



Curriculum Progression Map

Subject: Science

Intent:

The children at CSPA will receive a high quality science education which will provide the foundations for making sense of the world around them. They will build this through a systematic study of the key disciplines of biology, chemistry and physics in order to establish and develop a body of scientific knowledge and concepts. The children will be encouraged to use and recognise the power of rational explanation so that they can start to “think like a scientist”, explain what they have observed, predict how things will behave, look for patterns and analyse causes. The children will develop an understanding of the nature, processes and methods of science through different types of science enquiries and investigations, and explore how to pose and answer questions scientifically i.e “work like a scientist”. By nurturing an understanding of both scientific knowledge and processes, and the role of key scientific figures, the children should better appreciate the role science has played in the past, plays in their current lives and the implications of science for their own futures. We value each subject and teach them discretely, ensuring that our children develop a deep understanding and love of each distinct discipline. Where appropriate, links are made across disciplines to enable children to make meaningful connections. Above all at CSPA, we aim to promote and encourage the children’s natural curiosity for their world. We want to foster a sense of excitement through discovery and exploration of natural phenomena and maintain that sense of awe and wonder which generates further interest in everything around them.

Autumn	Year 3	Year 4	Year 5	Year 6
Knowledge	<p><u>Animals Including Humans</u> The digestive system, teeth and senses, a healthy diet, nutrition, vitamins and minerals, skeletons and muscles for support, protection and movement.</p> <p><u>Magnets and Forces</u> Forces, friction, magnets, magnetic poles, magnetic fields, law of magnetic attraction, compasses.</p>	<p><u>Sound</u> How sound is created, how sound travels, sound waves, speed of sound, pitch, intensity, the human voice, hearing, the human ear.</p> <p><u>The Water Cycle and States of Matter</u> Change of state, evaporation, condensation, precipitation, humidity, groundwater.</p>	<p><u>Forces</u> How forces act on an object. Explain the effect of gravity Measure forces in newtons using newton meters. How to conduct a fair test. Know and describe the effects of air resistance, water resistance and friction on objects. How gears are used to transfer forces. Scientific vocabulary including forces, directions, fulcrum etc</p> <p><u>Astronomy</u> The Big Bang theory, gravity,</p>	<p><u>Classification of living things</u> Classifying organisms, plant and animal cells, fungi, protists, monera, taxonomy, Latin names, Vertebrates.</p> <p><u>Evolution and inheritance</u> Fossils, adaptation, characteristics passing through generations, Mary Anning, Alfred Wallace, Charles Darwin, Darwin’s sketches of finches.</p>

			the Universe, our Solar System, the moon and our galactic neighbourhood.	
Skills	<p><u>Animals Including Humans</u> Identify bones in the body. Identify organs and some of the functions of them in the body. Describe the digestive system.</p> <p><u>Magnets and Forces</u> 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. Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p><u>Sound</u> Decide on what equipment to use and how to make observations. Record and present information gathered from an investigation Use scientific language to explain findings.</p> <p><u>The Water Cycle and States of Matter</u> Asking relevant questions, setting up simple practical enquiries, making observations, taking measurements, gathering, recording, classifying and presenting data, identifying differences and similarities, using evidence to support findings and use relevant scientific language to discuss ideas and findings.</p>	<p><u>Forces</u> Planning different types of scientific enquiries to answer questions, taking measurements, recording data, making predictions, reporting and presenting findings and identifying scientific evidence that has been used to support or refute ideas.</p> <p><u>Astronomy</u> Name, order and know key facts about planets in the solar system and how they relate to each other in size and features. Explain day, night, shadows, phases of moon and seasons using appropriate vocabulary. Know that a star is a glowing ball of gas and that stars are grouped in constellations. Know about moon landings and space exploration.</p>	<p><u>Classification of living things</u> Recording data and results, reporting and presenting findings and identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p><u>Evolution and inheritance</u> Observe and raise questions about animals and how they are adapted to their environment. Compare how some living things are adapted to survive in extreme conditions. Analyse the advantages and disadvantages of specific adaptations.</p>
Spring	Year 3	Year 4	Year 5	Year 6

<p>Knowledge</p>	<p><u>Rocks, Soil and Fossils</u> Sorting rocks, how rocks are formed, hardness and permeability, fossils, soil.</p> <p><u>Cycles in Nature</u> Seasonal cycles and plants, animal migration. Life cycles of a plant and a frog.</p>	<p><u>Electricity</u> Electric current, circuits, switches, conductors and insulators.</p> <p><u>Classification of Plants and Animals</u> Cold-blooded or warm-blooded, vertebrates or invertebrates, characteristics of animal classes, classification of plants.</p>	<p><u>Meteorology</u> Weather and climate, the atmosphere, the Ozone layer, air movement and wind direction, cold and warm fronts, thunder and lightning.</p> <p><u>The Human Body</u> Human growth stages, adolescence and puberty, The human reproductive system, the endocrine System.</p>	<p><u>Animals including humans - circulation system</u> The circulatory system, the heart, the blood vessels, the blood, blood pressure and heart rate, changes to humans as we get older..</p> <p><u>Reproduction</u> Asexual reproduction, sexual reproduction in non-flowering and flowering plants, pollination, fertilisation, reproduction in animals, growth stages.</p>
<p>Skills</p>	<p><u>Rocks, Soil and Fossils</u> To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To how soil is formed. To know about the permeability of different soils. To know how fossils are formed.</p> <p><u>Cycles in Nature</u> Asking relevant questions, setting up simple practical enquiries, making observations, taking measurements, recording, classifying and presenting data, identifying differences and similarities, using evidence to support findings and use relevant scientific language.</p>	<p><u>Electricity</u> Use scientific language to explain findings. Decide what equipment to use and how to make observations. Draw simple conclusions from a fair test. Talk about when things can be grouped and decide when questions can be answered.</p> <p><u>Classification of Plants and Animals</u> Sort animals into a range of complex groups according to own criteria, for example vertebrate / invertebrate. Use scientific language to explain findings. Use information sources to find information.</p>	<p><u>Meteorology</u> Recording data and results, reporting and presenting findings from enquiries, identifying scientific evidence that has been used to support or refute arguments.</p> <p><u>The Human Body</u> Design experiment to compare growth of one part of the human body e.g. hands / feet / height or to compare height and hand / foot size. Produce graphs of investigation data.</p>	<p><u>Animals including humans - circulation system</u> Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p> <p><u>Reproduction</u> Planning different types of scientific enquiries to answer questions, recording data and results, reporting and presenting findings from enquiries and identifying scientific evidence that has been used to support or refute ideas or arguments.</p>
<p>Summer</p>	<p>Year 3</p>	<p>Year 4</p>	<p>Year 5</p>	<p>Year 6</p>

<p>Knowledge</p>	<p><u>Light and shadow</u> How light travels, shadows, transparent and opaque objects, reflection, mirrors: plane, concave, convex, how shadows change throughout the day.</p> <p><u>Helping plants grow well</u> Functions of plants: roots, stem/trunk, leaves and flowers, Life and growth, variety of plants, water transportation, seed formation and dispersal.</p>	<p><u>The Human Body</u> The muscular system, the skeletal system, the nervous system, the digestive system, teeth.</p> <p><u>Ecology</u> Habitats, interdependence of organisms and their environment, producers, consumers and decomposers, food webs, producers, predators and prey, human threats to the environment.</p>	<p><u>Life Cycles of Living Things</u> Life cycles of a mammal, an amphibian, an insect and a bird, life process of reproduction in some plants and animals, photosynthesis, vascular and non-vascular plants</p> <p><u>Materials</u> Properties- solubility, conductivity, flexibility, fair testing, solubility, separation of mixtures, reversible changes- dissolving, mixing, change of state.</p>	<p><u>Light</u> How light travels, Our eyes, light sources, shadows, periscopes.</p> <p><u>Electricity</u> Brightness, buzzers, voltage, switches, simple circuits and symbols.</p>
<p>Skills</p>	<p><u>Light and shadow</u> Asking relevant questions, setting up simple practical enquiries, making observations, taking measurements, gathering, recording, classifying and presenting data, using results to draw conclusions, identifying differences and similarities, using evidence to support findings and use relevant scientific language to discuss ideas and findings.</p> <p><u>Helping Plants Grow Well</u> Experiment to see what plants need to grow Dissecting a flower to see the parts of a flower. Water up the stem experiment</p>	<p><u>The Human Body</u> Identify and compare food groups; sorting foods into the correct group Plan a fair test; make predictions. Draw simple conclusions from a fair test.</p> <p><u>Ecology</u> Asking relevant questions, setting up simple practical enquiries, making observations, taking measurements, gathering, recording, classifying and presenting data, identifying differences and similarities, using evidence to support findings and use relevant scientific language to discuss ideas and findings.</p>	<p><u>Life cycles of plants and animals</u> Planning different types of scientific enquiry, recording data and results, reporting and presenting findings and drawing conclusions and identifying scientific evidence that has been used to support or refute arguments.</p> <p><u>Materials</u> Measuring amount of air in materials (displacement). Rate of evaporation experiment, Investigation – changing temperature of melting ice. Separating mixtures using knowledge of materials and solubility / particle size. Use equipment to measure temperature / separate materials - carrying out careful observations e.g. eye level to</p>	<p><u>Light</u> Planning different types of scientific enquiry to answer questions, recording data and results, using test results to make predictions and set up further investigations, reporting and presenting findings and identifying scientific evidence.</p> <p><u>Electricity</u> Recognise the different parts of an electrical circuit and to be able to name them. Recognise when variables need to be controlled or cannot be controlled and when a fair test is the best way to answer a question. Plan a fair test selecting the most suitable variables to measure, change and keep the same. Use equipment</p>

			read thermometer. Present data in tables and graphs (age-appropriate maths) including drawing scales accurately.	accurately to collect observations. Record data appropriately and accurately. Use test results to make predictions to set up further comparative and fair tests. Recognise the patterns in results. Draw valid conclusions based on the data.
--	--	--	--	---

Impact: End Points

	Children should be able to label the parts of a plant and have a secure knowledge of what a plant needs to survive. Undertake observations over a period of time, make predictions, present data and analyse findings. Explain how water	Children should be able to explain how sound is made up of vibrations. Children have an understanding of different materials and their state of matter. Children have a deeper understanding of animals within their habitat and a food chain. Children should be able to	Children use their knowledge of the solar system to explain regularly experienced natural processes such as day and night and gravity. They can explain similarities and differences between the life cycles of plants, animals and humans using appropriate	Children use their scientific skills and vocabulary to plan, carry out and evaluate appropriate investigations to explore the wider world.
--	--	---	--	--

	<p>transportation occurs. Children should be able to confidently compare and group together different kinds of rocks & fossils based on their appearance and physical features. To sort, name and identify magnetic and nonmagnetic objects. To understand light & shadows, patterns and reflection.</p>	<p>scientific vocabulary to plan, carry out their own investigations.</p>	<p>scientific vocabulary.</p>	
--	--	---	-------------------------------	--