Progression and Planning: Science

Topics	FS	Y1/2		Y3/4		Y5/6	
	My World, Seasons and Celebrations, Wonderful Weather, We are Heroes, Terrific Tales, Watch It Grow	CYCLE A Uses of Everyday Materials, Animals Including Humans, Seasonal Changes, Plants, Living Things and Their Habitats	CYCLE B Materials, Animals Including Humans and Seasonal Changes, Plants, Living Things and Their Habitats	CYCLE A Forces and Magnets, Sound, Plants, Animals Including Humans, States of Matter, Livings Things and Habitats	CYCLE B Animals Including Humans, Light, Electricity, States of Matter, Rocks	CYCLE A Properties and Changes of Materials, Light, Living Things and Their Habitats, Evolution and Inheritance, Animals Including Humans, Living Things and Habitats	CYCLE B Properties and Changes of Materials, Earth and Space, Forces, Animals Including Humans, Electricity, Properties and Changes of Materials
Working Scientifically	Make and record observations of scientific processes. Perform simple tests e.g. which material is the strongest? Make predictions about what they think will happen	- asking simple questions and recognising that they can be answered in different ways - observing closely, sometimes using simple equipment to observe closely - performing simple tests - talk about the aim of scientific test they are working on - identifying and classifying - using their observations and ideas to suggest answers to questions - begin to draw simple conclusions - gathering, recording and presenting data to help in answering questions - talk about their findings to a variety of audiences in a variety of ways -with support begin to recognise a fair test		Use the following practical scientific methods, processes and skills through the teaching of the P.O.S content - asking relevant questions and using different types of scientific enquiries to answer them - setting up simple practical enquiries, comparative and fair tests - recognise when a test is fair - help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and what equipment to use - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - 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, suggest improvements and raise further questions - using straightforward scientific evidence to answer questions or to support their findings		Use the following practical scientific methods, processes and skills through the teaching of the P.O.S content - planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - with increasing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences - with growing independence select the variables for fair test with a control - taking measurements, using a range of scientific equipment, with increasing accuracy and precision - understand why we take repeat readings when appropriate - recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - using test results to make predictions and to identify when further comparative and fair tests and observations are needed - reporting and presenting 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 presentations - draw conclusions based on their data and observations - identifying scientific evidence that has been used to support or refute ideas or arguments	
Biology	**Plants** Explore the natural world around them, making observations and drawing pictures of animals and plants. Plant sunflower seeds and be able to talk about the lifecycle of a sunflower. Children will be able to name the different parts of a flowering plant and describe some of their functions e.g. roots, stem, flower, leaves. Explore the insides of fruits, locating and discussing their seeds. Children will investigate growing plants and identify the requirements for growth e.g. for food, aesthetics, habitats for wildlife etc **Animals including humans** Children will know that we have 5 senses. You taste with your tongue. You smell with your nose. You see with your eyes. You hear with your ears. You touch with your hands. We must look after our teeth. Our bodies are made of different parts People start as a baby, they grow to a child, adult and then an old person. **Living things and their habitats** Name some African animals. Animals can live in different homes. Animals have different body parts. Animals move in different ways.	**Plants** • Identify a name and a variety of common wild and garden plants, including deciduous and evergreen trees in the local environment • 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. **Living things and their habitats** • 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 • Compare and identify differences and similarities between things that are living/dead/or have never been alive • 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 simple food chains, and identify and name different sources of food. **Animals including humans** • 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) • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Classify and sort animals according to their visible features • 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 • Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene.		**Plants** • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers and know that every part has a job to do • 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 including 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 • Explore different food groups and their nutritional value and the effects of some foods on the body. E.g. sugar on teeth • 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 **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		**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 • 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 based on specific characteristics **Animals including humans** • 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, 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	

Chemistry	**Materials** Melting and freezing. Explore ice melting and freezing through polar regions small world role play. Explore waterproof materials when investigating the weather. Know that some materials are strong and some are not. Investigate which walls will withstand the huff and puff from the Big Bad Wolf.	**Materials** • Distinguish between an object and the material from which it is mad • 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.	**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 **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	**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
Physics	**Seasonal Changes** Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Sound** We can make sounds using our voices, bodies and instruments. We make sounds with instruments by plucking, patting, shaking or blowing them **Light** The sun provides light for growing plants.	**Seasonal Changes** • Observe and record changes across the four seasons • Observe and describe weather associated with the seasons and how day lengths varies.	**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 2 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 2 poles • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing **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 **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	**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** • 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 **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