



# PROGRESSION OF SKILLS –SCIENCE

EYFS provision						
Understanding the world (links to Science)	NURSERY			RECEPTION		
		<ul style="list-style-type: none"> <li>• Ask questions about objects, events and animals observed in their environment. E.g. learning about farm animals and jungle animals, observing seasonal changes in our orchard.</li> <li>• Considers and offers explanations of how things might work E.g. Opportunities within continuous and extended provision such as what makes a car move</li> <li>• Shows interests in different animals and sounds they make E.g. Finding out about different animals during a topic on the farm.</li> <li>• Know names of different fruits and vegetables E.g. Discussion during snack time and lunch time</li> <li>• Understand light and dark E.g. Through discussion around stories such as owl babies (nocturnal animals)and within a space topic</li> <li>• Know parts of the body E.g. Children will paint self-portraits</li> <li>• Beginning to understand the seasons E.g. Observing seasonal changes in our garden.</li> <li>• Know parts of a plant (leaf, flower) and what is needed for a plant to grow (sun, water)</li> <li>• Use descriptive terms, such as 'fast', 'slow', 'hot' and 'cold' E.g. A discussion about the cold weather when reading One Snowy Night.</li> <li>• Look closely at similarities, differences, patterns and changes.</li> <li>• Understand the importance of washing hands, brushing teeth and eating a healthy snack. E.g. A visit from a dentist and daily discussion at snack time.</li> <li>• Sort objects into groups by size, colour E.g. Within continuous provision in the maths area and investigation area.</li> </ul>			<ul style="list-style-type: none"> <li>• Make observations about objects, events and animals and answer questions. E.g. observing the life cycle of a butterfly, noticing how the trees in the orchard change throughout the seasons, Tadpole's Promise text</li> <li>• Find out how things work by observations and experimentation E.g.</li> <li>• Understand that animals live in different habitats E.g. Learning about Arctic animals and where they live and comparing this to animals living in a warmer climate.</li> <li>• Know names of different fruits and vegetable E.g. Exploring a wide range of fruits and vegetables when learning about Harvest.</li> <li>• Know parts of a plant (leaf, flower, stem, root) and what is needed for a plant to grow (sun, water, soil,) E.g. Children will plant sunflower seeds and care for them as they grow. Children dissect flowers and learn about their parts.</li> <li>• Understand ideas connected to light and dark – E.g. reflection, nocturnal animals etc E.g. Children learn about nocturnal animals during a topic of work on the moon.</li> <li>• Know what happens within each season and how the weather changes E.g exploring the kinds of clothes we wear at different times of the year, daily weather chart in class.</li> <li>• Know parts of the body and the senses E.g through games such as heads, shoulders, knees and toes, Children are encouraged to use their senses to explore during baking activities.</li> <li>• Use descriptive terms such as 'smooth', 'rough' 'boiling' and 'freezing', 'floating and sinking' E.g. Children investigate objects that float and sink during our pirates topic where they choose an appropriate object for a boat.</li> <li>• Know about similarities and differences in relation to places, objects, materials and living things E.g. through supported exploration in the investigation station area of the classroom.</li> <li>• Know how to keep healthy – daily exercise, healthy diet, brushing teeth, enough sleep E.g. as part of our people who help us topic, children will have a visit from a dentist and other professionals, children take part in national tooth brushing day activities and complete a toothbrushing challenge at home.</li> <li>• Sort a variety of objects into groups – size, colour, texture, function E.g.</li> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants E.g Children observe minibeasts closely using magnifying glasses and record these observations with drawings.</li> <li>• 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 E.g. Children hear lots of stories about the Arctic and compare this to their own environment.</li> <li>• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. E.g During baking activities children observe the changes in the ingredients when they are heated.</li> </ul>	
Skills	Y1	Y2	Y3	Y4	Y5	Y6

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		To use the following practical scientific methods, processes and skills <b>with adult support where needed</b>	To use the following practical scientific methods, processes and skills <b>with increasing confidence</b>	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills	To use the following practical scientific methods, processes and skills
<b>WORKING SCIENTIFICALLY</b>	<b>Questioning and predicting</b>	<ul style="list-style-type: none"> <li>Ask simple questions about the world around us</li> <li>Begin to recognise that questions can be answered in different ways (<i>different types of enquiry – observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding out things from secondary sources</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Ask questions about the world around us</li> <li>Recognise that questions can be answered in different ways (<i>different types of enquiry – observing changes over time, noticing patterns, grouping and classifying, carrying out simple comparative tests, finding out things from secondary sources</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Ask some relevant questions about the world around them and use different types of scientific enquiries to answer them</li> <li>Start to make predictions</li> </ul>	<ul style="list-style-type: none"> <li>Suggest possible further questions</li> <li>Use straight forward scientific evidence to answer questions and support their findings</li> <li>Make sensible predictions</li> </ul>	<ul style="list-style-type: none"> <li>Use test results to make appropriate, linked predictions and ask further questions</li> <li>Recognise when other sources of information (secondary sources) will help answer questions that cannot be answered through practical investigations</li> </ul>	<ul style="list-style-type: none"> <li>Make predictions for new values</li> <li>Use a range of sources to support own evidence and talk about how scientific ideas have developed over time</li> <li>Evaluate the reliability of their methods and suggest improvements</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments</li> </ul>
	<b>Planning and carrying out investigations</b>	<ul style="list-style-type: none"> <li>Recognise that questions can be answered in different ways</li> <li>Perform simple tests</li> </ul>	<ul style="list-style-type: none"> <li>Carry out pre-planned investigations – with support</li> </ul>	<ul style="list-style-type: none"> <li>Use different types of scientific enquiries to answer questions</li> <li>Set up simple practical enquiries and begin to recognise when a fair test is necessary</li> <li>Set up simple comparative tests</li> </ul>	<ul style="list-style-type: none"> <li>Set up fair tests</li> <li>Identify differences, similarities or changes related to simple scientific ideas and processes</li> </ul>	<ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions – including recognising and controlling variables where necessary</li> <li>Suggest sensible improvements to experiments</li> </ul>	<ul style="list-style-type: none"> <li>Set up further comparative and fair tests in response to results</li> </ul>
	<b>Taking and recording observations, measurements and results</b>	<ul style="list-style-type: none"> <li>Observe closely</li> <li>Use simple equipment to gather data to help in answering questions (<i>e.g. hand lenses, egg timers...</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Gather and record simple data to help in answering questions with support where needed</li> <li>Data recorded in tables provided by teacher (if required)</li> </ul>	<ul style="list-style-type: none"> <li>Start to make systematic and careful observations</li> <li>Take accurate measurements using standard units</li> <li>Gather and record data to help answer questions</li> <li>Start to record findings using simple scientific language</li> </ul>	<ul style="list-style-type: none"> <li>Make systematic and careful observations</li> <li>Take accurate measurements using standard units using a range of equipment including <i>thermometers and data loggers</i></li> <li>Record findings using simple scientific language – demonstrate through drawings, labelled diagrams, keys, bar charts and tables</li> </ul>	<ul style="list-style-type: none"> <li>Take accurate, precise measurements using appropriate equipment</li> <li>Know and explain when it is appropriate to take repeat measurements</li> <li>Gather, record, classify and present data in a variety of ways including scientific diagrams and labels, keys, tables, scatter graphs and bar and line graphs</li> </ul>	<ul style="list-style-type: none"> <li>Choose the most appropriate method for recording data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>Make a series of observations, comparisons and measurements with precision</li> </ul>
	<b>Identifying, grouping and classifying</b>	<ul style="list-style-type: none"> <li>Identify and classify with some support</li> <li>Begin to observe and identify, compare and describe</li> <li>Begin to use simple features to compare objects, materials and living things and, with support, decide how to sort and group them</li> </ul>	<ul style="list-style-type: none"> <li>Identify and classify</li> <li>Observe and identify, compare and describe</li> <li>Use simple features to compare objects, materials and living things and, with support, decide how to sort and group them</li> </ul>	<ul style="list-style-type: none"> <li>Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>Begin to talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>Begin to compare and group according to behaviour or properties, based on testing.</li> </ul>	<ul style="list-style-type: none"> <li>Identify differences, similarities or changes related to simple scientific ideas and processes.</li> <li>Talk about criteria for grouping, sorting and classifying and use simple keys.</li> <li>Compare and group according to behaviour or properties, based on testing.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to use and develop keys and other information records to identify, classify and describe living things and materials.</li> </ul>	<ul style="list-style-type: none"> <li>Use and develop keys and other information records to identify, classify and describe living things and materials.</li> </ul>
	<b>Explaining results and drawing conclusions</b>	<ul style="list-style-type: none"> <li>Begin to use observations and ideas to suggest answers to questions</li> <li>Talk about what they have found out</li> </ul>	<ul style="list-style-type: none"> <li>Use observations and ideas to suggest answers to questions</li> <li>Start to use simple scientific language in context</li> </ul>	<ul style="list-style-type: none"> <li>Report back on findings, including oral and written explanations</li> <li>Draw simple conclusions from findings and begin to make predictions about new values</li> <li>With support begin to look for naturally occurring patterns and relationships in their findings</li> </ul>	<ul style="list-style-type: none"> <li>Classify and present data in a variety of ways to help in answering questions</li> <li>Report back on findings verbally and through written explanations, displays, presentations etc....</li> <li>Form sensible conclusions from findings using straightforward scientific evidence to support ideas</li> </ul>	<ul style="list-style-type: none"> <li>Begin to report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li>Begin to identify scientific evidence that has been used to support or refute ideas or arguments</li> </ul>	<ul style="list-style-type: none"> <li>Present observations and data using appropriate methods</li> <li>Report and present results, including conclusions, casual relationships and explanations</li> <li>Draw conclusions, which are consistent with evidence and related to scientific understanding.</li> <li>Recognise which secondary sources will be most useful to</li> </ul>

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				<ul style="list-style-type: none"> <li>Suggest improvements to investigations</li> <li>Use straightforward scientific evidence to answer questions or support findings</li> </ul>	<ul style="list-style-type: none"> <li>Look for naturally occurring patterns and relationships in their findings</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Begin to draw conclusions based on their data and observations, use scientific evidence to justify their knowledge and understanding to explain their findings</li> <li>Begin to use test results to make predictions to set up further comparative and fair tests</li> </ul>	research their ideas and begin to separate opinion from fact
	<b>Using the Shape Code</b>	<ul style="list-style-type: none"> <li>Use cards to show children as look at different parts of the shape code</li> </ul>	<ul style="list-style-type: none"> <li>Use cards to show children as look at different parts of the shape code</li> </ul>	<ul style="list-style-type: none"> <li>Use written shape code for all investigations</li> </ul>			
<b>BIOLOGY</b>	<b>Seasonal changes</b>	<ul style="list-style-type: none"> <li>Observe changes across the four seasons</li> <li>Observe and describe weather associated with the seasons and how day length varies</li> </ul>					
	<b>Animals</b>	<ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals <ul style="list-style-type: none"> <li>Know names of native and non-native animals (Native e.g. dog, cat, horse, cow, hen, frog, fly, goldfish, spider. Non-native e.g. monkey, elephant, lion, bear)</li> </ul> </li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores <ul style="list-style-type: none"> <li>Can explain the meaning of these terms and can give examples.</li> </ul> </li> </ul> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</p> <ul style="list-style-type: none"> <li>Know that most <b>common</b> animals have a skeleton.</li> <li>Generally, adult animals have 0, 2, 4, 6 or 8 limbs</li> </ul>	<ul style="list-style-type: none"> <li>Notice that animals, including humans have offspring which grow into adults</li> <li>Find out about and describe the basic needs of animals, including humans, for survival (water, food, air)</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>	<ul style="list-style-type: none"> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	<ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Describe the life processes of reproduction in some plants and animals</li> </ul>	<ul style="list-style-type: none"> <li>Describe the ways in which nutrients and water are transported within animals (including humans)</li> </ul>
	<b>Humans</b>	<ul style="list-style-type: none"> <li>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"> <li>A variety of main body parts: head, shoulders, chest, arms, legs,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Notice that humans have offspring which grow into adults</li> <li>Find out about and describe the basic needs for survival (food, water, air)</li> <li>Describe the importance for humans of exercise, eating the</li> </ul>	<ul style="list-style-type: none"> <li>Identify that humans need the right types and amount of nutrition and that they cannot make their own food – they get nutrition from what they eat</li> </ul>	<ul style="list-style-type: none"> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> <li>Identify the different types of teeth in humans and their simple functions</li> </ul>	<ul style="list-style-type: none"> <li>Describe the changes as humans develop to old age</li> </ul>	<ul style="list-style-type: none"> <li>Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood</li> </ul>

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		stomach, feet, hands, knee, elbow, bottom, back.	right amounts of different types of food, and hygiene	<ul style="list-style-type: none"> <li>Identify that humans have skeletons and muscles for support, protection and movement</li> </ul>			<ul style="list-style-type: none"> <li>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>Describe the ways in which nutrients and water are transported within humans (and other animals)</li> </ul>
	<b>Plants</b>	<ul style="list-style-type: none"> <li>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul>	<ul style="list-style-type: none"> <li>Observe and describe how seeds and bulbs grow into mature plants</li> <li>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	<ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>Investigate the way in which water is transported within plants</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul>		<ul style="list-style-type: none"> <li>Describe the life processes of reproduction in some plants and animals.</li> </ul>	
	<b>Living things and their habitats</b>  <b>Evolution and inheritance (Y6)</b>		<ul style="list-style-type: none"> <li>Explore and compare the differences between things that are living, dead and things that have never been alive</li> <li>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</li> <li>Identify and name a variety of plants and animals in their habitats – including microhabitats</li> <li>Describe how animals obtain their food from plants and other animals using the idea of a simple food chain – identify and name different sources of food</li> </ul>		<ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>	<ul style="list-style-type: none"> <li>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>Describe the life processes of reproduction in some plants and animals</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>Give reasons for classifying plants and animals based on specific characteristics</li> <li>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>Recognise that living things produce offspring, but normally offspring vary and are not identical to their parents</li> <li>Identify how animals and plants are adapted to suit their environment and that adaptations lead to evolution</li> </ul>



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<b>PHYSICS</b>	<b>Light</b>			<ul style="list-style-type: none"> <li>• Recognise that light is needed in order to see things and that dark is the absence of light</li> <li>• Notice that light is reflected from surfaces</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>• Recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>• Find patterns in the way that the size of shadows change</li> </ul>			<ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines</li> <li>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</li> <li>• 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</li> <li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul>
	<b>Forces and magnets</b>			<ul style="list-style-type: none"> <li>• Compare how things move on different surfaces</li> <li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• Observe how magnets attract or repel each other and attract some materials and not others</li> <li>• 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</li> <li>• Describe magnets as having two poles</li> <li>• Predict whether two magnets will attract or repel each other depending on which poles are facing</li> </ul>		<ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul>	
	<b>Sound</b>				<ul style="list-style-type: none"> <li>• Identify how sounds are made, associating some of them with something vibrating</li> <li>• Recognise that vibrations from sounds travel through a medium to the ear</li> <li>• Find patterns between the pitch of a sound and features of the object that produced it</li> <li>• Find patterns between the volume of a sound and the</li> </ul>		



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CHEMIST R					<p>strength of the vibrations that produced it</p> <ul style="list-style-type: none"> <li>Recognise that sounds get fainter as the distance from the sound source increases</li> </ul>		
	Electricity				<ul style="list-style-type: none"> <li>Identify common appliances that run on electricity</li> <li>Construct a simple series electrical circuit identifying and naming its basic parts including cells, wires, bulbs, switches and buzzers</li> <li>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</li> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>		<ul style="list-style-type: none"> <li>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>Use recognised symbols when representing a simple circuit in a diagram</li> </ul>
	Earth and space					<ul style="list-style-type: none"> <li>Describe the movement of the Earth and other planets relative to the sun in the solar system</li> <li>Describe the movement of the moon relative to the Earth</li> <li>Describe the sun, Earth and moon as approximately spherical bodies</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	
CHEMIST R	Materials	EVERYDAY USES OF MATERIALS				PROPERTIES AND CHANGES OF MATERIALS	

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		<ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made</li> <li>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock</li> <li>• Describe the simple physical properties of a variety of everyday materials</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>			<ul style="list-style-type: none"> <li>• Compare and group everyday materials based on their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism</li> <li>• Know some materials dissolve in liquid to form a solution and describe how to recover a substance from solution</li> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• Explain that some changes result in the formation of new materials and that these changes are not usually reversible eg: changes from burning or the action of acid on bicarbonate of soda</li> </ul>	
	<b>Rocks</b>			<ul style="list-style-type: none"> <li>• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• Recognise that soils are made from rocks and organic matter</li> </ul>			
	<b>States of matter</b>				<ul style="list-style-type: none"> <li>• Compare and group materials together according to whether they are solids, liquids or gases</li> <li>• Observe that some materials change state when</li> </ul>		



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					<p>they are heated or cooled: measure or research the temperature at which this happens in degrees C (°C)</p> <ul style="list-style-type: none"><li>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li></ul>		
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