



Science Progression Map

<p>Essential knowledge for a scientist:</p> <ul style="list-style-type: none"> • Knowledge of living organisms (biology) • Knowledge of materials (chemistry) • Knowledge of physical processes (physics) • Knowledge of how science is used in real-life contexts. 	<p>Essential skills for a scientist:</p> <ul style="list-style-type: none"> • The ability to generate questions that can be investigated scientifically. • The ability to make predictions based on prior scientific knowledge. • The ability to plan and carry out scientific investigations including practical work. • The ability to present knowledge and understanding through reporting scientific findings in various ways.
--	--

The teaching of science should develop scientific knowledge, methods and processes and inspire enquiring minds, where children can be curious about the world around them and how it works.

	<u>EYFS</u>	<u>Key Stage 1</u>	<u>Lower Key Stage 2</u>	<u>Upper Key Stage 2</u>
Scientific Investigation	<ul style="list-style-type: none"> • Ask simple questions (who, what, when- move on to why in F2) • Observe changes • Compare familiar animals and habitats • Explore using the 5 senses. 	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Observe closely, using simple equipment • Perform simple tests • Identify and classify • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions. 	<ul style="list-style-type: none"> • Ask relevant questions • Set up simple practical enquiries, comparative and fair tests • Make accurate measurements using standard units, using a range of equipment. • 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 • Report on findings from enquiries. • Use results to draw simple conclusions, make predictions for setting up further tests. • Use straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • Plan enquiries to answer questions, including recognising and controlling variables where necessary. • Use appropriate techniques and apparatus taking measurements, using a range of scientific equipment, with increasing accuracy and precision. • Recording data and results of increasing complexity in a scientific way. • 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 o in oral and written forms such as displays and other presentations • Use scientific evidence to describe scientific ideas identifying evidence that has been used to support or refute ideas or arguments.
Key Vocab	Observe, record, explore, senses	Recognise, observe, identify, classify, record.	Recognise, observe, identify, classify, record, enquire, results, conclusion, similarities, differences, fair test.	Recognise, observe, identify, classify, record, enquire, results, conclusion, similarities, differences, fair test, controlling variables, classification keys, causal relationships, scientific evidence, hypothesis.

	<u>EYFS</u>		<u>Key Stage 1</u>		<u>Lower Key Stage 2</u>		<u>Upper Key Stage 2</u>	
	F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Plants	<ul style="list-style-type: none"> • To know that every living beings/plants has a life cycle and they change in shape and size as they grow. • To know that living beings/plants follow a similar growth pattern and make comparisons. • To listen to traditional stories such as Jack and the Beanstalk and talk about plants. 	<ul style="list-style-type: none"> • To plant seeds and care for growing plants. 	<ul style="list-style-type: none"> • Identify and name a variety of common plants and trees and those classified as deciduous and evergreen. • Identify and describe the basic structure of common flowering plants 	<ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants needs water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> • Identify and describe the different functions of flowering plants. • Explore the requirements of plants for life and growth and how they vary from plant to plant. • Explore the role of flowers in the life cycle of flowering plants including pollination, seed formation and seed dispersal. 			<ul style="list-style-type: none"> • Relate knowledge of plants to studies of evolution and inheritance (link to evolution). <p style="color: red; text-align: center;">Link with Evolution</p>

	Plant their own seeds and check how tall the plants grow.							
Animals including humans	<ul style="list-style-type: none"> To be able to talk about their basic body parts and what the function is of each part. To use senses to explore the world around them. To know the difference between farm animals and wild animals. To be able to categorise animals by their characteristics. 	<ul style="list-style-type: none"> To talk about how they have changed since they were a baby. To know and label body parts. To know that some animals are nocturnal. To identify and sort healthy/ unhealthy foods. Describe what they see, hear and feel while outside. 	<ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds, mammals and invertebrates. Identify and name a variety of common animals that are carnivores, herbivores and omnivores 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"> Notice that animals, including humans, have offspring which grow into adults Find out about and 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 circulatory 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.
Living things in their habitats	<ul style="list-style-type: none"> Make comparisons between habitats of farm animals and wild animals. Make own habitats using a range of resources. Listen to traditional stories such as Goldilocks and Three Little Pigs and talk about the habitats. Confidently talk about the life cycle of a plant and animals. 	<ul style="list-style-type: none"> Exploring a range of habitats, looking at why the animal lives like that. To know that humans and other animals and plants can grow. Talking about the life cycle of plants and animals and what they need to survive. 		<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, 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. 		<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 to living things. 	<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.
Evolution and inheritance								<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

							<ul style="list-style-type: none"> 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.
Key Vocab	Plants: stem, leaves, petal, seeds, bulb, tree, plant	Plants: Deciduous, evergreen, roots, stem, trunk, leaves, flowers, bulbs, seeds	Plants: Air, light, water, nutrients, transported, lifecycle, pollination, seed formation, seed dispersal.	Plants: Evolution, inheritance			
	Animals and Humans: arms, legs tummy etc baby, adult, nocturnal, healthy, unhealthy, see, hear etc, difference, similar	Animals and humans: offspring, survival, exercise, hygiene, carnivores, omnivores, herbivores, fish, amphibians, reptiles, birds, mammals	Animals including humans: Nutrition, skeleton, muscles, support, protection, movement, function, digestive system, food chains, producers, predators, prey, describe, identify, construct, interpret.	Animals and humans: Circulatory system, hearts, blood vessels, blood, diet, exercise, drugs, lifestyle nutrients, transported, impact			
	Living Things and their Habitats: habitat, life cycle, difference	Living things in their habitats: explore, compare, differences, living, dead, never been alive, identify, habitats, micro-habitats, food chain.	Living things and their habitats: Recognise, group, explore, classification keys, identify, environment	Living things and their habitats: Describe, differences, life cycles, mammal, amphibian, insect, bird, life process, reproduction, similarities, differences, micro-organisms, characteristics. Evolution and inheritance: evolve, offspring, environment, adaptation, evolution, inheritance.			

Chemistry	EYFS		Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	F1	F2	Y1	Y2	Y3	Y4	Y5	Y6
Materials	Everyday Materials <ul style="list-style-type: none"> Explore collections of materials with similar or different properties. 	Everyday Materials <ul style="list-style-type: none"> To name and identify a range of different materials and to know how they are used in familiar environments. To select appropriate materials according to their properties. 	Everyday materials <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made 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. 	Use of everyday materials <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	Rocks <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. 	States of matter <ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases 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. 	Properties and change of materials: <ul style="list-style-type: none"> 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 Know 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 <ul style="list-style-type: none"> • 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. 	
Key Vocab	Material wood glass paper hard soft, similar, different	Material metal wood rock plastic hard glass soft paper fabric material smooth shiny rough	Object, material, identify, describe, compare, group, properties	Identify, compare, suitable, purpose, suitability, similar, materials.	Compare, group, describe, recognise, rocks, fossils, organic matter, physical properties.	solids, liquid, gases, changing state, heated, cooled, temperature, degrees, Celsius, evaporation, condensation, water cycle.	hardness, solubility, transparency, conductivity, liquid, solution, dissolve, substance, separated, filtering, sieving, evaporating, reversible changes, change of state, fair test.	

Physics	EYFS		Key Stage 1	Lower Key Stage 2		Upper Key Stage 2	
	F1	F2	Y1	Y3	Y4	Y5	Y6
Earth		Seasonal Changes <ul style="list-style-type: none"> • To talk about the changes and explore the effect they observe in their environment 	Seasonal Changes <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. 	Light <ul style="list-style-type: none"> • Recognise that they need 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 		Earth and Space <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 	Light <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

				<p>that there are ways to protect their eyes</p> <ul style="list-style-type: none"> Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows changes. 		<ul style="list-style-type: none"> Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<ul style="list-style-type: none"> 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.
Forces and magnets	To talk about the forces they feel.			<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 based on 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. 	
Electricity				<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. 	

Sound					<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 • 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. 		
Key Vocab	Forces: pull push, move, turn	Seasonal Changes: summer, day, spring, dark, autumn, light, winter, night, season, moon, sun	Seasonal Changes: observe, describe, changes, seasons, weather, temperature, months.	<p>Light: light, dark, reflected, shadows, light source, opaque, transparent, translucent.</p> <p>Forces and magnets: compare, notice, observe, group, describe, predict, forces, magnetic, attract, repel, poles.</p>	<p>Electricity: appliance, simple series electrical circuit, cells, wires, bulbs, switches, buzzes, series circuit, conductors, insulators.</p> <p>Sound: identify, recognise, patterns, vibrations, pitch, volume, distance</p>	<p>Earth and Space: Earth, sun, moon, solar system, movement and rotation, spherical bodies, dwarf planet, orbits, reclassified, celestial body.</p> <p>Forces: explain, identify, recognise, force, gravity, resistance, friction, mechanisms</p>	<p>Light: light, dark, reflected, shadows, light source, opaque, transparent, translucent.</p> <p>Electricity: appliance, simple series electrical circuit, cells, wires, bulbs, switches, buzzes, series circuit, conductors, insulators. brightness, symbols to represent, variations.</p>