Coupe Green Primary School
Science Progression Map

Intent - In Science, we intend to inspire pupils with a curiosity and fascination about the world around them. We will develop their scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. We will develop their scientific language, enabling children to talk about their methods and explain their findings and conclusions. The curriculum will motivate them to become effective communicators of scientific ideas, facts and data whilst enhancing their practical skills of scientific enquiry.

Year Group	Key Learning	Working Scientifically	Vocabulary	
EYFS	**Preschool** -To explore natural materials, indoors and outside. -To explore and respond to different natural phenomena in their setting and the world around them. -To use their senses to explore natural materials. -To be able to talk about what they can see, using a wide vocabulary.		- Environment - World - Observe - Animal - Plant - Nature - Summer	- Autumn - Winter - Spring - Season - Freeze - Melt
	Reception -To be able to offer explanations for why things might happen. -To be able to describe their immediate environment using knowledge from observation, discussion and non-fiction texts. -To explore the natural world around them. -To be able to make observations of the world around them. -To be able to make observational drawings of different animals and plants from the world around them. -To know some similarities and differences between the natural world around them and contrasting environments. -To understand some important processes and changes in the natural world around them e.g., the seasons and changing states of matter.			
Year 1	Animals including humans: - To identify and name a variety of common animals including fish, reptiles, birds and mammals. - To identify and name a variety of common animals that are carnivores, herbivores and omnivores. - To describe and compare the structure of a variety of common animals. - To begin to classify animals according to given criteria. - To sort living and non-living things. - To name the parts of the human body that I can see. - To link the correct part of the human body to each sense. - To name parts of the body that cannot be seen. Seasonal Changes: - To observe and comment on changes in the seasons.	- To ask simple scientific questions. - To use simple equipment to make observations. - To carry out simple tests. - To identify and classify things. - To suggest what I have found out. - To use simple data to answer question	- fish - reptiles - birds - mammals - amphibians - herbivore - carnivore - omnivore - classify - wood - plastic	- leg - arm - head - elbow - ear - nose - back - wings - beak - deciduous - evergreen

	- To name the seasons and suggest the type of weather in each season. - To talk about weather variations in different parts of the world. <u>Plants:</u> - To name a variety of common wild and garden plants (including deciduous and evergreen trees). - To name the petals, stem, leaf and root of a plant. - To name the roots, trunk, branches and leaves of a tree. - To describe what plants need to grow. <u>Materials:</u> - To distinguish between an object and the material it is made from. - To explain the materials that an object is made from. - To name wood, plastic, glass, metal, water and rock. - To describe the properties of everyday materials. - To group objects based on the materials they are made from. - To describe similarities and differences between materials.		- glass - paper - water - metal - rock - hard - soft - bendy - rough - smooth - spring - summer - autumn - winter - sun	- leaves - flowers - petals - fruit - roots - bulb - seed - trunk - branches - stem - day - moon - night - light - dark
Year 2	<u>Animals including humans:</u> - To explain the basic stages in a life cycle for animals, including humans. - To describe what animals and humans need to survive. - To describe why exercise, a balanced diet and good hygiene are important for humans. - To explain that animals reproduce in different way. <u>Plants:</u> - To describe how seeds and bulbs grow into plants. - To describe what plants need to grow and stay healthy (water, light & suitable temperature). - To describe what plants need to survive and link to where they grow in the world. <u>Living things and their habitats:</u> - To identify things that are living, dead and never lived. - To describe how a specific habitat provides for the basic needs of things living there (plants and animals). - To identify and name plants and animals in a range of habitats. - To match living things to their habitat. - To describe how animals find their food. - To name some different sources of food for animals. - To explain a simple food chain. - To describe what animals, need to survive. <u>Materials:</u> - To identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. - To suggest why a material might or might not be used for a specific job. - To explore how shapes can be changed by squashing, bending, twisting and stretching. - To explain how materials are changed by heating and cooling.	- To ask simple scientific questions. - To use simple equipment to make observations. - To carry out simple tests. - To identify and classify things. - To suggest what I have found out. - To use simple data to answer question	- survival - water - air - food - adult - baby - offspring - kitten - calf - puppy - exercise - hygiene - hard - soft - stretchy - stiff - shiny - dull - rough - smooth - bendy - waterproof - absorbent - opaque	- seeds - bulb - water - light - temperature - growth - living - dead - habitat - energy - food chain - predator - prey - woodland - pond - desert - transparent - brick - paper - fabrics - squashing - bending - twisting - stretching - foil

Year 3	<u>Rocks:</u> - To compare and group rocks based on their appearance and physical properties, giving a reason. - To describe how fossils are formed. - To describe how soil is made. - To describe and explain the difference between sedimentary and igneous rock. - To begin to relate the properties of rocks with their uses. <u>Light and Shadow:</u> - To describe what dark is (the absence of light). - To explain that light is needed to see. - To explain that light is reflected from a surface - To explain and demonstrate how a shadow is formed. - To explore shadow size and explain. - To explain the danger of direct sunlight and describe how to keep protected. - To explain the link between a shadows position and size and the position of the light source <u>Plants:</u> - To describe the function of different parts of flowering plants and trees (roots, stem/trunk, leaves, flowers). - To explore and describe the needs of different plants for survival (air, light, water, nutrients and room to grow). - To explore and describe how water is transported within plants. - To describe the plant life cycle, especially the importance of flowers (pollination, seed formation and seed dispersal). <u>Animals including humans:</u> - To explain the importance of a nutritious, balanced diet. - To explain how nutrients, water and oxygen are transported within animals and humans. - To describe and explain the skeletal system of a human. - To describe and explain the muscular system of a human. - To describe the purpose of the skeleton in humans and animals. - To explain how the muscular and skeletal systems work together to create movement. <u>Forces and Magnets</u> - To explore and describe how objects move on different surfaces. - To explain how some forces require contact and some do not, giving examples. - To explore and explain how objects attract and repel in relation to objects and other magnets. - To predict whether objects will be magnetic and carry out an enquiry to test this out. - To describe how magnets work. - To predict whether magnets will attract or repel and give a reason.	- To ask relevant scientific questions. - To use observations and knowledge to answer scientific questions. - To set up a simple enquiry to explore a scientific question. - To set up a test to compare two things. - To set up a fair test and explain why it's fair. - To make careful and accurate observations, including the use of standard units. - To use equipment, including thermometers and data loggers to make measurements. - To gather, record, classify and present data in different ways to answer scientific questions. - To use diagrams, keys, bar charts and tables, using scientific language. - To use findings to report in different ways, including oral and written explanations, presentation. - To draw conclusions and suggest improvements. - To make a prediction with a reason. - To identify differences, similarities and changes related to an enquiry	- fossils - sandstone - soil - granite - marble - pumice - crystals - sedimentary - igneous - air - light - water - nutrients - soil - reproduction - transportation - dispersal - pollination - flower	- light - shadows - mirror - reflective - dark - reflection - magnetic - force - contact - attract - repel - friction - poles - push - pull - movement - muscles - bone - skull - nutrition - skeletons
Year Group	**Knowledge**	**Skills**	**Vocabulary**	

Year 4	<u>Electricity:</u> - To identify and name appliances that require electricity to function. - To construct a series circuit. - To identify and name the components in a series circuit. - To draw a circuit diagram. - To predict and test whether a lamp will light within a circuit. - To describe the function of a switch in a circuit. - To describe the difference between a conductor and insulators, giving examples of each. - To recognise if all metals are conductors of electricity. <u>Teeth:</u> - To identify and name the parts of the human digestive system. - To describe the functions of the organs in the human digestive system. - To identify and describe the different types of teeth in humans. - To describe the functions of different human teeth. - To use food chains to identify producers, predators and prey. - To construct food chains to identify producers, predators and prey. - To explain how certain living things depend on each other to survive. <u>States of Matter:</u> - To group materials based on their state of matter (solid, liquid, gas). - To describe how some materials can change state. - To explore how materials change state. - To measure the temperature at which materials change state. - To describe the water cycle. - To explain the part played by evaporation and condensation in the water cycle. - To explain what happens over time to materials such as puddles and or washing on the line. - To relate temperature to changes in states of materials. <u>Sound:</u> - To describe how sound is made. - To explain how sound travels from a source to our ears. - To explain the place of vibration in hearing. - To explore the correlation between pitch and the object producing a sound. - To explore the correlation between the volume of a sound and the strength of the vibrations that produced it. - To describe what happens to a sound as it travels away from its source. - To work out which materials provide the best insulation. <u>Living things and their habitats:</u> - To group living things in different ways. - To use classification keys to group, identify and name living things. - To create classification keys to group, identify and name living things (for others to use). - To describe how changes to an environment could endanger living things. - To explore the work of pioneers in classification (e.g., Carl Linnaeus).	- To ask relevant scientific questions. - To use observations and knowledge to answer scientific questions. - To set up a simple enquiry to explore a scientific question. - To set up a test to compare two things. - To set up a fair test and explain why it's fair. - To make careful and accurate observations, including the use of standard units. - To use equipment, including thermometers and data loggers to make measurements. - To gather, record, classify and present data in different ways to answer scientific questions. - To use diagrams, keys, bar charts and tables; using scientific language. - To use findings to report in different ways, including oral and written explanations, presentation. - To draw conclusions and suggest improvements. - To make a prediction with a reason. - To identify differences, similarities and changes related to an enquiry.	- cells - wires - bulbs - switches - buzzers - battery - circuit - series - conductors - insulators - solid - liquid - gas - evaporation - condensation - particles - temperature - freezing - heating - volume - vibration - wave - pitch - tone - speaker - source	- mouth - tongue - teeth - oesophagus - stomach - small Intestine - large Intestine - herbivore - carnivore - canine - incisor - molar - vertebrates - fish - amphibians - reptiles - birds - mammals - invertebrates - snails - slugs - worms - spiders - insects - environment - habitats

Year 5	<u>Materials:</u> - To compare and group materials based on their properties. - To describe how a material dissolves to form a solution, explaining the process of dissolving. - To describe and show how to recover a substance from a solution. - To describe and demonstrate how some materials can be separated. - To know and demonstrate that some changes are reversible, and some are not. - To explain how some changes result in the formation of a new material and that this is usually irreversible. - To discuss reversible and irreversible changes. - To give evidenced reasons why materials should be used for specific purposes. - To work out which materials are most effective for keeping us warm or for keeping us cold. - To explore the changes that difficult to reverse i.e., burning and rusting. <u>Earth and Space:</u> - To describe and explain the movement of the Earth and other planets relative to the Sun. - To describe and explain the movement of the Moon relative to the Earth. - To explain and demonstrate how night and day are created. - To describe the Sun, Earth and Moon (using the term spherical). - To compare the time of day at different places on earth. - To create a shadow clock. <u>Forces:</u> - To explain what gravity is and its impact on our lives. - To identify and explain the effect of air resistance. - To identify and explain the effect of water resistance. - To identify and explain the effect of friction. - To explain how levers, pulleys and gears allow a smaller force to have a greater effect. - To explore scientists such Galileo Galilei and Isaac Newton and their important work linked to gravity. <u>Living things and their habitats:</u> - To describe the life cycle of different living things, e.g., mammal, amphibian, insect bird. - To describe the differences between different life cycles. - To describe the process of reproduction in plants. - To describe the process of reproduction in animals. - To compare the life cycles of local plants with those around the world (rainforest) - To create a timeline to indicate stages of growth in humans. - To describe some of the changes experienced in puberty	- To plan different types of scientific enquiry. - To control variables in an enquiry. - To measure accurate and precisely using a range of equipment. - To record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - To use the outcome of test results to make predictions and set up a further comparative fair test. - To report findings from enquiries in a range of ways. - To explain a conclusion from an enquiry. - To explain causal relationships in an enquiry. - To relate the outcome from an enquiry to scientific knowledge to state whether evidence supports or refutes an argument or theory. - To read, spell and pronounce scientific vocabulary accurately.	- hardness - solubility - transparency - conductivity - magnetic - filter - evaporation - dissolving - mixing - solution - Earth - Sun - Moon - axis - rotation - day - night - phases of the Moon - star - constellation	- air resistance - water resistance - friction - gravity - Newton - gears - pulleys - mammal - reproduction - insect - amphibian - bird - offspring - puberty
Year 6	<u>Evolution and Inheritance:</u> - To describe how the earth and living things have changed over time. - To explain how fossils can be used to find out about the past. - To explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents). - To explain how animals and plants are adapted to suit their environment. - To link adaptation over time to evolution.	- To plan different types of scientific enquiry. - To control variables in an enquiry. - To measure accurate and precisely using a range of equipment. - To record data and results using scientific diagrams and labels,	- fossils - adaptation - evolution - characteristics - reproduction - genetics	- refraction - reflection - light - spectrum - rainbow - colour

	- To talk about the work of Mary Anning and Charles Darwin. <u>Living things and their habitats:</u> - To classify living things into broad groups according to observable characteristics and based on similarities and differences. - To describe how living things have been classified. - To give reasons for classifying plants and animals in a specific way. - To sub-divide their original groupings and give suitable explanations. <u>Electricity:</u> - To explain how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer. - To compare and give reasons for why components work and do not work in a circuit. - To draw circuit diagrams using correct symbols. - To make changes to their circuits and be able to explain the impact of the changes. <u>Light:</u> - To explain how light travels. - To explain and demonstrate how we see objects. - To explain why shadows have the same shape as the object that casts them. - To explain how simple optical instruments work, e.g., periscope, telescope, binoculars, mirror, magnifying glass etc - To explore a range of phenomena including rainbows, colours in bubbles, and objects which appear bent in water <u>Animals including humans:</u> - To identify and name the main parts of the human circulatory system. - To describe the function of the heart, blood vessels and blood. - To discuss the impact of diet, exercise, drugs and lifestyle on health. - To describe the ways in which nutrients and water are transported in animals, including humans. - To compare the organ system of humans to other animals. - To make diagrams of the human body and explain how different parts work.	classification keys, tables, scatter graphs, bar and line graphs. - To use the outcome of test results to make predictions and set up a further comparative fair test. - To report findings from enquiries in a range of ways. - To explain a conclusion from an enquiry. - To explain causal relationships in an enquiry. - To relate the outcome from an enquiry to scientific knowledge to state whether evidence supports or refutes an argument or theory. - To read, spell and pronounce scientific vocabulary accurately.	- classification - vertebrates - invertebrates - micro-organisms - amphibians - reptiles - mammals - insects - cells - wires - bulbs - switches - buzzers - battery - circuit - series - conductors - insulators - amps - volts - cell	- circulatory - heart - blood vessels - veins - arteries - oxygenated - deoxygenated - valve - exercise - respiration