

Early Years Foundation Stage

- Children listen attentively in a range of situations
- Children follow instructions involving several ideas or actions
- They answer 'how' and 'why' questions about their experiences and in response to stories or events
- Children express themselves effectively, showing awareness of listeners' needs
- They use past, present and future forms accurately when talking about events that have happened or are to happen in the future
- They develop their own narratives and explanations by connecting ideas or events
- Children know the importance for good health of physical exercise and a healthy diet, and talk about ways to keep healthy and safe
- 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

Key Stages 1 and 2

Working Scientifically

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PLAN	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways. 	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum 	<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them (with support) 	<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them 	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary
DO	<ul style="list-style-type: none"> • Use simple equipment to observe closely • Perform simple tests • Identify and classify 	<ul style="list-style-type: none"> • Use simple equipment to observe closely including changes over time • Perform simple comparative tests • Identify, group and classify 	<ul style="list-style-type: none"> • Set up simple practical enquiries, comparative and fair tests (with support) • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (with support) 	<ul style="list-style-type: none"> • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 	<ul style="list-style-type: none"> • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (with support) 	<ul style="list-style-type: none"> • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Group and classify things and recognise patterns
RECORD	<ul style="list-style-type: none"> • Gather and record data to help in answering questions 	<ul style="list-style-type: none"> • Gather and record data to help in answering questions including from secondary sources of information • 	<ul style="list-style-type: none"> • Gather, record, classify and present data in a variety of ways to help in answering questions (with support) • Record findings using simple scientific language, drawings, labelled diagrams, 	<ul style="list-style-type: none"> • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<ul style="list-style-type: none"> • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (with support) 	<ul style="list-style-type: none"> • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

			keys, bar charts, and tables (with support)			
REVIEW	<ul style="list-style-type: none"> Use his/her observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns 	<ul style="list-style-type: none"> Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (with support) Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (with support) Identify differences, similarities or changes related to simple scientific ideas and processes (with support) Use straightforward scientific evidence to answer questions or to support his/her findings (with support) 	<ul style="list-style-type: none"> Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support his/her findings 	<ul style="list-style-type: none"> Use test results to make predictions to set up further comparative and fair tests (with support) Report and present 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 (with support) Identify scientific evidence that has been used to support or refute ideas or arguments 	<ul style="list-style-type: none"> Use test results to make predictions to set up further comparative and fair tests Report and present 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 Report and present 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 Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources
Vocabulary						
	question, answer, sort, identify, group, diagram, compare, describe, differences, changes	observe, classify, identify, record, chart, data, contrast, prediction, tables	research, scientific enquiry, improve, thermometer, bar graph, line graph, gather, record, conclusion, accurate measurements,	evidence, secondary sources, observation, datalogger, Comparative and fair test, systematic, construct, interpret	variables, independent variable, dependent variable, precision, scientific diagrams, scatter graphs, refute ideas, arguments, patterns, reliable, validity	classification keys

Animals including Humans

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	<ul style="list-style-type: none"> Understand that animals, including humans, have offspring which grow into adults Describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene 	<ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement 	<ul style="list-style-type: none"> Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey 	<ul style="list-style-type: none"> Describe the changes as humans develop to old age 	<ul style="list-style-type: none"> Identify and name the main parts of the human respiratory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Describe the ways in which nutrients and water are transported within animals, including humans

Vocabulary

amphibian, fish, reptile, mammal, bird herbivore, carnivore, omnivore, meat, plants, seeds, berries, bones, feathers, fur, leaves tongue, mouth, nose, eyes, skin, ears, head, legs, neck, knees, hair, arms, face, elbows, back, chest, leg, knee, teeth	offspring, grow, adult, egg-chick-chicken, egg-caterpillar-pupa-butterfly, spawn-tadpole-frog, lamb-sheep, baby-toddler-child-teenager-adult nutrition, reproduce, survival, water, food, air, exercise, hygiene,	diet, nutrition, vitamins, minerals, fat, protein, carbohydrates, fibre, water skeletons: support, protect, skull, brain, ribs, heart, lungs, movement, joint, muscle, contract, relax, pair	human digestive system, mouth, tongue, mixes, moistens, saliva, teeth, incisor, cutting, slicing, canines, ripping, tearing, molars, chewing, grinding, oesophagus, transports, stomach, acid, enzymes, small intestine, absorbs, vitamins, large intestines, compacts, food chain, producers, prey, predator	human development, baby-toddler-child-teenager-adult, puberty, gestation, length, mass	human internal organs, heart, lungs, liver, kidney, brain, skeletal system, skeleton, muscle, muscular, digestion, circulatory system, blood vessels, blood, veins, arteries, impact, diet, exercise, drugs, lifestyle, abuse, nutrients, damage, alcohol, substances
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Living things and their Habitats

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, 		<ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers and 	<ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals 	<ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics

	and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including micro-habitats • 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		have an impact on living things		
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Vocabulary

	living, dead, alive, never alive, habitats, micro-habitats, food chain sun-grass-cow-human, healthy, shelter, seashore, woodland, ocean, rainforest, hot/cold/warm, dry/damp/wet, bright/shade/dark		environment, flowering, non-flowering, plants, animals, vertebrate, invertebrates, fish, amphibians, reptiles, birds, mammals, human impact, population, deforestation, nature reserves	Y4 animal types life cycles, reproduction, sexual, asexual	Y4 animal types micro-organisms, classification,
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Plants

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees 	<ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy 	<ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 			

Vocabulary

common plants, wild plants, deciduous, evergreen, trunk, branch,	Y1+ bulb, seed, water, nutrients, air, light, suitable	Y2+ flowering plants, non-flowering, nutrition, support,			
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leaf, root, blossom, stem, bud, flower, petal, fruit, vegetables	temperature, soil, grow, healthy, germination, reproduction	fertiliser, pollination, seed dispersal			
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Evolution and Inheritance

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					<ul style="list-style-type: none"> • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

Vocabulary

					evolution, adaptation, inherited, natural selection, DNA, genes, variation, parent, offspring, fossil, environment, habitat, fossilisation, plants, animals, living things
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Seasonal changes

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies. 					

Vocabulary

autumn, spring, summer, winter, longer, shorter weather, rain, snow, wind, sun, cloud, fog					
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Materials

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made 	<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of 			<ul style="list-style-type: none"> • Compare and group together everyday 	

<ul style="list-style-type: none"> Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties 	<p>everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <ul style="list-style-type: none"> Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 			<p>materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <ul style="list-style-type: none"> Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda 	
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Vocabulary

<p>material: wood, plastic, glass, metal, water, rock, paper, fabric, elastic, foil</p> <p>properties: hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent</p>	<p>material: Y1 + cardboard, brick, rubber</p> <p>properties: Y1+ squashing, bending, twisting, stretching</p> <p>absorbent, <i>magnetic</i></p>			<p>properties: Y3+ transparency, solubility, conductive, dissolve, liquid, solution, solute, separate, separating</p> <p>filtering, sieving, evaporating, dissolving, mixing, melting, burning, rusting, conducting, insulating, chemical change,</p>	
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				physical change, reversible, irreversible	
Electricity					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<ul style="list-style-type: none"> Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors 		<ul style="list-style-type: none"> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram
			appliances, mains, battery-operated, cell, wire, bulb, motor, buzzer, circuit, switch, insulators, conductors, safety		Yr3+ voltage, brightness, volume, switches, series circuit, complete circuit, incomplete circuit, circuit diagram
Earth and Space					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	•		•	<ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies 	

				<ul style="list-style-type: none"> Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky 	
				Day, night, star, planet, moon, solar system, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, (Pluto), rotate, orbit, axis, spherical, heliocentric, geocentric, hemisphere, season, tilt, dwarf planet, planetoid, celestial body	
Forces and Magnets					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> Compare how things move on different surfaces Notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing 		<ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals 	
Vocabulary					
		Y2+		Gravity, air resistance, water resistance,	

		Force, push, pull, open, surface, friction, Newton metre/force metre, magnet, magnetic, attract, repel, magnetic poles, North, South		friction, surface, force, effect, move, accelerate, decelerate, stop, change direction, brake, mechanism, pulley, gear spring, theory of gravitation Galileo Galilei Isaac Newton	
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Light

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
•		<ul style="list-style-type: none"> Recognise that he/she needs light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that light from the sun can be dangerous and that there are ways to protect eyes Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change 			<ul style="list-style-type: none"> Recognise that light appears to travel in straight lines Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Vocabulary

		light, dark, reflect, surface, natural, shadow, blocked, solid artificial, star, Sun, Moon, torch, candle, lamp, sunlight, dangerous, protect			travels, straight, light source, object, reflection, mirror, periscope, rainbow, refraction
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Sound

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
•	•	•	<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds travel through a medium to the ear 		

			<ul style="list-style-type: none"> • Find patterns between the pitch of a sound and features of the object that produced it • Find patterns between the volume of a sound and the strength of the vibrations that produced it • Recognise that sounds get fainter as the distance from the sound source increases 		
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Vocabulary

			vibrate, vibration, vibrating, air, medium, ear, hear, sound, volume, louder, quieter, pitch, lower, higher, insulate, longer, shorter, tighter, looser		
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Rocks

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		<ul style="list-style-type: none"> • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • Describe in simple terms how fossils are formed when things that have lived are trapped within rock • Recognise that soils are made from rocks and organic matter 			

Vocabulary

		soil, sedimentary rock, igneous, sandstone, metamorphic, granite, organic matter properties: Y2+ appearance, physical properties, hardness, permeability, porous			
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States of Matter

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			<ul style="list-style-type: none"> • Compare and group materials together, 		

			<p>according to whether they are solids, liquids or gases</p> <ul style="list-style-type: none"> • Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 		
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Vocabulary

			<p>solid, melt, freeze, liquid, evaporate, evaporation, condense, condensation, precipitation, water vapour, gas, container, changing state, degrees Celsius (°C), thermometer</p>		
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