

## Science Curriculum Assessment Grid for Years 1 to 6

		<b>Working Scientifically</b>									
EYFS	Y1 with guidance	Y2 with guidance	Y3	Y4	Y5	Y6					
Answer 'how' and 'why' questions about their experiences and in response to stories or events (Communication and language: understanding).	Ask simple questions and recognise they can be answered in different ways.		Ask relevant questions and use different types of scientific enquiries to answer them.		Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.						
	Ask simple questions when presented with a new object or subject.	Recognise that questions they – or others – ask can be answered in different ways.	Questions are relevant to the unit being studied and are answered using enquiries suggested by adults or others.	Children begin to suggest the type of Scientific Enquiry most suitable for answering questions. *	Plan different types of enquiry to answer questions, with support recognising variables.	Recognise and control variables where necessary, distinguishing between 'control'					
Handle equipment and tools effectively (physical development: moving and handling).	Observe closely, using simple equipment		Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.		Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts and line graphs.						
	Confidently handle and use simple equipment such as magnifying glasses, sieves etc.	Describe the effect of using the equipment e.g. describe a minibeast through a magnifying glass.	Take measurements over intervals, using measurements learned in Maths/Science.	Take more accurate measurements, and suggest a suitable timeframe for enquiries.	Record more complex data, using more detailed scientific diagrams and labels, tables, bar and line graphs.	Use classification keys and scatter graphs.					
	Perform simple tests		Set up simple practical enquiries, comparative and fair tests		Take measurements, using a range of scientific equipment, with increasing accuracy and precision.						
	Using equipment and methods as suggested by an adult.	Begin to suggest ideas for equipment to be used.	Set up simple enquiries when given the correct equipment.	Choose appropriate equipment from a selection of relevant and non-relevant equipment.	Take measurements using a range of equipment, including confidently using data loggers. Begin to take repeat readings for the purpose of 'fair test' when necessary.	Identify when a repeat reading is appropriate/necessary.					
Make observations of animals and plants and explain why some things occur (Understanding the world: the world).	Identify and classify		Gather, record, classify and present data in a variety of ways to help in answering questions.		Using test results to make predictions to set up further comparative and fair tests.						
	Classify using simple models (e.g. 2 circle Venn diagrams) based on one different characteristic.	Use more detailed models e.g. 3 circle Venn diagrams, Carroll diagrams etc.	Suggest the best ways of gathering, recording and classifying data.	Present in a wider variety of ways and begin to notice patterns in data e.g. curves in line graphs and suggest possible reasons for this. Record data with increasing accuracy.	Use others' test results to set up further comparative and fair tests (based around the same hypothesis/question).	Use their own test results to set up further comparative and fair tests (based around an adapted hypothesis/question).					
Talk about changes related to observations. (Understanding the world: the world)	Use observations and ideas to suggest questions		Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.		Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations.						
	Answer simple questions which have been given by a teacher (comprehension).	Suggest answers to questions of their own and those of classmates based on their own ideas and observations.	Use simple, scientific language, drawings and bar charts.	Use labelled diagrams, keys and tables.	Report and present findings from enquiries, including conclusions and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.	Report and present on causal relationships.					



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Plants/All Living Things						
EYFS	Y1 with guidance	Y2 with guidance	Y3	Y4	Y5	Y6
	Identify and name a variety of common wild and garden plants, including trees.	Understand that decaying organic matter is useful and the nutrients are passed back in to the soil after living things die.	Describe in simple terms how fossils are formed.  Recognise that soils are made from rocks and other organic matter.	Identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them groups.	Identify other living things from different environments and how group them according to the classification keys.	Describe how living things are classified into broad groups according to common observable characteristics based on similarities and differences, including micro-organisms, plants and animals.
	Identify and describe the basic structure of common flowering plants.	Observe and describe how seeds and bulbs grow into mature plants.	Identify and describe the functions of different parts of flowering plants (roots, stem, leaves, and flowers).			Give reasons for classifying plants and animals based on specific characteristics.
Can talk about the features of their own immediate environment and how environments might vary from one another. (notice differences between urban/rural, types of flowers or plants etc.)	Discover the basic things they need to grow and stay healthy (healthy food, water etc.)	Find out and describe how plants need water, light and suitable temperature to grow and stay healthy.	Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary from plant to plant.	Recognise that environments can change and this can pose dangers to living things.	Understand how and why environments can change, and the impact humankind has on different environments around the Earth.	Identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.
			Investigate the way in which water is transported within plants.			
			Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Explore the importance of the correct environment in allowing reproduction and growth to occur in plants.	Describe the process of reproduction in some plants and animals.	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
			Compare and group different kinds of rocks on the basis of their appearance and simple physical properties.			

## Science Curriculum Assessment Grid for Years 1 to 6

Animals, including humans						
EYFS	Y1 with guidance	Y2 with guidance	Y3	Y4	Y5	Y6
	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.					
Know about the similarities and differences between themselves and others, and among families, communities and traditions.	Describe and compare the structure of a variety of common animals including fish, amphibians, reptiles, birds, mammals and pets.					
	Identify and name a variety of common animals that are carnivores, herbivores and omnivores.			Construct and interpret a variety of food chains, identifying producers, predators and prey.		
	Identify, name, draw and label the basic parts of the human body, including the senses.	Further develop understanding of the senses and the human body.	Identify that humans and some animals have skeletons and muscles for support, protections and movement.	Describe the simple functions of the basic parts of the digestive system in humans.	Identify and label the major organs in the human body, and be able to accurately describe their position.	Identify and name the main parts of the human circulatory system.
						Describe the functions of the heart, blood vessels and blood.
		Notice that animals and humans have offspring which grow into adults.			Describe the changes as humans develop to old age.	
		Find out about and describe the basic needs of animals and humans, for survival (water, food, air).				Describe the way in which nutrients and water are transported within animals and humans.
		Describe the importance of exercise, balanced diet and hygiene, in relation to humans.	Identify that animals, including humans, need the right types and amount of nutrition from what they eat.	Identify the different types of teeth in humans and their simple functions.	Identify ways of staying healthy and lifestyle choices which could lead to ill health.	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

Light and Sound						
Y1 with guidance	Y2 with guidance	Y3	Y4	Y5	Y6	
		Recognise that light is needed to see things and that dark is the absence of light.	Understand that air is a gas, and the particles can be moved.		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.	
			Identify how sounds are made, associate with something vibrating.			
		Recognise that light travels through a medium to the eye.	Recognise that vibrations from sounds travel through a medium to the ear.		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.	
		Notice that light is reflected from surfaces.	Recognise that sounds get fainter as the distance from the sound source increases.		Recognise that light appears to travel in straight lines.	
			Recognise that sounds get fainter as the distance from the sound source increases.			
		Recognise that light from the sun can be dangerous.	Recognise that extremely loud sounds can be dangerous.			
		Recognise how shadows are formed.	Recognise that sounds get fainter as		Use the idea that light travels in straight lines to explain why shadows have the same shape as the object cast.	
		Find patterns in the way that the size of shadows change.	Find patterns between the volume of a sound and the strength of the vibrations that produced it.			

### Science Curriculum Assessment Grid for Years 1 to 6

Everyday materials						
EYFS	Y1 with guidance	Y2 with guidance	Y3	Y4 States of matter	Y5 Properties and changes of materials	Y6
Know about similarities and differences in relation to places, objects and materials.	Distinguish between an object and the material from which it is made.				Give reasons for the particular uses of everyday materials, based on evidence from comparative and fair tests.	
Distinguish between living and non-living things.	Identify and name a variety of everyday materials; including wood, plastic, glass, metal, water and rock.					
	Describe the simple physical properties 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.				
	Based on their simple physical properties, compare and group together everyday materials.	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Describe with greater accuracy and detail the changes that occur when materials are squashed, bent, twisted and stretched.	Compare and group materials together, according to whether they are solids, liquids or gases.	Compare and group materials based on their properties, including hardness, solubility, transparency, conductivity, response to magnets.	
				Observe that some materials change state when they are heated or cooled.	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.	
				Measure (in Celsius) or research the temperature at which materials change state when heated or cooled.	Use knowledge of solids, liquids and gases to decide how mixtures might be separated (filtering, sieving, and evaporating).	
				Identify the part played by evaporation and condensation in the water cycle.	Demonstrate that dissolving, mixing and changes of state are reversible changes.	
				Associate the rate of evaporation with temperature.	Explain that some changes result in the formation of new materials, a change that is usually not reversible.	

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Forces and Electricity						
Y1 with guidance	Y2 with guidance	Y3	Y4	Y5	Y6	
		Compare how things move on different surfaces.		Identify common appliances that run on electricity.	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
				Identify and name the basic parts of a simple series electrical circuit (cells, wires, bulbs, switches and buzzers).	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.	Describe the flow of electricity and
				Construct a simple series electrical circuit (cells, wires, bulbs, switches and buzzers).	Use recognised symbols when representing a simple circuit in a diagram (bulbs, wires, cells).	Use recognised symbols when representing a simple circuit in a diagram (for any given component).
		Notice that some forces need contact between two objects, but magnetic forces can act at a distance.		Identify whether or not a lamp will light a simple series circuit.	Describe the causes for non-functioning circuits, including an incomplete circuit, and understand how to resolve them.	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
		Observe how magnets attract or repel each other and some materials.		Recognise that a switch opens and closes a circuit.	Describe the flow of electricity and use the units associated with conductance and resistance.	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.
		Identify magnetic materials.		Recognise some common conductors and insulators, associate metals with being good conductors.		Identify the causes of electrical resistance in a circuit.
		Compare and group everyday magnetic materials.		Describe the link between magnetism and electricity and the effect they have on each other.		Understand and describe the magnetic field and how it affects the planet.
		Describe magnets as having two poles.				
		Predict whether two magnets will attract or repel each other.				

Earth and Space					
Y1 (Seasonal Changes) with guidance	Y2 with guidance	Y3	Y4	Y5	Y6
Observe changes across the four seasons.				Describe the movement of earth, and other planets, relative to the sun.	
				Describe the movement of the moon relative to the earth.	
				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.	
Observe and describe weather associated with seasons.					
Observe and describe how day length varies across the seasons.					

## Science Curriculum Assessment Grid for Years 1 to 6

Five types of Scientific Enquiry:

- Observing over time
- Identifying and classifying
- Pattern seeking
- Research
- Comparative and fair testing