Westfield Primary School

Progression of Knowledge and Skills for Science

KNOWLEDGE							
	EYFS	**KS1**		**KS2**			
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	Describe what they see, hear and feel whilst outside Understand the effect of changing seasons on the natural world around them.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies					
Plants		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	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requireme			

			how plants need water, light and a suitable temperature to grow and stay healthy.	of plants for life and growth (air, light, wate 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.			
Animals including Humans	Describe what they see, hear and feel whilst outside	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 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.	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,	Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 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.	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.	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. Describe the ways in which nutrients and water are transported within animals, including humans. Recognise the impact of diet, exercise, drugs and lifestyle on

		Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).	eating the right amounts of different types of food, and hygiene.		Construct and interpret a variety of food chains, identifying producers, predators and prey.		the way their bodies function.
Living Things and Their Habitats	Recognise some environments that are different from the one in which they live.		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		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. I can recognise that environments can	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.

			food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.		change and that this can sometimes pose dangers to living things.		Give reasons for classifying plants and animals based on specific characteristics.
Evolution and Inheritance							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.

Materials		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.	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 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	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. 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				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.			
Forces				Compare how things move on different surfaces and 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 describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing Compare and group together a variety of everyday materials on the basis of whether they are		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, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	

				attracted to a magnet, and identify some magnetic materials.			
Sound					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					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.		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 some common conductors and insulators, and associate metals with being good conductors.		Use recognised symbols when representing a simple circuit in a diagram.
Earth & Space						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.	

Light				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 light from a light source is blocked by a solid object. Find patterns in the way that the sizes of shadows change.			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 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.

SKILLS							
	EYFS	**KS1**		**KS2**			
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Enquire	ask simple questions about the world around them Talk about what they see, using a wide vocabulary.	asking simple questions and with help find out answers to them	asking simple questions and recognising that they can be answered in different ways	be guided to ask more relevant questions and become aware of different types of scientific enquiries to answer them engage in simple practical enquiries, comparative and fair tests they have had some help with setting up	ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests	plan with support different types of scientific enquiries to answer questions; begin to recognise variables and how to control these where necessary use test results to make predictions for other comparative and fair tests	plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary use test results to make predictions to set up further comparative and fair tests
Explore	Explore the natural world around them.	observe, using simple equipment such as magnifying glasses and binoculars	observe closely, using simple equipment such as magnifying glasses and binoculars and	make careful observations and begin to realise the need for more accurate measurements eg mm instead of cm	make systematic and careful observations and , where appropriate, taking accurate measurements using standard	take measurements, using a range of scientific equipment, with increasing	take measurements, using a range of scientific equipment, with increasing

		perform simple tests **with help** can identify and classify **with support**	digital microscopes and compare data using non-standard units of measurement perform simple tests identify and classify	using standard units, using a range of equipment, including **thermometers and data loggers**	units, using a range of equipment, including **thermometers and data loggers**	accuracy become aware of precision and the need to obtain similar results, taking repeat readings when appropriate	accuracy and precision, taking repeat readings when appropriate
Record	drawn or verbal record	know that gathering and recording data can help in answering questions; **with support**, gather and record data through taking photographs and videos and completing simple pre-drawn tables, pictograms and and bar charts	gather and record data to help in answering questions through gathering evidence from taking photographs and videos and completing pre-drawn tables, tally charts and and bar charts or labeling their	gather and record data in different ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams and tables; develop use of bar charts and keys with appropriate support	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	record data and results using scientific diagrams and labels, classification keys, tables and bar graphs, become familiar with and begin to develop use of scatter graphs and line graphs,	record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs,

		plus labeling their drawings	drawings				
Explain	explain why some things occur, and talk about changes.They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur.	use their observations to try to answer their questions	use their observations and ideas to suggest answers to questions	report on findings from enquiries, including oral and written explanations, displays or presentations use results to draw simple conclusions identify differences, similarities or changes related to simple scientific ideas use straightforward scientific evidence to answer questions	report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their	report and present findings from enquiries, including conclusions and explanations of results in oral and written forms such as displays and other presentations identify scientific evidence that supports their ideas become aware of simple causal relationships and be able to explain some begin to develop understanding that not all results can be trusted	report and present findings from enquiries, including conclusions, causal relationships and explanations of, and degree of trust in, results in oral and written forms such as displays and other presentations identify scientific evidence that has been used to support or refute ideas or arguments.

					findings.		