Woolpit Primary Academy
NURTURE • RESILIENCE • INSPIRATION • RESPECT

Science Skills and Knowledge Progression

Skills/Knowledge	EYFS	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Asking Questions	Looking at objects and pictures and discuss what they can see. Ask questions relevant to their familiar world. Generate ideas for testing (not always realistic/appropriate) Make simple guess predictions.	To be able to ask simple questions (modelled by teacher). To begin to read scientific vocabulary when asking and answering simple questions.	To be able to ask simple questions and understand that they can be answered in different ways. To read and spell scientific vocab when asking and answering questions.	To be able to make decisions, asking relevant questions. To use scientific vocab when asking and answering questions.	To be able to make decisions, asking relevant questions and use different types of scientific enquires to answer them. To use scientific vocab when asking and answering questions.	To be able to plan different types of scientific enquires to answer questions. To recognise and control variables where possible. To talk and explore their ideas. To analyse functions, relationships and interactions.	To be able to plan independently different types of scientific enquiries to answer questions. To independently recognise and control variables where necessary. To be able to explore and talk about their ideas using scientific vocabulary. To ask their own questions about

							scientific phenomena. To be able to analyse functions, relationships and interactions systematically.
Observing	General sensory observations of animals and plants. Simple descriptions of the world around them.	To observe changes over time and be able to notice patterns in their observations. To understand that we can use observations to help with answering questions. To use simple equipment when observing: magnifying glasses, egg timers, sand timers.	To observe closely changes over time using simple equipment to measure. To recognise patterns and explain their thinking. To perform simple tests and record results from their observations, e.g. Changes over time caterpillar to butterfly.	To set up simple practical enquiries, and begin to understand comparative and fair tests. To work in groups with teacher to model how to make systematic and careful observations using notes and simple tables. To begin to look for naturally occurring patterns and relationships.	To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations using notes and simple tables. To identify differences, patterns, similarities or changes related to simple scientific ideas and processes.	To begin to identify patterns that might be found in the natural environment. To begin to make decisions about what observations to make, what measurements to use and how long to make them for and whether to repeat them. Begin to interpret data and find patterns.	To identify patterns that might be found in the natural environment. To make independently decisions about what observations to make, what measurements to use and how long to make them for and whether to repeat them. To choose the most appropriate equipment and explain how to use it accurately. To interpret data and find patterns. To be

							able to make a set of observations and say what the interval and range are.
Measuring and Recording	To measure by direct comparison. To use non-standard units of measurement. To use simple comparative language e.g. smaller/bigger. To record ideas simply e.g. pictures/images.	To know there are different ways to record changes over time. To explore how to measure and record: whole class charts: bar graphs using multi-link cubes, survey, tables. To begin to understand how science can be used to explain what is occurring. To sort and group in different topics:	To use measuring equipment and record their findings on a chart or simple scale. To use simple scientific equipment including magnifying glasses when measuring and recording. To be able to gather and record data and present it in different ways including on charts, tables and simple graphs. To sort and group in different ways e.g. materials.	To take accurate measurements using standard units, using a range of equipment. To gather, record, classify and present data to help in answering questions. To record findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables.	To take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. To gather, record, classify and present data in a variety of ways to help in answering questions. To record findings using scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	To be able to take measurements, using a range of scientific equipment. To take measurements with increasing accuracy. To understand why it might be important to take repeat readings when appropriate. To be able to record data and results using scientific diagrams and labels. To show results using classification keys, tables, bar and line graphs.	To be able to take measurements independently, using a range of scientific equipment. To take measurements with increasing accuracy and precision. To take repeat readings when appropriate and begin to account for anomalies. To be able to record data and results of increasing complexity using scientific diagrams and labels. To show results using classification

		animals, plants.					keys, tables, scatter graphs, bar and line graphs.
Concluding	To simply talk about objects and events.	To know that there are various ways to find answers (modelled by the teacher). To begin to use recording and observations to answer questions (modelled by teacher). To be able to make predict ions about what might happen.	To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To use straightforward scientific evidence to answer questions or to support their findings.	To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To use straightforward scientific evidence to answer questions or to support their findings.	To report on findings from enquiries, using relevant scientific language, including oral and written explanations, displays or presentations of results and conclusions. To use scientific evidence to answer questions and to support their findings.	To report and present findings and make conclusions from enquiries. To use evidence to justify ideas. To use scientific knowledge and understanding to explain finding.	To draw conclusions based on data and observations. To use scientific knowledge and understanding to explain findings. To identify causal relationships and explanations. To recognise 'degree of trust' in result, in oral and written forms.
Plants	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments	Identify and name a variety of common wild and garden plants, including deciduous and evergreen 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	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements			

	might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.	Identify and describe the basic structure of a variety of common flowering plants, including trees.	grow and stay healthy. Link to animals incl humans.	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 flowering plants, including pollination, seed formation and seed dispersal.			
Animals including Humans	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make	Describe the simple functions of the basic parts of the digestive system in humans. Identify the	To describe the changes as humans develop to old age. To draw a timeline to indicate stages in the growth and	To identify and name the main parts of the human circulatory system. To describe the functions of the heart, blood

	environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.	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 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.	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.	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.	different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey.	development of humans. To learn about the changes experienced in puberty.	vessels and blood. To recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. To describe the ways in which nutrients and water are transported within animals, including humans. To explore questions to understand how the circulatory system enables the body to function. To learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to

							the human body. To explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.
Living Things and their Habitats	Children know about similarities and differences in relation to places, objects, materials and living things. 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 and talk about changes.	Links to plants.	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	Links to plants.	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 dangers	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 microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.

			how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. 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.		to living things.		
Light				Recognise that they need light in order to see things and that dark is absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be			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.

				dangerous and that there are ways to protect the eyes. Recognise that shadows are formed when light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.			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.
Forces and Magnets				Compare how things move on different surfaces. Notice that some forces need contact between 2 objects. Sort materials into magnetic		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	

				and non-magnetic. Understand that magnetism is a force and that the magnet does not have to touch. Understand that magnets have a north pole and south pole. Predict which will attract and which will repel.		resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	
Seasonal Changes	Children know about similarities and differences in relation to places, objects, materials and living things. 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	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.		Links to light – eye protection.			

	why some things occur and talk about changes.						
Materials, changes and states of matter.	Children know about similarities and differences in relation to places, objects, materials and living things. 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 and talk about changes.	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	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.	Link to rocks	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	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 substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be	

		physical properties.			with temperature.	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.	
Evolution and inheritance.	Children know about similarities and differences in relation to places, objects, materials and living things. 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 and talk about changes.						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.
Rocks	Children know about similarities and differences in relation to places, objects, materials and living things. 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 and talk about changes.			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.			
Electricity					Identify common appliances that run on electricity. Construct a simple series electrical		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells

					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. Recognise some common conductors and insulators, and associate metals with		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. Use recognised symbols when representing a simple circuit in a diagram.

					being good conductors.		
Sound	Children know about similarities and differences in relation to places, objects, materials and living things. 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 and talk about changes.				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.		
Earth and 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.