Science Curriculum Map

This document is designed to support the teaching of Science throughout school. It will demonstrate progression in teaching and ideas given as children move through school to develop their knowledge, skill and understanding of scientific concepts.

Disciplinary Knowledge								
		EYFS	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
WORKING SCIENCTIFALLY	**Observing over time** **Using observations and data to draw conclusions**	❖ I can make observations and explain what I can see	❖ I can use observations and ideas to suggest answers to questions	❖ I can observe changes over time ❖ I can ask questions about what I notice	❖ I can make careful and systematic observations and take accurate measurements using standard units ❖ I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ❖ I can record findings using bar charts keys, tables and labelled diagrams		❖ I can take measurements, using a wider range of scientific equipment, with increasing accuracy and precision and taking repeat reading when appropriate ❖ I can report and present findings from enquiries including conclusions, explanations, data and diagrams including scatter graphs and line graphs.	❖ I can use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate ❖ I can ask my own questions about the scientific phenomena that I am studying, and select the most appropriate ways to answer these questions including observing changes over different periods of time ❖ I can draw conclusions, explain and evaluate my methods and findings, communicating these in a variety of ways ❖ I can evaluate my results
	Identifying /classifying	❖ I can sort objects into groups	❖ I can identify and classify	❖ I can group and classify things	❖ I can gather, record, classify and present information in a variety		❖ I can classify materials and identify why they	❖ I can ask my own questions about the scientific phenomena

			according to simple criteria		of different ways to help me answer questions	are / are not fit for purpose	that I am studying, and select the most appropriate ways to answer these questions, recognising and controlling variables and grouping and classifying things
	Looking for patterns	N/A	❖ I can perform simple tests, involving observations and the gathering and recording of data	❖ I can use different types of Scientific enquiry to gather and record data, using simple equipment ❖ I can notice patterns in my observations or data	❖ I can identify differences, similarities or changes related to simple scientific ideas and processes	❖ I can ask my own questions about the scientific phenomena that I am studying, and select the most appropriate ways to answer these questions, recognising and controlling variables and noticing patterns	
	Comparative and fair testing	N/A	N/A	❖ I can carry out simple comparative tests	❖ I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests ❖ I can record findings and present data using simple scientific language, explanations, diagrams, pictures, keys, bar charts and tables.	❖ I can plan and carry out scientific enquiry using a range of scientific equipment and variables in order to answer questions ❖ I can use test results to make predictions to set up further comparative and fair tests	❖ I can ask my own questions about the scientific phenomena that I am studying, and select the most appropriate ways to answer these questions, recognising and controlling variables where necessary and carrying out comparative and fair tests ❖ I can draw conclusions, explain and evaluate my methods and findings, communicating these in a variety of ways

	Using secondary sources of evidence	N/A	N/A	❖ I can find things out using secondary sources of information	❖ I can identify scientific evidence that has been used to support or refute ideas or arguments	❖ I can describe and evaluate my own and others' scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources ❖ I can ask my own questions about the scientific phenomena that I am studying, and select the most appropriate ways to answer these questions including finding things out using a wide range of secondary sources	
	Using models	N/A	N/A	N/A	❖ I can understand how models can explain progresses that can't be fully observed eg: how light/sound travel, magnetism, the water cycle ❖ I can understand how models explain how molecules behave when substances change shape.	❖ I can understand how models about space and the solar system explain processes that can't be observed.	N/A

Science in EYFS			
ELG	Communication and Language	Listening, Attention and Understanding	❖ I can make comments about what I have heard and ask questions to clarify my understanding.
	Personal, Social, and Emotional Development	Managing Self	❖ I can manage my own basic hygiene and personal need, including dressing, going to the toilet and understanding the importance of healthy food choices.
	Understanding the world	The Natural World	❖ I can explore the natural world round me, making observations and drawing pictures of animals and plants/. ❖ I know some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class. ❖ I can understand some important processes and changes in the natural world around me, including the seasons and changing states of matter.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	❖ I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ❖ I can identify and describe the basic structure of a variety of common flowering plants, including trees	❖ I can observe and describe how seeds and bulbs grow into mature plants ❖ I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	❖ I can identify and describe the different functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers ❖ I can explore the requirements of what plants need for a successful, healthy life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant ❖ I can investigate the way in which water is transported within plants ❖ I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	N/A	N/A	N/A

Living things and their habitats	N/A	❖ I can explore and compare the differences between things that are living, dead, and things that have never been alive ❖ I can 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 can identify and name a variety of plants and animals in their habitats, including microhabitats ❖ I can 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	N/A	❖ I can recognise that living things can be grouped in a variety of ways ❖ I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment ❖ I can recognise that environments can change and that this can sometimes pose dangers to living things	❖ I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ❖ I can describe the life processes of reproduction in some plants and animals	❖ I can 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 ❖ I can give reasons for classifying plants and animals based on specific characteristics

Animals including humans	❖ I can identify and name a variety of common animal including fish, amphibians, reptiles, birds and mammals ❖ I can identify and name a variety of common animals that are carnivores, herbivores and omnivores ❖ I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ❖ I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	❖ I can notice that animals, including humans, have offspring which grow into adults ❖ I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ❖ I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	❖ I can 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 ❖ I can identify that humans and some other animals have skeletons and muscles for support, protection and movement	❖ I can describe the simple functions of the basic parts of the digestive system in humans ❖ I can identify the different types of teeth in humans and their simple functions ❖ I can construct and interpret a variety of food chains, identifying producers, predators and prey	❖ I can describe the changes as humans develop to old age	❖ I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood ❖ I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function ❖ I can describe the ways in which nutrients and water are transported within animals, including humans

Materials/ Rocks/ States of Matter/ Evolution and Inheritance	**Everyday Materials** ❖ I can distinguish between an object and the materials from which it is made ❖ I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ❖ I can describe the simple physical properties of a variety of everyday materials ❖ I can compare and group together a variety of everyday materials on the basis of their simple physical properties	**Uses of everyday materials** ❖ I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ❖ I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	**Rocks** ❖ I can compare and group together different kinds of rocks on the basic of their appearance and simple physical properties ❖ I can describe in simple terms how fossils are formed when things that have lived are trapped within rock ❖ I can recognise that soils are made from rocks and organic matter	**States of matter** ❖ I can compare and group materials together, according to whether they are solids, liquids or gases ❖ I can 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 ❖ I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	**Properties and changes of materials** ❖ I can 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 ❖ I can know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ❖ I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating ❖ I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ❖ I can demonstrate that dissolving, mixing and changes	**Evolution and inheritance** ❖ I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ❖ I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents ❖ I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

					of state are reversible changes ❖ I can 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	
Seasonal Changes/ Light/ Sound/ Earth and Space	**<u>Seasonal changes</u>** ❖ Observe changes across the four seasons ❖ Observe and describe weather associated with the seasons and how day length varies	N/A	**<u>Light</u>** ❖ I can recognise that they need light in order to see things and that dark is the absence of light ❖ I can notice that light is reflected from surfaces ❖ I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes ❖ I can recognise that shadows are formed when the light from a light source is blocked by a solid object ❖ I can find patterns in the way that the size of shadows change	**<u>Sound</u>** ❖ I can identify how sounds are made, associating some of them with something vibrating ❖ I can recognise that vibrations from sounds travel through a medium to the ear ❖ I can find patterns between the pitch of a sound and features of the object that produced it ❖ I can find patterns between the volume of a sound and the strength of the vibrations that produced it ❖ I can recognise that sounds get fainter as the distance from the sound source increases	**<u>Earth and space</u>** ❖ I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system ❖ I can describe the movement of the Moon relative to the Earth ❖ I can describe the Sun, Earth and Moon as approximately spherical bodies ❖ I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	**<u>Light</u>** ❖ I can recognise that light appears to travel in straight lines ❖ I can 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 ❖ I can 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 ❖ I can 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/ Electricity	N/A	N/A	**Forces and magnets** ❖ I can compare how things move on different surfaces ❖ I can notice that some forces need contact between two objects, but magnetic forces can act at a distance ❖ I can observe how magnets attract or repel each other and attract some materials and not others ❖ I can 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 ❖ I can describe magnets as having two poles ❖ I can predict whether two magnets will attract or repel each other, depending on which poles are facing	**Electricity** ❖ I can identify common appliances that run on electricity ❖ I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ❖ I can 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 ❖ I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit ❖ I can recognise some common conductors and insulators, and associate metals with being good conductors	**Forces** ❖ I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ❖ I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces ❖ I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	**Electricity** ❖ I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ❖ I can 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 ❖ I can use recognised symbols when representing a simple circuit in a diagram