	Year 3	Year 4	Year 5	Year 6
Aspects of Science	**Plants** ❖ 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 flowering plants, including pollination, seed formation and seed dispersal. **Animals inc. Humans** ❖ 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 **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. **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 an opaque object ❖ Find patterns in the way that the size of shadows change. **Forces and Magnets** ❖ 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 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.	**Living things and their habitats** ❖ 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 to living things. **Animal inc. Humans** ❖ 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 **States of Matter** ❖ 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** ❖ 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 ❖ Recognise some common conductors and insulators, and associate metals with being good conductors.	**Living things and their habitats.** ❖ 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. **Animals inc humans** ❖ Describe the changes as humans develop to old age **Properties and changes of materials** ❖ 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 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. **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. **Forces and Magnets** ❖ 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 between moving surfaces. ❖ Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	**Living things and their habitats** ❖ 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 **Animals inc. Humans** ❖ 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, including humans **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. **Light** ❖ 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 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. **Electricity** ❖ 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 ❖ Use recognised symbols when representing a simple circuit in a diagram.

Working Scientifically Skills	**Asking scientific questions** • Following a scientific experience, with support ask relevant questions about a given stimulus. • Using results to draw simple conclusions, make predictions and raise further questions. **Predict** • Using results to draw simple conclusions, make predictions and raise further questions. **Plan and Do** • Select an appropriate type of scientific enquiry to answer their questions. Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. • Understand that a fair test is a **test** which controls all but one variable when attempting to answer a scientific question, allowing the person conducting the **test** to know that no other variable has affected the results of the **test**. • Set up simple practical enquiries, comparative and fair tests. **Record** • Collect data from systematic and careful observations. • Where appropriate take their own accurate measurements using standard units (cm and mm), using a range of equipment. • Recording findings using simple scientific language, drawings, labelled diagrams, keys, tables and begin to plot their own bar charts. Use computer to present results in other ways. **Analyse and Explain** • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Using results to draw simple conclusions, make predictions and raise further questions. • Identifying differences and similarities related to simple scientific ideas and processes. • Use straightforward scientific evidence to answer	**Asking scientific questions** • Following a scientific experience, ask relevant questions about a concept. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **Predict** • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **Plan and Do** • Suggest a type of scientific enquiry to answer their question. Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. • In addition, be able to recognise when a simple fair test is necessary. • Given a selection of equipment, decide how to set up simple practical enquiries, comparative and fair tests. • Make decisions about what observations to make and collect data from their own systematic and careful observations. **Record** • Make decisions about what observations to make and collect data from their own systematic and careful observations • Where appropriate, take their own accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Recording findings using simple scientific language, drawings, labelled diagrams, keys, independently plot bar charts and begin to plot time graphs. Use computer to present results in other ways **Analyse and Explain** • Make decisions about how to gather, record, classify and present data in a variety of ways to help in answering questions. • Reporting on findings from enquiries, including oral and written explanations, displays or	**Asking scientific questions** • With support, Use their scientific experiences to raise testable, scientific questions. E.g How much water do plants need to grow? : How does the amount of water provided effect the height of a plant? **Predict** • Use test results to make predictions to set up further comparative tests. **Plan and Do** • With support, select and plan the most appropriate type of scientific enquiry to answer questions. • Recognise when and, with support, how to set up comparative and fair tests and explain which variables need to be controlled and why. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings. • Use test results to make predictions to set up further comparative tests. **Record** • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, creating their own bar charts and time graphs. **Analyse and Explain** • Interpret scatter graphs and bar and line graphs. • 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 • Identifying scientific evidence that has been used to support or refute ideas or arguments	**Asking scientific questions** • Use their scientific experiences to raise testable, scientific questions. E.g what do plants need to grow?: How does the amount of nutrients in the soil effect the rate of plant growth? **Predict** • Use test results to make predictions to set up further comparative and fair tests **Plan and Do** • Select and plan the most appropriate type of scientific enquiry to answer questions. • Recognise when and how to set up comparative and fair tests and control variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Use test results to make predictions to set up further comparative and fair tests **Record** • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs **Analyse and Explain** • 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 • Identifying scientific evidence that has been used to support or refute ideas or arguments

	questions or to support their findings.	presentations of results and conclusions • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Identifying differences, similarities or changes related to simple scientific ideas and processes. • Use straightforward scientific evidence to answer questions or to support their findings.		
Method of scientific enquiry	Observation over time The changes they observe can take place in seconds, minutes, hours, or days, or over longer periods of time, such as weeks or months. This type of enquiry lends itself to observing the natural world, but can also be used when comparing materials and observing physical processes. Research Children get to use a range of secondary sources to help them find the answers to their 'big questions'. Alternatively, children could plan research tools, such as questionnaires and interviews, to collect their own data. They are also an ideal type of enquiry to encourage collaborative learning in children, both in the researching and sharing of information, but also in presenting their findings to a variety of audiences. Research enquiries help to develop children's scientific literacy, as children learn to compare and evaluate information from different sources. Pattern Seeking In this type of enquiry, children are trying to answer 'big questions' by identifying patterns in the measurements and observations they record. Often, pattern-seeking enquiries may be preliminary tests that lead on to more systematic enquiries, such as fair tests or comparative tests. The key difference here is that pattern-seeking enquiries are not fair or comparative tests, because certain variables can't be controlled. Children may still identify a possible causal relationship from their data, such as 'the more you wind up a clockwork mouse, the further it will run', but they may find links between variables that can't be explained by cause and effect, such as 'children with longer arms can jump higher'. Grouping and Classifying In this type of enquiry, children make observations and measurements to help them look for similarities and differences. This will help them to organise things into groups and make connections. Identifying and classifying enquiries are fantastic for promoting discussion and collaborative learning. In revisiting this type of enquiry regularly, teachers can support children in becoming more highly skilled in making and recording detailed observations. Comparative fair testing Enquiries that are comparative tests have many similar features to fair tests in that one variable is changed, another variable is measured, and any other variables are controlled. The difference is that in a comparative test the variable that is changed is discrete rather than continuous, so children are comparing different cases/situations. Children regularly ask questions that lead to a comparative test, and these types of enquiries provide lots of opportunities to measure and collect data. Fair Testing Like comparative tests, fair test enquiries are an opportunity for children to explore cause and effect relationships in science. Children find the answers to 'big questions' in fair test enquiries by planning tests to collect data through changing, measuring and controlling variables. Fair tests involve making systematic changes and analysing data to identify how one variable influences another. Due to the increased challenge in this type of enquiry they are introduced and practised in KS2.		