Progression of Skills in **Science**

Plants						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Make observations of plants and explain why some things occur, and talk about change	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees.	Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - 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 Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of			(see Evolution and inheritance)

			flowering plants, including pollination, seed formation and seed dispersal.			
Animals including humans						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Make observations of animals and explain why some things occur Talk about changes to animals	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds	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.	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.	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.	Describe the changes as humans develop to old age.	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,

	and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense					including humans. (see also Evolution and inheritance)
Living things and their habitats						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Know about similarities and differences in relation to living things Talk about the features of their own immediate environment and how environments might vary from one another		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		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	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.	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

		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.		dangers to living things.		based on specific characteristics. (see also Evolution and inheritance)
Seasonal Changes						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Look closely at similarities, differences, patterns and change- in relation to the four seasons when different weather occurs	Observe changes across the four seasons Observe and describe weather					

	associated with the seasons and how day length varies					
Everyday materials (Y1)/ Uses of everyday materials (Y2)/ Properties and changes of materials (Y5)						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Know about similarities and differences between different materials Make observations and talk about why some things occur, and talk about changes Know the properties of some materials and suggest some of the purposes they may be used for.	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	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.			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	

	everyday materials on the basis of their simple physical properties.				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 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.	
Rocks						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			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			(see Evolution and inheritance)

			trapped within rock Recognise that soils are made from rocks and organic matter.			
Light						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			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 that there are ways to protect their eyes Recognise that shadows are formed when the			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 Explain that we see things because light travels from light sources to our eyes or from light sources to objects

			light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change			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 (Y3)/ Forces (Y5)						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Develop ideas of grouping, sequences, cause and effect- in relation to movement i.e. toys, cars, rough surfaces Familiar with the basic scientific concepts of floating, sinking and experimentation			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		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	

			some materials and not others 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 Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing.		between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	
States of matter						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

			.	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		
Sound						

Progression of Skills in **Science**

Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			.	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		
Electricity						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			.	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		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

				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.		Use recognised symbols when representing a simple circuit in a diagram.
Earth and Space						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			.		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	

					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.	
Evolution and Inheritance (note for Year 6 – see Plants; Animals, including humans; Living things and their habitats; and Rocks for how some of these aspects have been covered lower down the school)						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			.			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the

						Earth millions of years ago 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
Working Scientifically- Ongoing throughout the year						
Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observing: Sensory observation of animals and plants; simple description of the world around them. Researching:	Know that we can ask questions about the world and that when we observe the	Know that we can ask questions about the world and that when we observe the world to answer these	Know that we can ask questions and answer them by setting up scientific enquiries	Know that we can ask questions and answer them by setting up scientific enquiries	Know how to choose appropriate variables to test a hypothesis (e.g. plant height	Know how to choose appropriate variables to test a hypothesis (e.g. plant height as a

Progression of Skills in **Science**

Looking at objects and pictures and discussing what they can see. Questioning: Ask questions about aspects of their familiar world Planning: Generating a variety of ideas for testing (not always realistic or appropriate) Predicting: Simple predictions- what might happen? Measuring: Measure by direct comparison; non-standard units of measurement; simple comparative vocabulary i.e. bigger, smaller. Reporting: Talking about objects and events; simple recording- drawing. Interpreting: Noticing 'which worked best'- simple comparative statements; provide simple answers to initial questions.	world to answer these questions, this is science Know that we can use magnifying glasses to observe objects closely Know that we can test our questions to see if they are true Know that objects can be identified or sorted into groups based on their observable properties Know that we can write down numbers and words or draw pictures to record what we find	questions, this is science Know that we can use magnifying glasses to observe objects closely Know that we can test our questions to see if they are true Know that objects can be identified or sorted into groups based on their observable properties Know that we can write down numbers and words or draw pictures to record what we find	Know how to make relevant predictions that will be tested in a scientific enquiry Know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other conditions are kept the same Know how to use a range of equipment to measure accurately, including thermometers, data loggers, rulers and stopwatches	Know how to make relevant predictions that will be tested in a scientific enquiry Know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other conditions are kept the same Know how to use a range of equipment to measure accurately, including thermometers, data loggers, rulers and stopwatches	as a dependent variable when measuring effect of light on plant growth) Know how to identify conditions that were imperfectly controlled and can explain how these might affect results Know how to accurately use further measuring devices, including digital and analogue scales, measuring cylinders and beakers, recognizing the relative accuracy of each device Know how and when to repeat measurements,	dependent variable when measuring effect of light on plant growth) Know how to identify conditions that were imperfectly controlled and can explain how these might affect results Know how to accurately use further measuring devices, including digital and analogue scales, measuring cylinders and beakers, recognizing the relative accuracy of each device Know how and when to repeat measurements, how to find an average of a set

			Know how to draw bar charts; how to label a diagram using lines to connect information to the diagram; how to use a coloured key how to draw a neat table; how to draw a classification key; how to show the relationship between an independent variable in a two-way table; and how to label specific results in a two-way table Know – with structured guidance - how to write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a	Know how to draw bar charts; how to label a diagram using lines to connect information to the diagram; how to use a coloured key how to draw a neat table; how to draw a classification key; how to show the relationship between an independent variable in a two-way table; and how to label specific results in a two-way table Know how – with structured guidance - to write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of	how to find an average of a set of measurements and how to recognize and remove outliers from a set of data, justifying the removal as a potential mis-measuremen t Know how to independently write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion Know how to present brief oral findings from an enquiry,	of measurements and how to recognize and remove outliers from a set of data, justifying the removal as a potential mis-measuremen t Know how to independently write a simple scientific enquiry write-up including an introduction, a list of equipment, a numbered method, a detailing of results and a conclusion Know how to present brief oral findings from an enquiry, speaking clearly and with confidence and using notes where necessary

			detailing of results and a conclusion Know how to precis a scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry Know that scientific enquiries can suggest relationships, but that they do <u>not</u> prove whether a prediction is true Know that scientific enquiries are limited by the accuracy of the measurements (and measuring equipment) and by the extent to which conditions can vary even,	results and a conclusion Know how to precis a scientific enquiry write-up into a brief oral discussion of what was found in a scientific enquiry Know that scientific enquiries can suggest relationships, but that they do <u>not</u> prove whether a prediction is true Know that scientific enquiries are limited by the accuracy of the measurements (and measuring equipment) and by the extent to which conditions can vary even, and that	speaking clearly and with confidence and using notes where necessary Know examples of instances where scientific evidence has been used to support or refute ideas or arguments (e.g. fossil records as evidence of natural selection)	Know examples of instances where scientific evidence has been used to support or refute ideas or arguments (e.g. fossil records as evidence of natural selection)

			and that repeating enquiries, measurements and taking measures to keep conditions as consistent as possible can improve an enquiry Know that the conclusions of scientific enquiries can lead to further questions, where results can be clarified or extended to different contexts (e.g. effect of changing sunlight on a plant – does this work with other plants / different types of light / etc) Know that they can draw conclusions from	repeating enquiries, measurements and taking measures to keep conditions as consistent as possible can improve an enquiry Know that the conclusions of scientific enquiries can lead to further questions, where results can be clarified or extended to different contexts (e.g. effect of changing sunlight on a plant – does this work with other plants / different types of light / etc) Know that they can draw conclusions from		

			the findings of other scientists Know that a theory is an explanation of observations that has been tested to some extent and that a hypothesis is an explanation that has not yet been tested, but that can be tested through a scientific enquiry	the findings of other scientists Know that a theory is an explanation of observations that has been tested to some extent and that a hypothesis is an explanation that has not yet been tested, but that can be tested through a scientific enquiry		