

Science Progression Map

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
WORKING SCIENTIFICALLY							
1 Asking questions	Make observations of natural and found objects. Begin to ask and answers questions about things observed.	Ask simple questions stimulated by my exploration of my world using what I see and my own ideas to offer answers to questions	Ask simple questions about my experiences and observations of objects, living things or events and with help use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways (e.g...	Within a group suggest relevant questions that can be explored or investigated further using different types of science enquiry (e.g	Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test	Refine a scientific question so that it can be investigated/tested, choosing an appropriate type of science enquiry to provide the best evidence	Recognise scientific questions to which I do not yet have definitive answers and use a range of scientific enquiries to explore possible answers
	2 Planning & performing tests		Perform simple tests to explore a suggested question or idea with support	Identify things to measure or observe that are relevant to the questions or ideas I am investigating using a simple test	Plan and carry out simple practical enquires, comparative and fair tests relevant to the questions or ideas I am investigating, with support (e.g. <i>Choose from a list at least one variable that needs to be kept the same when conducting a fair test; carry out simple enquires with a group of peers</i>)	Plan and carry out with increasing confidence simple practical enquires, comparative and fair tests relevant to the questions or ideas I am investigating	Decide which type of practical enquiry is most appropriate for the question or idea being investigated
		With support, identify the evidence needed to answer a question and say what to look for and what to measure in their test	Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating Recognise that some ways of investigating a question or idea are more appropriate than others	Begin to recognise when a test is not fair and suggest improvements	Decide whether a fair test is the best way to investigate their question or idea	Clarify which are control, dependent and independent variables in a fair test which they conduct	Explain why variables are significant in the context of the enquiry undertaken selecting the most suitable to investigate controlling variables where appropriate
3 Observing & measuring	Use language of measure Order objects by length, height or weight	Make measurements using non-standard units of measure with whole number scales	Make measurements using non-standard and standard units of measure with whole number scales.	Take simple accurate measurements and/or careful observations relevant to questions or ideas under investigation using whole number standard units over an increasing range	Take accurate measurements using more complex standard units and parts of units	With help recognise that some measurements may need to be repeated and discuss why	Decide whether it is appropriate to repeat measurements and explain why.

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3 Observing & measuring	Begin to use resources for observation & measuring	Use equipment provided for observation and measuring	Use equipment provided for observation and measuring and discuss why it is appropriate for the materials or events being observed or measured	Begin to make appropriate choices of equipment from a range provided (including thermometers and data loggers) for measuring and observing closely	Choose from a range provided, appropriate equipment for measuring and observing and explain why the equipment is appropriate to the task	Choose and use correctly a range of appropriate scientific equipment to support observation and data collection with increasing accuracy and precision	Choose and use correctly appropriate scientific equipment to support observation and data collection with accuracy and precision
	Make observation of natural & found objects	Observe objects, living things, events and the world around them closely, using their senses and simple equipment and, with help, discuss what they have seen or found out	Observe changes over time and begin to notice patterns and relationships	With guidance, make systematic observations of objects, living things and events.	Make systematic and careful observations of objects, living things and events	With guidance recognise that some observations may need to be repeated and discuss why.	Recognise that data that can be collected may be unreliable and describe what they could do to make it more reliable (e.g. repeat observations)
4 Identifying & Classifying	Begin to recognise basic features objects or living things.	Recognise basic features, similarities and differences of objects or living things and use them to support identification or classification.	Identify features, similarities, differences or changes within objects, living things or events to support identification and/or classification	Explain which characteristics have caused them to identify or classify objects, living things processes or events	Identify differences, similarities or changes related to simple scientific ideas or processes and more complex groups of objects, living things and events	Use secondary sources to support identification and classification of objects, living things and events.	Use a variety of secondary sources to support identification and classification and begin to identify some positives and some limitations of specific forms of classification.
	Begin to sort everyday objects by set criteria	Sort everyday objects or living things into groups based on simple features eg colour, material	Sort and group objects, living things or events on the basis of their observations explaining why	Complete sorting diagrams or simple tables, keys or data bases to classify objects, living things or events with support (e.g. complete with peers)	Complete sorting diagrams or simple tables, keys or data bases to classify objects, living things or events and recognise why they were selected for use.	Select and use classification tables, keys and data bases independently to classify objects, living things and events	Create tables, keys and data bases to classify or identify specific objects, living things or events by their characteristics
5 Gathering & recording data	Begin to make marks to represent information	Record evidence collected in simple tables and block graphs with support (e.g. templates provided).	Gather and record data in tables and bar charts with increasing independence to help in answering questions	Gather and present evidence and data as writing, labelled diagrams, bar charts or tables (using ranges and intervals chosen for them) to help in answering questions	Gather and present evidence and data (discrete and continuous) as writing, labelled diagrams, bar charts, time graphs or tables where intervals and ranges have been agreed through discussion, to help in answering questions	Select appropriate ways of gathering and presenting scientific data from models, writing, drawing, ICT, tables or graphs choosing appropriate ranges and intervals	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, , bar and line graphs

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				Make suggestions on appropriate ways to record findings as a group	Make some independent choices about an appropriate way to record data from a range of choices and draw own tables and charts	Select the most useful ways of gathering and recording information and begin to explain choices.	Justify choices for presentation methods in terms of why it is better for the data or task (e.g. using line graphs for continuous variables)
6 Using evidence and results for conclusions		Begin to recognise links between observations and answers to questions	Use observations and ideas to suggest answers to questions	Support what I have found out using my own experience and evidence and consider if further results can be predicted from the data.	Identify scientific evidence I have used to draw simple conclusions, and suggest improvements and predictions for further tests	Comment on how reliable my data is in supporting my conclusion and suggest further questions to investigate with support	Use evidence collected to justify ideas, draw conclusions and raise further questions to investigate
	With support, say what has changed when observing objects or living things.	Say what has changed when observing objects, living things or events	Identify patterns in results and discuss if results meet predictions or not	Say whether what happened was what I expected, acknowledging any unexpected outcomes	Recognise a result that seems odd compared with other results and explain why	Identify anomalies in results and recognise and explain why results are reliable or not	Suggest reasons for limitations or inconsistencies in results and decide whether they impact on the conclusions drawn

PLANTS

	EYFS	KS1	LKS2	UKS2
7	Begin to make observations of trees and plants to identify key features e.g. branches, flowers etc.	Name trees and other plants seen regularly in school or the local area and describe some of their key features (e.g. the shape of the leaves, the colour of the flower/blossom, whether they lose their leaves or keep them all year)	Describe the life cycle of flowering plants, (including pollination, seed formation, seed dispersal, and germination) recognising the part that flowers play in the process. Describe different methods of pollination and seed dispersal, including examples; and identify the features of seeds that make them suitable for their method of dispersal	
8	Identify and name a plant by identifying at least one key feature e.g. it is a flower because it has petals.	Point to and name the parts of a flowering <i>plant</i> (e.g. <i>leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem, bud</i>) recognising that they are not always the same (e.g. <i>leaves and stems may not be green</i>).	Explain the function of the key parts of a flowering plant (roots, stems/trunks, leaves and flowers/blossom)	
9	Show care & consideration for living things	Nurture seeds and bulbs into mature plants identifying the different requirements of different plants (e.g. <i>water, light and a suitable temperature</i>)	State the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and identify how they vary from plant to plant	

ANIMALS & HUMANS				
	EYFS	KS1	LKS2	UKS2
10	Begin to identify features of animals & compare similarities & differences of these features.	Know key features of common animals (<i>e.g. structures: wings, tails, ears etc. and skin coverings: scales, feathers, hair</i>) and use these to identify and name animals from each of the vertebrate groups.	Name some bones that make up our skeleton giving examples that support, help us move or provide protection Describe how muscles and joints help us to move	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
	Begin to identify parts of own body	Label parts of the body on pictures and diagrams	Sequence the main parts of the digestive system and describe what happens in each part	
	Begin to explore senses in a range of activities	Know the 5 senses and recognise humans use these to find out about the world	Identify and name the three different types of teeth in our mouths and describe their different shapes and roles.	
11	Observe stages of life cycles of some living things e.g. tadpoles & caterpillars.	Describe how animals including humans have offspring which grow into adults, using the appropriate names for the stages (<i>e.g. - chick/hen; baby/child/adult; caterpillar/butterfly; tadpole/frog</i>)		Explain the changes that take place in boys and girls during puberty and recognise that these changes enable adults to reproduce.
12	Manage self-hygiene and make choices regarding healthy lifestyles e.g. food & exercise	State the importance for humans of exercise, hygiene and eating the right amounts of different types of food (Eatwell plate). State the basic needs of animals, including humans, for survival (<i>feeding, drinking and breathing</i>)	Name the nutrients found in food and know that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients	Explain both the positive and negative effects of diet, exercise, drugs and lifestyle on the body
13	Identify & describe a range of foods	Describe what a range of animals eat (other animals, plants or both) <i>NB: pupils do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals not just meat.</i>	Construct food chains and name producers, predators and prey within a habitat	
MATERIALS				
	EYFS	KS1: Everyday Materials and their Uses	LKS2: States of Matter	UKS2: Properties and Changes of Materials
14	Given a material (e.g. plastic or wood) identify things made from it in a limited selection.	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock		

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15	Use language to describe materials (e.g. hard, soft, rough, smooth).	Describe the physical properties of different materials (<i>e.g. hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</i>) and use them to compare and group materials	Know the properties of solids, liquids and gases and use to compare and group materials together according to whether they are solids, liquids or gases justifying your choice.	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
16	Use materials for specific purposes explaining choices.	Make a link between a materials' properties and its use to explain why a material is suitable or not suitable for a purpose (<i>e.g. a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water</i>).		Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
17	Explore different ways to change the shape of an object.	Describe the action used whilst changing the shape of an object (e.g. squashing, bending, twisting and stretching) and use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot	Know the state changes linked to heating materials (melting, boiling, evaporation) and cooling materials (freezing and condensation) and give everyday examples of each.	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
			Measure or research the temperature at which materials change state in degrees Celsius (°C) (e.g. explore the melting point of different materials such as ice, margarine, butter and chocolate and/or the freezing point of liquids such as tomato ketchup, oil, shampoo).	Demonstrate that dissolving, mixing and changes of state are reversible changes
			Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Explain that some changes result in the formation of new materials (e.g. burning wood, rusting and mixing vinegar with bicarbonate of soda) and that this kind of change is not usually reversible
LIVING THINGS AND THEIR HABITATS				
18	EYFS	KS1	LKS2	UKS2
		Explore and compare the differences between things that are living, dead, and things that have never been alive (<i>e.g. find a range of items outside that are living, dead and never lived</i>)	Know that plants and animals in a habitat depend on each other for food and shelter etc. and use a food chain to show this	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
19	Name & describe a range of habitats. Begin to describe and compare similarities & differences between habitats	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 (<i>e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty</i>)	Recognise that environments can change and that this can sometimes pose dangers to living things (<i>e.g. recognise natural changes such as seasons, flooding, fire, earthquakes and human changes such as setting up nature reserve, littering etc</i>)	

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20	Identify a range of animals & plants within their own environment	Name a range of animals and plants that live in a habitat and micro-habitats that they have studied	Use classification keys to help group, identify and name a variety of living things in their local and wider environment	Know that living things can be formally grouped according to characteristics and that broad groupings, such as micro-organisms, plants and animals can be subdivided
				Classify animals into the five vertebrate groups (fish, amphibians, reptiles, birds and mammals) and some of the invertebrate groups (e.g. insects, spiders, snails and worms) and discuss why living things are placed in one group and not another.
21				Explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways
FORCES AND MAGNETS				
22	EYFS	KS1	LKS2	UKS2
			Give examples of forces in everyday life and recognise that for some forces to act there must be contact (<i>e.g. a hand opening a door, the wind pushing the trees</i>) and that some forces can act at a distance (<i>e.g. magnetism</i>).	Demonstrate and explain the effect of gravity acting on an unsupported object
23			Compare how things move on different surfaces and explain the effect of the texture of the surface and the object on how it moves	Identify examples of friction, water resistance and air resistance and describe when it is beneficial to have high or low friction, water resistance and air resistance
24			Describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing	
			Use classification evidence to identify that some metals but not all are magnetic	
25				Demonstrate and explain the effects of using levers, pulleys and gears
LIGHT				
26	EYFS	KS1	LKS2	UKS2
				Explain how evidence from enquiries shows that light travels in straight lines
27			Recognise that we need light in order to see things and that dark is the absence of light	Describe with diagrams or models as appropriate how light travels in straight lines either from direct or reflected sources into our eyes
			Identify sources of direct light and reflected light and know that objects are easier to see when there is less light if they are reflective	

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			Know that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses	
28			Understand that shadows are formed by objects blocking light and that the size of shadows can vary.	Describe with diagrams or models as appropriate how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape.
			Define transparent, translucent and opaque	
ELECTRICITY				
		KS1	LKS2	UKS2
29			Construct a simple series electrical circuit, identifying and naming its basic parts (e.g. cells, wires, bulbs, switches, buzzers etc)	Draw circuit diagrams of a range of simple series circuits using recognised symbols
30			Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	Demonstrate and explain the effect of increasing or decreasing the number of cells or using cells of different voltages on the the working of particular components within a circuit (such as the brightness of bulbs, or loudness of buzzers)
31			Use classification evidence to identify that metals are good conductors and non-metals are insulators	

STAND ALONE TEACHING UNITS						
	EYFS	KS1	LKS2		UKS2	
	SEASONAL CHANGE		ROCKS	SOUND	EARTH & SPACE	EVOLUTION & INHERITENCE
32	Begin to name 4 seasons and talk about what happens in each season	Name the four seasons and identify when in the year they occur.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Identify how sounds are made, associating some of them with something vibrating	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system	Explain the process of evolution and give examples of fossil evidence that can be used to support the theory
33	Describe weather in own environment Begin to identify typical weather within each season	Describe weather in different seasons over a year.	Describe in simple terms how fossils are formed when things that have lived are trapped within rock	Recognise that vibrations from sounds travel through a medium to the ear	Describe the movement of the Moon relative to the Earth	Give examples of how and why an animal or plant has evolved over time to e.g. Penguin, peppered moth
34		Describe days as being longer (in time) in the summer and shorter in the winter.	Explain that soils are made from rocks and organic matter	Find patterns between the pitch of a sound and features of the object that produced it	Describe the Sun, Earth and Moon as approximately spherical bodies	
35			Find patterns between the volume of a sound and the strength of the vibrations that produced it		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	
36			Recognise that sounds get fainter as the distance from the sound source increases			