belongs to which food group That a balanced diet with a bit of everything in moderation is best 	<ul style="list-style-type: none"> Which things are alive and why Which things were alive and are now dead and why Which things have never been alive and why How to identify and classify (the above) What a habitat is That habitats are different depending on the needs of the animals and plant That both the habitats and animals/plants need each other to survive What a micro habitat is The names of a variety of animals and plants and their habitats 	<ul style="list-style-type: none"> That seeds and bulbs grow into plants The difference between a seed and a bulb That plants need light, water, a suitable temperature and food How to carry out a simple test to find out what plants need to grow How to record what I see and find out by drawing, writing, speaking and recording using technology The meaning of the scientific words for each topic and will be reading, writing and using them confidently

Key Stage 2

LEARNING PROGRESSION

Plants
(Year 3)

I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. I can look for patterns in flowering plants.

I can identify the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.

I can investigate the way in which water is transported within plants.

I can identify the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Rocks
(Year 3)

I can compare and classify together different kinds of rocks on the basis of their appearance and simple physical properties.

I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.

I can recognise that soils are made from rocks and organic matter.

I can look for patterns in different rocks and explain their properties.

Key Stage 2

LEARNING PROGRESSION

Light (Year 3)	I can recognise that they need light in order to see things and that dark is the absence of light. I can identify that light is reflected from surfaces.	
	I can identify that light from the sun can be dangerous and that there are ways to protect their eyes.	
	I can identify that shadows are formed when the light from a light source is blocked by a solid object.	
	I can find patterns in the way that the size of shadows change.	
Forces and magnets (Year 3)	I can compare how things move on different surfaces.	
	I can identify that some forces need contact between two objects, but magnetic forces can act at a distance.	
	I can observe how magnets attract or repel each other and attract some materials and not others.	
	I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.	
	I can identify that magnets have two poles.	
	I can predict whether two magnets will attract or repel each other, depending on which poles are facing.	
Animals including humans	I can 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.	I can describe the simple functions of the basic parts of the digestive system in humans.
	I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.	I can identify the different types of teeth in humans and their simple functions
		I can construct and interpret a variety of food chains, identifying producers, predators and prey.

Key Stage 2

LEARNING PROGRESSION

Living things and their habitats (Year 4)	I can recognise that living things can be grouped in a variety of ways
	I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environments.
	I can recognise that environments can change and that this can sometimes pose dangers to living things.
	I can look for patterns in the environments that animals live in.
States of matter (Year 4)	I can compare and group materials together, according to whether they are solids, liquids or gases.
	I can 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).
	I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Electricity	I can identify common appliances that run on electricity including looking for patterns of how they work.
	I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
	I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
	I can identify that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
	I can identify and name some common conductors and insulators, and associate metals with being good conductors.
	I can look for patterns between circuits and diagnose how to fix a circuit if it is broken.

Key Stage 2

LEARNING PROGRESSION

Sound
(Year 4)

- I can identify how sounds are made, associating some of them with something vibrating.
- I can recognise that vibrations from sounds travel through a medium to the ear.
- I can find patterns between the pitch of a sound and features of the object that produced it.
- I can find patterns between the volume of a sound and the strength of the vibrations that produced it.
- I can recognise that sounds get fainter as the distance from the sound source increases.

Working scientifically (Years 3 and 4)

- I can ask relevant questions and use different types of scientific enquiries to answer them.
- I can set up simple practical enquiries, comparative and fair tests.
- I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers.
- I can gather, record, classify and present data in a variety of ways to help in answering questions.
- I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- I can use results to come to simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- I can identify differences, similarities or changes related to simple scientific ideas and processes.
- I can use straight forward scientific evidence to answer questions or to support my findings.

KS2 - Science

Year 3					
	Rocks and fossilisation	Forces and magnets	Animals including Humans (skeleton)	Light and shadow	Plants
Significant Person	William Smith	Sir Isaac Newton/William Gilbert	Marie Curie	Percy Shaw	Jan Ingenhouz
Vocabulary introduced/embedded	Sandstone, limestone, granite, marble, pumice, slate, crystals, properties, permeable/impermeable, hardness, sedimentary, igneous, metamorphic, fossils, soil, organic matter, humus.	Force, push, pull, contact, magnetic, attract, repel, poles (north/south). Friction, resistance, surfaces.	Bones, muscles, skull, ribs, skeleton, support, protection, movement, herbivore, carnivore, omnivore, teeth, canine, incisor, molar, diet.	Light, dark, shadows, blocking, mirror, reflect, reflective, reflection, absence of light, protect eyes from the sun.	Air, light, water, soil, nutrients, reproduction, seed formation, dispersal, germination, pollination, transportation, species, location (photosynthesis).
Working scientifically vocabulary	<p>Investigation cycle, question, prediction, method</p> <p>Research—relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements.</p> <p>Equipment—thermometer, data logger</p> <p>Data—gather, record, classify, present</p> <p>Plan—variables, measurements, accuracy, precision, repeat readings</p> <p>Report data—scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs, predictions, further comparative and fair test.</p> <p>Report and present—conclusions, causal relationship, explanations, degree of trust, oral and written display and presentation</p> <p>Evidence—support, refute ideas or arguments, identify, classify and describe epatterns, systematic, quantitative, measurements.</p>				

KS2 - Science

Year 3					
	Rocks and fossilisation	Forces and magnets	Animals including Humans (skeleton)	Light and shadow	Plants
I know that/how to...	<ul style="list-style-type: none"> How to compare and group together different rocks on the basis of their appearance and simple physical properties. What sediment means. What metamorphic means What igneous means How fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter 	<ul style="list-style-type: none"> How things move on different surfaces That some forces need contact between 2 objects, but magnetic forces can act at a distance What repel means What attract means How magnets attract and repel each other and attract some materials and not others How to compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials 	<ul style="list-style-type: none"> That animals, including humans, need the right types and amount of nutrition That they cannot make their own food; they get nutrition from what they eat How to use the investigation cycle 	<ul style="list-style-type: none"> I need light to see things That dark is the absence of light That light is reflected from surfaces That light from the sun can be dangerous That there are ways to protect my eyes That shadows are formed when the light from a light source is blocked by a solid object How to investigate patterns in the way that the size of shadows change 	<ul style="list-style-type: none"> How to describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers The requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) How to investigate the way which water is transported within plants

KS2 - Science

Year 3					
	Rocks and	Forces and magnets	Animals including	Light and shadow	Plants
I know that/how to...	<ul style="list-style-type: none"> • How to use the investigation cycle • How to record my findings in different ways and evaluate what I find out • The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work. 	<ul style="list-style-type: none"> • That magnets have 2 poles • Whether 2 magnets will attract or repel each other, depending on which poles are facing • How to use the investigation cycle • How to record my findings in different ways and evaluate what I find out • The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> • How to record my findings in different ways and evaluate what I find out • The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> • How to use the investigation cycle • How to record my findings in different ways and evaluate what I find out • The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> • The part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal • How to use the investigation cycle • How to record my findings in different ways and evaluate what I find out • The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work

KS2 - Science

Year 4					
	Animals including humans (Digestive system)	Living things and their habitats	States of matter	Electricity	Sound
Significant Person	Paul Sharpe—discovered how to regrow teeth	Rachel Carson	Anders Celsius	Lewis Latimer and Thomas Edison	Leonardo Da Vinci
Vocabulary introduced/ embedded	Mouth, tongue, teeth, canine, incisor, molar, oesophagus, stomach, small intestine, large intestine, digestive system, herbivore, carnivore, omnivore.	Fish, reptiles, mammals, birds, amphibians, snails, slugs, worms, spiders, insects, environment, habitat, vertebrate, invertebrate, exo skeleton, adaptation. Human impact—negative & positive.	Solid, liquid, gas, temperature, heating, freezing point, boiling point, particles, evaporation, condensation, thermometer, thermal, insulation, Celsius (C)	Cells (batteries), wires, switches, circuit, series, parallel, buzzers, bulbs, mains electricity insulators, conductors.	Volume, vibration, soundwave, loud, soft, high pitch, low pitch, tone, speaker, (amplitude, frequency), travel, fainter, distance.
Working scientifically vocabulary	<p align="center"><u>Question, predict, method, variables, fair test, recording, report, conclude, evaluate (NC)</u></p> <p align="center">Investigation, investigation cycle, enquiry, prediction, variable, dependant variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion</p> <p align="center">Research—relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements.</p> <p align="center">Equipment—thermometer, data logger Data—gather, record, classify, present Plan—variables, measurements, accuracy, precision, repeat readings</p> <p align="center">Report data—scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs, predictions, further comparative and fair test.</p> <p align="center">Report and present—conclusions, causal relationship, explanations, degree of trust, oral and written display and presentation</p> <p align="center">Evidence—support, refute ideas or arguments, identify, classify and describe epatterns, systematic, quantitative, measurements.</p>				

KS2 - Science

Year 4

Year 4					
	Animals including humans (Digestive system)	Living things and their habitats	States of matter	Electricity	Sound
I know that/how to...	<ul style="list-style-type: none"> • What the purpose of the digestive system is • The names of the parts of the human digestive system and identify them • How we can feel unwell if the digestive system is not working correctly • What a molar tooth is and its purpose • What a canine tooth is and its purpose • What a incisor tooth is and its purpose 	<ul style="list-style-type: none"> • How to group living things in a variety of ways • How to use classification keys to identify and name different living things • The names of a variety of animals and plants in the local environment • The names of a variety of animals and plants in the wider environment • The names of different environments • That environments can change and can be a danger to animal and plant life 	<ul style="list-style-type: none"> • What a solid is • What a liquid is • What a gas is • How to group a variety of materials into solids, liquids, gases • How they change from a solid to a liquid to a gas • How to explain by investigating, drawing, recording etc how states of matter change when being heated and cooled • How to measure temperature in Celcius • About and be able to explain the water cycle 	<ul style="list-style-type: none"> • The names of electrical appliances • How to construct a simple electrical circuit • What a cell is and its purpose in an electrical circuit • What a battery is and its purpose in an electrical circuit • The purpose of the wires in an electrical circuit • Why a buzzer (sound) is important in some electrical circuits • How to use a bulb and its purpose in an electrical circuit 	<ul style="list-style-type: none"> • How sounds are made • That sounds travel on vibrations (waves) • That sound can travel through a medium to the ear • That the pitch of a sound depends on the object making the sound • That the volume of the sound depends on the strength of the vibration • That sound gets fainter the further away it is from the source making it • How to investigate patterns in sound

KS2 - Science

Year 4

Year 4					
	Animals including humans (Digestive system)	Living things and their habitats	States of matter	Electricity	Sound
I know that/how to...	<ul style="list-style-type: none"> The importance of cleaning your teeth What a food chain is What a producer is What a predator is What prey is How to construct and interpret a variety of food chains How to use the investigation cycle How to record my findings in different ways and evaluate what I find out The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> How to use the investigation cycle How to record and communicate my evidence in different ways The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> What condensation is What evaporation is The difference between condensation and evaporation How quickly something evaporates is dependent on temperature How to investigate how solids, liquids and gases change state How to record and communicate my evidence in different ways The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> How to use a switch and its purpose in an electrical circuit How to investigate different circuits and predict if they will work and reason why What a conductor is What an insulator is Names of metals that are good conductors and insulators How to use the investigation cycle to investigate different circuits How to record my findings in different ways and evaluate what I find out The appropriate scientific vocabulary and will be able to confidently read, write and apply this in my work 	<ul style="list-style-type: none"> How to investigate how sound travels using the investigation cycle How to record and communicate my evidence in different ways The appropriate scientific vocabulary and will be able to confidently read, write and apply this to my work