

Science Curriculum map

Nursery Science - Understanding the World

Understanding of the World relates to children's everyday lives, their homes, families, other people, the local environment and community, and the wider world.

Through different types of play, active, and experiential learning opportunities as well as practical activities, children will be provided with meaningful experiences. These will stimulate their senses as well as encourage them to ask questions, explore and wonder at their environment. They will undertake investigations that engage their interests and develop awareness of the beliefs and views of others.

<p>Ongoing throughout the year:</p> <ol style="list-style-type: none"> 1. Explore how things work 2. Use their senses to talk about what they see, hear, feel, smell and taste using a wide vocabulary. 3. Begin to understand the need to respect and care for the natural environment and all living things (immediate environment - dandelions, trees) 4. Observe changes across the 4 seasons. 	<p>Explore natural materials such as wood using some of their senses (sight & touch)</p> <p>I can name the parts of my face, eyes, nose, mouth and ears.</p> <p>Identify and name a variety of common animals kept as pets.</p>	<p>Using their senses explore natural materials with different properties such as sticks, leaves, stones, grass, mud and sand. Demonstrating an awareness of senses vocabulary.</p> <p>Identify and name a variety of common farm animals.</p>	<p>Explore and talk about collections of materials with similar and/or different properties</p> <p>Talk about the differences between materials and changes they notice (ice melting)</p> <p>Know that the world is made up of land, sea and sky.</p> <p>Identify and name the basic parts of a tree and a plant.</p> <p>Identify and name a variety of common wild animals.</p>	<p>Plant seeds and care for growing plants</p> <p>Explore and respond to different natural phenomena in their setting (cycle - day & night)</p> <p>Understand the key features of the life cycle of a plant.</p> <p>Identify and name a variety of common animals that can swim.</p>	<p>Repeat actions and effects such as push/pull, open/close.</p> <p>Understand the key features of the life cycle of an animal (chicks)</p> <p>Identify and name a variety of common animals that fly.</p>	<p>Explore and respond to different natural phenomena on trips.</p> <p>Be confident in applying their senses vocabulary in exploration of natural materials</p> <p>Explore and talk about different forces they can feel.</p> <p>I can name the basic parts of my body.</p> <p>Identify and name a variety of common minibeasts and woodland animals.</p>
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Nursery Understanding the World

Experiences

Provide Opportunities for Working Scientifically in the Natural World:

Opportunities for children to...

observe, explore, ask and answer questions, classify groups, use simple equipment and perform simple tests, be involved in recording data, sort and group, sequence, compare and contrast, enquire, investigate, think, listen, solve problems, make decisions, predict and test, evaluate, and describe

Provide opportunities for children to Explore Understanding of The World through the characteristics of Effective learning:

- *Playing and Exploring*
- *Active Learning*
- *Creating and Thinking Critically*

Questions to explore

- What would happen if...
- I wonder what...
- What do you think might happen when...
- How did that happen?
- What do we need to do to begin...?
- How does it work?
- What do you think is happening?
- What might you change?
- Can you think of...
- What is your plan...
- Tell me what...
- Can you think of other ways to...
- What do you observe/see?

- I wonder how...
- I wonder what will happen next...
- I wonder what will happen if we change this...
- What is the best part of being the oldest in your family/(Who is the oldest/youngest in your family?)
- What do you think might happen next?
- What made you think of that?
- How could you...
- What do you see, hear, feel, taste, smell?
- Tell me why...
- What should we put here?
- What is the same?
- What is different?

Vocabulary

Children need vocabulary centred around the following themes...

- Plants - flower, tree, trunk, branches, leaves, water, soil, sunlight
- Animals - know the name of their young and fur, feathers, scales
- Humans - baby, child, adult, senses, basic body parts
- Environment (weather & seasons) - snow, ice, wind, rain, sunny, cloudy, Autumn, Spring, Summer, Winter
- Materials - wood, plastic, rock, water, sand, natural, wet, dry, warm, cool, hard, soft, smooth, shiny,
- Temperature - hot, warm, cold
- Size - big, small, more, less, bigger, smaller
- Sequencing - days of the week visual timetable for daily routine

Reception Science - The Natural World

<p><i>Ongoing throughout the year:</i></p> <ol style="list-style-type: none"> 1. Explore how things work. 2. Use their senses to talk about what they see, hear, feel, smell and taste using a wide vocabulary. 3. Begin to understand the need to respect and care for the natural environment and all living things (immediate environment - dandelions, trees) 4. Observe changes across the 4 seasons. 5. Notice and describe the weather. 6. Explore differences between different types of trees and different types of plants. 	<p>Know that the Season Autumn includes the months September, October, November.</p> <p>Understand some important processes and changes in the natural world around them affect Autumn; shorter days and longer nights (reduced daylight). Identify the changes to the leaves on the trees. Make links to crops and harvest. Explore changes in weather and temperature from Summer to Autumn.</p> <p>Explore what materials we wear in Autumn to keep us warm and dry.</p> <p>Key texts - explore non-fiction seasons books and the book 'Autumn'</p>	<p>Use their senses to make observations, predictions and describe what they see, hear, smell, feel and touch.</p> <p>Name the main body parts and say which part of the body is associated with each sense.</p> <p>Key texts - explore non fiction books about 'My body'</p> <p>Identify and name common animals such as cats, dogs, birds, fish, cows, sheep, horse.</p> <p>Key texts - Here We Are</p> <p>Know the name of the animals young.</p> <p>Know key features of each animal.</p> <p>Be able to compare / talk about similarities and differences between animals.</p>	<p>Know that the Season Winter includes the months December, January, February.</p> <p>Understand some important processes and changes in the natural world around them affect Winter; shorter days and longer nights (reduced daylight). It is the coldest season. We may notice frost, ice, hail and snow. Some trees lose their leaves altogether. Animals and birds hibernate.</p> <p>Explore what materials we wear in Winter to keep us warm.</p> <p>Key texts - explore non-fiction book 'Winter'</p>	<p>Know that the Season Spring includes the months March, April, May.</p> <p>Understand some important processes and changes in the natural world around them affect Spring; longer days and shorter nights (longer exposure to daylight), more sunshine, warmer weather than Autumn (increased temperature). Trees grow leaves again, flowers bloom, new life, animals and birds emerge from hibernation.</p> <p>Explore what materials we wear in Spring to keep us dry.</p> <p>Key texts - explore non-fiction book 'Spring'</p> <p>Explore the life cycle of a chick (notice changes as they grow)</p>	<p>Know that plants are living things.</p> <p>Identify the parts of a plant, roots, stem, leaf, flower.</p> <p>Identify five things a plant needs to stay alive (soil, space, water, sunlight and air).</p> <p>Key texts - explore non-fiction book 'Plants'</p> <p>Explore different materials (wood, plastic, glass, and metal) and use senses to describe how they look and feel.</p> <p>Key texts - explore non-fiction book 'materials'</p>	<p>Know that the Season Summer includes the months June, July, August.</p> <p>Understand some important processes and changes in the natural world around them affect Summer; longer days and shorter nights (longer exposure to daylight), more sunshine, warmer weather than Spring (increased temperature). Lots of flowers, notice more bees and butterflies.</p> <p>Explore what materials we wear in Summer to keep us cool yet protect us from the sun.</p> <p>Key texts - explore non-fiction book 'Summer'</p> <p>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>Key texts - Handa's surprise & We are on</p>
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Reception Understanding the World

Experiences

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Opportunities for children to...

observe, explore, ask and answer questions, classify groups, use simple equipment and perform simple tests, be involved in recording data, sort and group, sequence, compare and contrast, enquire, investigate, think, listen, solve problems, make decisions, predict and test, evaluate, and describe

Provide opportunities for children to Explore Understanding of The World through the characteristics of Effective learning:

- *Playing and Exploring*
- *Active Learning*
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Questions to explore

- What would happen if...
- I wonder what...
- What do you think might happen when...
- How did that happen?
- What do we need to do to begin...?
- How does it work?
- What do you think is happening?
- What might you change?
- Can you think of...
- What is your plan...
- Tell me what...
- Can you think of other ways to...
- What do you observe/see?

- I wonder how...
- I wonder what will happen next...
- I wonder what will happen if we change this...
- What is the best part of being the oldest in your family/(Who is the oldest/youngest in your family?)
- What do you think might happen next?
- What made you think of that?
- How could you...
- What do you see, hear, feel, taste, smell?
- Tell me why...
- What should we put here?
- What is the same?

- Do you have any ideas...
- How could we figure that out?
- Which do you think will work & why?
- What might you keep the same?
- Now tell me about a time when...
- How did you come up with that solution?
- Tell me how...
- Help me fix this...
- Do you have any ideas for solutions?
- Are there any other ways we could...
- What do you think about..."
- Compare x and y?
- Sort these items into groups/sets.
- Look closely at x, what do you observe?

		<ul style="list-style-type: none"> • What is different? 	<ul style="list-style-type: none"> • What questions does x make you want to ask?
<p><i>Vocabulary</i></p>	<p>Children need vocabulary centred around the following themes...</p> <ul style="list-style-type: none"> • Plants - flower, tree, trunk, branches, leaves, roots, stem, petals, water, air, space, soil, sunlight • Animals - compare animals by habitats, features (e.g. snout, paws, hooves, udders etc), know the name of their young • Humans - baby, toddler, child, teen, adult, elderly, senses, basic body parts • Environment (weather & seasons) - snow, ice, wind, rain, frost, fog, sunny, cloudy, shadows, Autumn, Spring, Summer, Winter • Materials - wood, glass, plastic, metal, rock, water, sand, natural, man-made, wet, dry, warm, cool, hard, soft, smooth, shiny, • Temperature - hot, warm, cold, freezing • Size - big, small, more, less, bigger, biggest, smaller, smallest • Sequencing - days of the week and months of the year, visual timetable for daily routine 		

Year One

Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Weeks 1 - 3 Animals including humans - All about me	Animals, including humans	Plants	Everyday materials		Weeks 1- 4 Revisit plants and seasonal changes Weeks 5-7 Assessment and science project
	Weeks 4 - 8 Seasonal changes	First lesson every half term - objectives seasonal changes/plants - data collections				
Vocab	Senses, touch, see, smell, taste, hear, fingers (skin), forehead, toes, nostrils, eyelashes, toenails, ankles, elbows, wrists, bitter, sweet, sour, sharp, tingly, fizzy	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, nocturnal, reptile, tame, wild, alive, meat eater, plant eater	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, root system	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through, (transparent, opaque), fibre, melt, dull, float, sink		
	Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length, monsoon, khareef, thunder storm					
Links	All about me is part of the animals including humans topic - it should be explicitly taught that humans are animals. Plants Y1 Support chn to make links with the skills that have been used prior and purpose.	Seasonal Change Y1 Support chn to make links with the skills that have been used prior and purpose.	Seasonal Change Y1 Support chn to make links with the skills that have been used prior and purpose.	Classification skills developed through Plants and Animals including humans		
Learning Objectives	ANIMALS INCLUDING HUMANS	I can identify and name a variety of common	I can identify and name a variety of common	I can distinguish between an object and the material from which it is made	I can observe changes across the 4 seasons.	

	L.O - 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	animals including fish, amphibians, reptiles, birds and mammals	wild and garden plants, including deciduous and evergreen trees			
	SEASONAL CHANGES I can observe changes across the 4 seasons.	I can identify and name a variety of common animals that are carnivores, herbivores and omnivores	I can identify and describe the basic structure of a variety of common flowering plants, including trees	I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	I can observe and describe weather associated with the seasons and how day length varies.	
	SEASONAL CHANGES I can observe and describe weather associated with the seasons and how day length varies.	I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)		I can describe the simple physical properties of a variety of everyday materials	I can use my observations to suggest answers to questions about plants in each season.	
				I can compare and group together a variety of everyday materials on the basis of their simple physical properties		
Scientific skills	<ol style="list-style-type: none"> 1. asking simple questions and recognising that they can be answered in different ways 2. observing closely, using simple equipment 3. performing simple tests 4. identifying and classifying 5. using their observations and ideas to suggest answers to questions 6. gathering and recording data to help in answering questions 					
Year 2						
Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Unit of work	Plants 23-24 Au 2	Living things and their habitats Sp 1 and 2	Animals, including humans Au 1 I can plant a seed	Uses of everyday materials	Weeks 1-4 Revisit Plants and Habitats Weeks 5-7 Assessment and science project
Plants - Bulbs to be planted October to December. Seeds can be planted throughout the year based on plant type. The first lesson of each half term is used to revisit objectives from plants and living things and collect data ready to examine at the end of the year					
Vocab	As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy, germinate, nutrients, seed dispersal, radicle, root shoot, seedling, wilting, bulbs	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc. offspring, young (baby), adult, herbivore, carnivore, omnivore, habitat, decay, food source, life cycle	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta), teenager, toddler, amphibian, mammal, skeleton, dependent, independent.	Names of materials – increased range from year 1 Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching, boiling, natural, man-made	
Links	Seasonal Changes Y1 Plants Y1 Living things and their habitats Y2	Seasonal Changes Y1 Plants Y1 Animals including Humans Y1 Plants Y2 Animals including Humans Y2	Seasonal Change Y1 Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Support chn to make links with the skills that have been used prior and purpose.	Link to classification skills developed through 1 and 2 Everyday materials Y1	
Learning Objectives	I can observe and describe how seeds and bulbs grow into mature plants	I can explore and compare the differences between things that are living, dead, and things that have never been alive	I can notice that animals, including humans, have offspring which grow into adults	I can identify and compare the suitability of a variety of everyday materials, including	I can use my observations to explain the changes that plants experient through the

				wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	year.	
	I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	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 find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	I can use my observations to explain that impact the season has on the local habitat,	
		I can identify and name a variety of plants and animals in their habitats, including microhabitats	I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene - Au1			
		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				
Scientific skills	<ol style="list-style-type: none"> 1. asking simple questions and recognising that they can be answered in different ways 2. observing closely, using simple equipment 3. performing simple tests 4. identifying and classifying 5. using their observations and ideas to suggest answers to questions 6. gathering and recording data to help in answering questions 					
Year 3						
Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

Unit of work	Animals, including humans	Light	Rocks	Plants	Forces and magnets	Week 1 - 3 Forces and Magnets Week 4 Review data for plants Weeks 5 -7 Assessment and science project
<p>Observe plants throughout the year for this objective: Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal One lesson a term should be dedicated to this.</p>						
Vocab	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints, balanced diet, roughage,	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous Luminous, non luminous, ultra-violet, infra-red.	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil Weather, weathering	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal, ovule, lobes, germination, self dispersal, pollen, carpel, stamen, sepal, competition, reproduce, seedling, ovary, anther	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole,	
Links	Seasonal Change Y1 Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Support chn to make links with the skills that have been used prior and purpose.	Materials Year 1 Materials Year 2 Plants Y3	Materials Year 1 Materials Year 2 Living things and their habitats Y1 and Y 2 Plants, Y1, Y2 and Y3	Seasonal change Y1 Living things and their habitats Y2 Plants Y1, Y2 Rocks Y3 Light Y3	Materials Year 1 Materials Year 2	
Learning Objectives	I can identify that animals, including humans, need the right types and amount of	I can recognise that they need light in order to see things and that dark is the absence of light	I can compare and group together different kinds of rocks on the basis of their	I can identify and describe the functions of different parts of flowering plants: roots,	I can compare how things move on different surfaces	I can use my observations to explain how the structure of a plant changes

	nutrition, and that they cannot make their own food; they get nutrition from what they eat		appearance and simple physical properties	stem/trunk, leaves and flowers		throughout the year and draw simple conclusions about the impact of these changes on the plant life cycle, posing simple questions.
	I can identify that humans and some other animals have skeletons and muscles for support, protection and movement	I can notice that light is reflected from surfaces	I can describe in simple terms how fossils are formed when things that have lived are trapped within rock	I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant	I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	I can research a scientist and report on my findings.
		I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes	I can recognise that soils are made from rocks and organic matter	I can investigate the way in which water is transported within plants	I can observe how magnets attract or repel each other and attract some materials and not others	
		I can recognise that shadows are formed when the light from a light source is blocked by an opaque object		I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	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	
		find patterns in the way that the size of shadows change			I can describe magnets as having 2 poles	
					I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing	
Scientific skills	<ol style="list-style-type: none"> 1. asking relevant questions and using different types of scientific enquiries to answer them 2. setting up simple practical enquiries, comparative and fair tests 3. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 4. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 					

5. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
6. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
7. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
8. identifying differences, similarities or changes related to simple scientific ideas and processes
9. using straightforward scientific evidence to answer questions or to support their findings.

Year Four

Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Living things and their habitats	States of matter	Animals, including humans	Sound	Electricity	Weeks 1 - 4 Revisit animals including humans and Living things to review findings throughout the year. Weeks 5 -7 Assessment and science project
	Living things and their habitats and Animals including humans (food chains) should be revisited throughout the year.					
Vocab	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, compound leaves, leaf skeleton, deciduous, evergreen, simple leaf.	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle Degree celsius, solidify, states of matter, vapour, matter, particle, viscous	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, repeating, continuous, loud, quiet, gas, pluck	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, solar, terminal and rechargeable	review
Links	Seasonal Change Y1	Materials Year 1 Materials Year 2	Seasonal Change Y1	States of matter Y4	Materials Y1, Y2 and Y3	

	Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Plants Y3 Support chn to make links with the skills that have been used prior and purpose.	Materials Year 3	Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Plants Y3 Living things and their habitats Y4 Support chn to make links with the skills that have been used prior and purpose.			
Learning Objectives	I can recognise that living things can be grouped in a variety of ways	I can compare and group materials together, according to whether they are solids, liquids or gases	I can describe the simple functions of the basic parts of the digestive system in humans	I can identify how sounds are made, associating some of them with something vibrating	I can identify common appliances that run on electricity	I can use my observations to explain how seasonal change impacts the flora and fauna of our local environment
	I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	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 different types of teeth in humans and their simple functions	I can recognise that vibrations from sounds travel through a medium to the ear	I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	I can research the strain that environmental factors can have on living things and report on my findings,
	I can recognise that environments can change and that this can sometimes pose dangers to living things	I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	I can construct and interpret a variety of food chains, identifying producers, predators and prey	I can find patterns between the pitch of a sound and features of the object that produced it	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 research a scientist and report on my findings.
				I can find patterns between the volume of a sound and the strength of the vibrations that produced it	I can recognise 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 recognise that sounds get fainter as the distance from the sound source increases	I can recognise some common conductors and insulators, and associate metals with being good conductors	
Scientific skills	<ol style="list-style-type: none"> 1. asking relevant questions and using different types of scientific enquiries to answer them 2. setting up simple practical enquiries, comparative and fair tests 3. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 4. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 5. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 6. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 7. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 8. identifying differences, similarities or changes related to simple scientific ideas and processes 9. using straightforward scientific evidence to answer questions or to support their findings. 					

Year Five						
Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Living things and their habitats	Forces	Properties and changes of materials		Earth and space	Animals, including humans
Vocab	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings, hatch, pup, fledgling, cell, flower, organ,	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Aristotle, balanced force, fulcrum, force arrow, Newton, Newton metre.	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material, properties, natural, manufactured, man-made, synthetic, decompose, organic, weathering, decay, brittle, fragile, durable.		Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets, crescent, meridian, axis, Milky Way, asteroid, horizon, new moon, gibbous, waning, waxing, dusk, equator, North Pole, South Pole.	Vocab to be decided alongside PSHE puberty topic - see doc
Links	Seasonal Change Y1 Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Plants Y3 Animals including humans Y4	Materials Y1, Y2, Y3 Forces Y3	Materials Y1, Y2, Y3 States of matter Y4		Materials Y1, Y2, Y3 Forces Y3, Y5 Light Y3	Seasonal Change Y1 Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Plants Y3 Animals including humans Y4 Living things and their habitats Y5
Learning Objectives	I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets		I can describe the movement of the Earth and other planets relative to the sun in the solar system	I can describe the changes as humans develop to old age

	I can describe the life process of reproduction in some plants and animals ONLY	I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces	I can know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	I can describe the movement of the moon relative to the Earth	I can describe the life process of reproduction in animals including humans (link to A1)
		I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	describe the sun, Earth and moon as approximately spherical bodies	I can research a scientist and report on my findings.
			give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	
			demonstrate that dissolving, mixing and changes of state are reversible changes		
			explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda		
Scientific skills	<ol style="list-style-type: none"> 1. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 2. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate 3. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 4. using test results to make predictions to set up further comparative and fair tests 5. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations 6. identifying scientific evidence that has been used to support or refute ideas or arguments 				

Year Six						
Half term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of work	Living things and their habitats	Animals including humans	Electricity	Light	Evolution and inheritance	Secondary science
Vocab	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering, family, genus, species, mould, bacteria, fungi, virus, colonies	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle oxygenated, deoxygenated, plasma, platelets, Red blood cells, white blood cells, artery, vein, capillary, chamber	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage Current, filament, terminal, generate, resistance- NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably,	As for year 3 plus straight lines, light rays. Refraction, reflection, ultra-violet, infra -red, periscope, dispersion, spectrum, inverted, beam	Offspring, sexual reproduction, vary, characteristics, suited, adaptation, environment, inherited, species, fossils, population, variation, natural selection, evolution, genes, genetics DNA, extinct, speciation	
Links	Seasonal Change Y1 Animals Including Humans Y1 Living things and their habitats Y2. Plants Y2 Animals including humans Y3 Plants Y3 Animals including humans Y4 Living things and their habitats Y5	Seasonal Change Y1, Animals Including Humans Y1, Y3, Y4, Y5 Living things and their habitats Y2.Y5. Plants Y2,Y3	Materials Y1, Y2 and Y3 Electricity Y4	States of matter Y5 Sound Y4	Seasonal Change Y1, Animals Including Humans Y1, Y3, Y4, Y5,6 Living things and their habitats Y2.Y5. Y6 Plants Y2,Y3	KS1 and Ks2

Learning Objective	I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals	I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	I can recognise that light appears to travel in straight lines	I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	I can recognise that there are 3 core disciplines (4th earth science) of science and describe the differences between them
	I can give reasons for classifying plants and animals based on specific characteristics	I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches	I can 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	I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	I can explain the safety protocols for work in a lab
		I can describe the ways in which nutrients and water are transported within animals, including humans	I can use recognised symbols when representing a simple circuit in a diagram	I can 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	I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	I can investigate the pH scale using a range of reagents
				I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		I can use a microscope to investigate organisms on a cellular level
						I can investigate forces
Scientific skills	<ol style="list-style-type: none"> 1. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 2. taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate 3. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 4. using test results to make predictions to set up further comparative and fair tests 5. reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations 6. identifying scientific evidence that has been used to support or refute ideas or arguments 					

