



Years 1 and 2	Years 3 and 4	Years 5 and 6
Asking questions and recognising that they can be answered in different ways		
<p>Asking simple questions and recognising that they can be answered in different ways <i>Examine plants in a garden for signs of them having been eaten. Consider what may have eaten the plants and what else might be living in that place</i></p>	<p>Asking relevant questions and using different types of scientific enquiries to answer them <i>What do plants need in order to grow? Investigating the effects of light, temperature, water, air on seedlings</i></p>	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary <i>Investigate and recreate heart rates for varying levels of exertion, giving explanations for observations</i></p>
Observing closely and taking measurements		
<p>Observing closely, using simple equipment. <i>Observe closely the growth of seeds over regular periods using magnifying glasses</i></p>	<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers <i>Observe the growth of bean seedlings over time. Use data loggers to record 24 hours of light and temperature readings.</i></p>	<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. <i>Observe, measure and identify patterns in changing shadows across a day.</i></p>
Engaging in practical enquiry to answer questions		
<p>Performing simple tests <i>Testing the best conditions for growing seeds</i></p> <p>Identifying and classifying <i>Identifying plants, comparing them to named images</i></p>	<p>Setting up simple practical enquiries, comparative and fair tests <i>Why there are differences in the growth of the seedlings? What factors are affecting growth?</i></p>	<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary <i>Identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs.</i></p>



Recording and presenting evidence

Gathering and recording data to help in answering questions.

Set up diaries to record the growth of beans over a period of time. Use findings to suggest reasons for different growth

Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

Classify plants found in local area according to flowering, non flowering, size/shape of leaves etc.

Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys.

Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys.

Using test results to make predictions to set up further comparative and fair tests

Undertake a study of air resistance by exploring falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective.

Answering questions and concluding

Using their observations and ideas to suggest answers to questions

Make a collective map of a garden plot, labelling the plants and predicting what they will turn into when they are fully grown

Using straightforward scientific evidence to answer questions or to support their findings.

Make a summary of class findings from the seedling investigation with notes and drawings of results.

Identifying differences, similarities or changes related to simple scientific ideas and processes

Create detailed models of sections through fruits showing flesh, skin, seeds etc

Using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further questions

Report on how their requirement seems to be affecting the health/growth of seedling

Identifying scientific evidence that has been used to support or refute ideas or arguments

Exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.

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

Create a print advert that explores the impact of drugs and alcohol on the human body

Progression in Knowledge



Biology: Plants

EYFS/ Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>(1) To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>(2) To identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>(1) To know and describe how seeds and bulbs grow into mature plants</p> <p>(2) To know and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>See also Yr2 - Living things and their habitats (1), (2)</p>	<p>(1) To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>(1) To 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</p> <p>(2) To know the way in which water is transported within plants</p> <p>(3) To know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>See also Yr4 - Living things and their habitats (1), (2), (3)</p>	<p>See also Yr5 - Living things and their habitats (2)</p>	<p>See also Yr6 - Living things and their habitats (1), (2)</p>

Pre- taught Vocabulary



plant		seeds		root			
tree	leaf	bulbs		stem			
seed		grow	plants	trunk			
root	stem	water		leaves			
trunk		light	air	flowers			
flower		temperature		flowering plant			
deciduous		healthy		buds	non		
evergreen	bark			flowering plant			
blossom				branch			
petal	fruit			nutrients			
bulb				soil			
branch				pollination			
bud	oak			air			
holly	fir			light			
grass				water			
dandelion	daisy			transported			
rose				life cycle			
				seed			
				formation			
				dispersal			
				fruit			
				osmosis			



Biology: Animals including humans

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>(1) To identify and name variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>(2) To identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>(3) To identify and name about describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>(4) To identify, name, draw and label the basic parts of the human body and say which part of the body</p>	<p>(1) To understand that animals, including humans, have offspring which grow into adults</p> <p>(2) To know the basic needs of animals, including humans, for survival (water, food and air)</p> <p>(3) To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>(1) To know 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</p> <p>(2) To know that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>(1) To describe the simple functions of the basic parts of the digestive system in humans.</p> <p>(2) To know about the different types of teeth in humans and their simple functions.</p> <p>(3) To construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>(1) To describe the changes as humans develop to old age.</p> <p>See also Yr 5 - Living things and their habitats (1), (2)</p>	<p>(1) To know and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>(2) To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>(3) To describe the ways in which nutrients and water are transported within animals, including humans</p> <p>See also Yr 6 - Living things and their habitats (1), (2)</p>



is associated with each sense							
Pre-taught Vocabulary							
carnivore herbivore omnivore fish snake senses frog hen pigeon mouse see legs wings fins fur hear scales feathers fly swim skin smell taste feel ears nose tongue	squirrel limbs eyes	Healthy unhealthy grow strong clean air germs sick food offspring knee breathe adult young ear mouth head neck arm elbow tongue teeth leg face hair eye	illness exercise	nutrition bones skeleton muscles food groups fat sugar carbohydrate protein diet vitamin mineral fibre roughage skull ribs spine carnivore herbivore	digestive system large intestine small intestine liver colon pancreas kidney stomach oesophagus molar canine incisor predator prey producer	infancy preadolescent adolescent puberty adult mature immature teenager youth elderly ancestor growth	circulation heart blood vessel muscle muscular lifestyle nutrients drugs exercise heart rate blood pressure



EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>See also Yr - Plants (1), (2), (3)</p> <p>Yr1 - Animals including humans (1), (2), (3)</p> <p>Yr1- Seasonal change (1)</p>	<p>(1) To know the differences between things that are living, dead, and things that have never been alive</p> <p>(2) To 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</p> <p>(3) To identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>(4) To describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and</p>	<p>See also Yr3 - Plants (3)</p>	<p>(1) To recognise that living things can be grouped in a variety of ways</p> <p>(2) To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>(3) To recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>See also Yr4 - Animals, including humans (3)</p>	<p>(1) To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>(2) To describe the life process of reproduction in some plants and animals.</p>	<p>(1) To 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</p> <p>(2) To give reasons for classifying plants and animals based on specific characteristics.</p>



	identify and name different sources of food. See also Yr2 - Animals including humans (1)				
Pre-taught Vocabulary					
	habitat environment natural living dead microhabitat shelter log ocean pond food chain rainforest seashore woodand bush stone		life cycle mammal amphibian insect bird environment reproduction herbivore amphibians vertebrate invertebrate rainforest deforestation habitat mini-beast	life cycle mammal amphibian reptile fish bird vertebrate invertebrate insect arachnid mollusc reproduction seed germinate classification	Micro-organism invertebrate vertebrate amphibian Reptile bird mammal classification



Biology - Evolution and inheritance

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	See Yr2 - Living things and their habitats (2)	See Yr3 - Rocks (2)	See Yr4 - Living things and their habitats (3)		<p>(1) To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>(2) To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>(3) To know that animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
Pre-taught Vocabulary					
					fossil offspring adaptation inheritance characteristic variation environment palaeontologist evolution



Chemistry: Materials

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1 (Everyday Materials)	Year 2 (Uses of everyday materials)	Year 3	Year 4 (States of matter)	Year 5 (Properties and changes of materials)	Year 6
<p>(1) To distinguish between an object and the material from which it is made.</p> <p>(2) To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>(3) To describe the simple physical properties of a variety of everyday materials.</p> <p>(4) To compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>(1) To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>(2) To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>See Yr3 - Rocks (1), (2)</p>	<p>(1) To compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>(2) To know 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).</p> <p>(3) To know about the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>(1) To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>(2) To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>(3) To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>(4) To give reasons, based on evidence from comparative and fair tests, for the</p>	



				<p>particular uses of everyday materials, including metals, wood and plastic.</p> <p>(5) To understand that dissolving, mixing and changes of state are reversible changes</p> <p>(6) To know 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</p>	
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Pre-taught Vocabulary

wood plastic glass metal water rock hard soft shiny dull rough stretchy waterproof transparent (see through)	hard soft brick paper glass fabric shiny dull smooth squash fold twist bend elastic foil absorbent		solid gas evaporation condensation water cycle temperature material heat	liquid state melt steam	hardness soluble insoluble solubility mixture substance sieve evaporate reversible irreversible dissolve solution magnetic	filter
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	opaque transparent	translucent				
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Chemistry: Rocks

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
See Yr1 - Everyday materials ((2), (3), (4)	See Yr2 - Uses of everyday materials (1)	<p>(1) To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>(2) To describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>(3) To recognise that soils are made from rocks and organic matter.</p>			See Yr6 - Evolution and inheritance (1)

Pre-taught Vocabulary

		fossils organic matter	soil			
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		igneous sedimentary metamorphic layers permeable hardness chalk sandstone marble pressure	granite slate		
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Physics: Seasonal changes					
EYFS/Early Learning Goal					
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
(1) To know there are changes across the four seasons		See Yr3 - Light (3)		See Yr5 - Earth and space (4)	



(2) To describe the weather associated with the seasons and how day length varies.					
Pre-taught Vocabulary					
weather spring day rain summer night sunshine autumn dark cloud winter snow bright light warm hot cold					

Physics: Light					
EYFS/Early Learning Goal					
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Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
See Yr1 - Animals, including humans (4)		(1) To recognise that they need light in order to see things and that			(1) To recognise that light appears to travel in straight lines



		<p>dark is the absence of light.</p> <p>(2) To know that light is reflected from surfaces</p> <p>(3) To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>(4) To recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>(5) To find patterns in the way that the size of shadows change</p>			<p>(2) To 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</p> <p>(3) To know that light travels from light sources to our eyes or from light sources to objects and then to our eyes and this enables us to see things.</p> <p>(4) To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
Pre-taught Vocabulary					
		<p>opaque transparent translucent shadow light source reflect shine position. distance</p>			<p>light reflection shadow prism source refraction periscope</p>



Physics: Forces

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3 (Forces and magnets)	Year 4	Year 5 (Forces)	Year 6
	See Yr2 - Uses of everyday materials (2)	(1) To know and compare how things move on different surfaces (2) To notice that some forces need contact between two objects, but magnetic forces can act at a distance (3) To know how magnets attract or repel each other and attract some materials and not others (4) 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 (5) To describe magnets as having two poles		(1) To know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object (2) To identify the effects of air resistance, water resistance and friction, that act between moving surfaces (3) To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	



		(6) To predict whether two magnets will attract or repel each other, depending on which poles are facing.				
Pre-taught Vocabulary						
		attract repel magnetic non-magnetic magnetic field poles push pull surface facing	gravity contact	gravity resistance friction water resistance pulley gear mechanism speed	air lever	

Physics: Sound					
EYFS/Early Learning Goal					
<p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</p>					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
See Y1 - Animals, including humans (4)			(1) To identify how sounds are made, associating some of them with something vibrating. (2) To recognise that vibrations from sounds travel through a medium to the ear.		



			<p>(3) To see patterns between the pitch of a sound and features of the object that produced it.</p> <p>(4) To see patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>(5) To recognise that sounds get fainter as the distance from the sound source increases.</p>		
Pre-taught Vocabulary					
			sound hear ear vibrate vibration pitch volume blow strike insulator	pluck	

Physics: Electricity

EYFS/Early Learning Goal



Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<p>(1) To identify common appliances that run on electricity</p> <p>(2) To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>(3) To know 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</p> <p>(4) To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>(5) To recognise some common conductors and insulators, and associate</p>		<p>(1) To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>(2) To 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</p> <p>(3) To use recognised symbols when representing a simple circuit in a diagram.</p>



			metals with being good conductors.		
Pre-taught Vocabulary					
			cell battery bulb wire switch buzzer circuit electricity mains lamp appliance volt conductor insulator		

Physics: Earth and space

EYFS/Early Learning Goal

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
See Yr1 - Seasonal changes (1), (2)				(1) To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. (2) To describe the movement of the Moon relative to the Earth.	



				<p>(3) To describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>(4) To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	
Pre-taught Vocabulary					
				<p>sphere orbit rotate rotation planet star moon asteroid satellite meteor meteorite comet surface tide gravity phase mass horizon sunrise sunset</p>	