

Progression and Coverage of Skills in Science

Working Scientifically		EYFS	Year 1/2	Year 3/4	Year 5/6
	PLAN - Ask Questions	<ul style="list-style-type: none"> -explore during their play and repeat an action/test making it obvious they are trying to find something out and see if the result is always the same - recognises when a simple comparison is unfair 	<ul style="list-style-type: none"> • ask simple questions and recognise that they can be answered in different ways and using different types of scientific enquiries to answer them - with help begin to choose ways to and answer a question - take a few guided planning decisions - recognise when simple test's unfair - make own suggestions on how to collect data once the data needed has been outlined - make simple prediction if appropriate (based on something they have observed before but without an explanation) 	<ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests - begin to choose ways to try and answer a question - put forward own ideas and make some planning decisions - suggest ways of making the test fair or if it can't be fair how they will answer it by looking for a pattern - from a selection say what equipment is needed - suggest the type of data needed to be collected - make simple predictions based on everyday experience and knowledge 	<ul style="list-style-type: none"> • planning different types of scientific enquiries, including recognising and controlling variables where necessary to answer questions - ask a variety of types of scientific questions - choose the most appropriate scientific enquiry method to answer a question and outline the method - list all the equipment needed - decide what data to collect and how much of it is needed - make predictions based on scientific knowledge
	DO - Measure	<ul style="list-style-type: none"> - observe closely using all of their senses as appropriate - during their play repeat an action/test making it obvious they are trying to find something out and see if the result is always the same - compare 2 (3) things by direct observation 	<ul style="list-style-type: none"> • observe closely, using simple equipment • perform simple tests - make observations related to the task or test - use simple equipment provided - measure using uniform non- standard units (e.g. straws) or simple standard units and measuring equipment: meter stick, cm, kg, masses, l, jugs & second timer - compare 3 or more things - read scales to nearest labelled division. 	<ul style="list-style-type: none"> • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - carry out a fair test or pattern seeking enquiry with help - compare 3 or more things - use simple standard measures; m, cm, mm, kg, g, cm³, minutes, seconds, Newton. - measure to the nearest whole or half unit or mixed units. -read scales to the nearest division labelled and unlabelled. 	<ul style="list-style-type: none"> • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - make a series of measurements adequate for the task - select appropriate measuring equipment - use standard measures as in including use of fractions and mixed units and decimals to one place. - read scales with increased accuracy - compare 5 or more things - select apparatus and use with care - read scales with precision and accuracy appropriate to the task - repeat readings & find averages
	RECORD		<ul style="list-style-type: none"> • gather and record data to help in answering questions (Year 2 only) • identify and classify - draw pictures of results/ take photos - help teacher make a class table or chart - complete a simple chart or two column table - make practical block graphs/pictograms - make/draw a block graph with a 1:1 scale 	<ul style="list-style-type: none"> • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions - construct a simple 2 column table - draw bar charts 1:1, 1:2, 1:5 and 1:10 scale & begin to plot line graphs 	<ul style="list-style-type: none"> • recording data and results of increasing complexity using scientific diagrams, labels, classification keys tables, scatter graphs, bar and line graphs, and models - present information clearly in tables including for repeat readings - record observations and measurements systematically -draw bar graphs more complex scales possibly involving fractions or decimals e.g. 1:2.5 - draw line graphs, possibly involving fractions and decimals
	REVIEW - Concluding and Evaluating	<ul style="list-style-type: none"> - make comparisons - say what happened - order results (first, second, third) - spot similarities and differences 	<ul style="list-style-type: none"> • use their observations and ideas to suggest answers to questions - describe observations - say what they have found out - say whether what happened was what they expected 	<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 their findings - say what they have found out and give an explanation for observations and simple patterns based on everyday experience 	<ul style="list-style-type: none"> ▪ reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, explanations of the degree of trust in results, in oral and written forms such as displays and other presentations ▪ using test results to make predictions to set up further comparative & fair tests ▪ identify scientific evidence that has been used to support or refute ideas or arguments. - use graphs to spot and interpret patterns/ trends in results - draw conclusions using these patterns and begin to relate conclusions to scientific knowledge and understanding consistent with the evidence - offer simple explanations for differences in repeated measurements/ observations.

Progression and Coverage of Skills in Science

BIOLOGY

(Black text signifies statutory requirements)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<p>PRE-SCHOOL Know some names of plants. Begin to say how they are different from each other. Start to describe the features of plants.</p> <p>RECEPTION Identify and name a variety of common wild and garden plants.</p> <p>Identify and describe the basic structure of a plant (root, stem, leaves and flowers).</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>			
Animals, Including Humans	<p>PRE-SCHOOL Observe and describe features of animals and plants.</p> <p>Know that animals and plants are living Say how animals and plants are different.</p> <p>RECEPTION Basic Year 1</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p>	<p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>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</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey, herbivores, carnivores and omnivores.</p> <p>Explain how a feeding relationship occurs in a variety of habitats.</p>	<p>Describe the changes as humans develop to old age</p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p>

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BIOLOGY

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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living Things and their Habitats	<p><u>PRE-SCHOOL</u> Talk about the features of their immediate environment</p> <p>Say how environments vary from one to another</p> <p><u>RECEPTION</u> Observe changes across the four seasons.</p> <p>observe and describe weather associated with the seasons and how day length varies.</p>		<p>Explore and compare the difference between things that are living, dead, and things that have never been alive</p> <p>Identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>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</p>		<p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p>	<p>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</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>
Evolution and Inheritance							<p>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>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>

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CHEMISTRY

(Black text signifies statutory requirements)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Properties and Changes of Materials	<p>PRE-SCHOOL Begin to say similarities and differences between materials.</p> <p>RECEPTION Basic Year 1</p>	<p>Everyday Materials Distinguish between an object and the material from which it is made</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>Describe the simple physical properties of a variety of everyday materials</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	<p>Uses of Everyday Materials 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>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<p>Rocks Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Relate simple physical properties of some rocks to their formation (igneous/sedimentary)</p> <p>Recognise that soils are made from rocks and organic matter to form igneous, sedimentary and metamorphic rock.</p>	<p>States of Matter Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>Observe and explain 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>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>Properties and changes of materials 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>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>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</p>	

Progression and Coverage of Skills in Science

PHYSICS

(Black text signifies statutory requirements)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light and Sound				<p>Light Recognise that they need light in order to see things and that the dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Investigate and find patterns in the way that the size of shadows changes</p>	<p>Sound Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p>		<p>Light Recognise that light appears to travel in straight lines</p> <p>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>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</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p> <p>Explain that light can be broken into colours and different colours can be combined to appear as a new colour.</p>
Earth and Space						<p>Describe the movement of the Earth, and other planets, relative to the Sun</p> <p>Describe the movement of the Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	

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PHYSICS

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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces and Magnets				<p>Forces and Magnets Compare how things move on different surfaces (friction)</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Explain the force of gravity.</p> <p>Explore push and pulls as a force.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>Compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing</p>		<p>Forces Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of gravity air resistance, water resistance and friction, that act between moving surfaces</p> <p>Know how to measure the size of a force using Newtons.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p> <p>Explain how scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</p>	
Seasonal Change		<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>					

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PHYSICS

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity					<p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>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>Recognise some common conductors and insulators, and associate metals with being good conductors</p>		<p>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>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>Use recognised symbols when representing a simple circuit in a diagram knowing the names of all components.</p> <p>Identify what causes a short circuit or a circuit to fuse.</p>