

St Joseph's Catholic Primary School – Science progression based on Cornerstones curriculum

Cornerstones units

Class	Scientific enquiry	Biology	Chemistry	Physics
FS2	<p>The children are encouraged to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. Observations are often set up within the provision and pupils are encouraged to discuss these with their peers and staff through prompting and direct questioning.</p> <p>Measurement Simple equipment is used to take observations and measurements including metre sticks, measuring tapes, egg timers and hand lenses.</p> <p>Questioning Question words include what, when, why, where, how, who and which.</p> <p>Data Data is gathered and recorded in simple ways such as pictograms, tables and drawings.</p> <p>Investigation Simple tests are carried out following simple instructions, beginning to talk about what they might do or what might happen.</p>	<p>Children learn through the stand 'Understanding the World.' During planned teaching inputs linked to the observations, the teacher will directly and explicitly teach the substantive knowledge. They will learn the children new vocabulary and encourage them to make links to what they may already know.</p> <p>Healthy lifestyle Pupils learn about dental hygiene and have visits from the school nursing team to carry out height/weight checks and eye screening. Pupils also learn about the importance of washing hands to kill germs.</p> <p>Identification and classification Pupils learn plants and trees are living things. They begin to name and group plants and trees based on their observations. Pupils learn about different types of animals including the parent and baby mammals.</p> <p>Forces Pupils learn that some objects float and others sink, describing different forces they can feel.</p> <p>Properties and uses Pupils learn that some materials are magnetic. Pupils sort magnetic and non-magnetic materials.</p>		

	<p>Observation With support, observe, record and talk about living things and materials.</p> <p>Pattern seeking Pupils learn about the weather changes across the day, week and month noticing it is different at certain times of year.</p>			
<p>KS1</p> <p>Y1 (5 topics)</p> <p>Y2 (5 topics)</p>	<p>Measurement Simple equipment is used to take measurements and make observations.</p> <p>Questioning Pupils learn that questions help us to find out about the world and can be answered in different ways. Pupils are encouraged to ask questions about the world around them.</p> <p>Data Pupils learn a variety of ways to record data including tables, charts, graphs and labelled diagrams. They begin to record data with increasing accuracy.</p> <p>Investigation Pupils learn that tests can be carried out by following or planning a set of instructions. Pupils learn that a</p>	<p>Humankind Human senses The children learn about the basic body parts and the five senses in Year 1.</p> <p>Animal survival In Year 2 they develop this knowledge into offspring, learning about the stages as they grow into adults.</p> <p>Healthy lifestyle Human senses Pupils In Year 1 learn about exercise, personal hygiene and diet and how these all contribute towards a healthy lifestyle.</p> <p>Human Survival In Year 2 pupils develop this knowledge further by looking at further into the factors which influence a healthy lifestyle.</p>	<p>Properties and uses Everyday materials In Year 1 pupils learn about physical properties of materials eg hard, stretchy and how these make them suitable for different purposes. Pupils compare a range of everyday materials.</p> <p>Uses of materials In Year 2 pupils learn about the properties of materials and that objects which are dense usually sink and objects which are light usually float.</p>	<p>Forces Seasonal changes In Year 1 pupils think about force related to the weather eg wind and rain and how these can be used to measure these.</p>

	<p>prediction is a best guess for what might happen. Pupils set up and carry out simple, comparative and fair tests.</p> <p>Observation Objects and living things can be looked at, compared and grouped according to their features. Begin to observe changes over time.</p> <p>Pattern seeking In Year 1 pupils learn about the four seasons and weather patterns.</p> <p>In Year 2 the pupils build on this to focus on UK weather describing typical seasonal weather patterns.</p>	<p>Identification and classification</p> <p>Plant parts In Year 1 pupils learn names of common plants and about deciduous and evergreen trees. Pupils identify, compare and sort a variety of common wild and garden plants including trees based on observational features.</p> <p>Animal parts In Year 1 pupils also learn that animals can be grouped into the six main groups based on observational features.</p> <p>Plant survival In Year 2 pupils learn the names of plant and tree parts, about germination and what plants need to grow.</p> <p>Animal Survival/Habitats In Year 2 pupils also learn about habitats, food chains and different stages of growth within the life cycle.</p>		
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<p>Lower KS2</p> <p>Y3 (4 topics plus one cross-curricular with Geography)</p> <p>Y4 (5 topics)</p>	<p>Measurement</p> <p>Equipment is used to take measurement in standard units, such as sensors, timers, thermometers. Children learn to take repeated readings to increase accuracy.</p> <p>Questioning</p> <p>Pupils begin to identify how they might find answers to questions. They ask a wide range of scientific questions to broaden their understanding of the world around them.</p> <p>Data</p> <p>Pupils learn that data and results can be recorded in a range of ways including tables, charts, graphs, keys and labelled diagrams. Pupils gather and record data in an increasingly complex way.</p> <p>Investigation</p> <p>Pupils learn about planning and following a method. They learn that a prediction is a statement about what might happen based on prior knowledge and understanding. Pupils plan and carry out a range of investigations identifying variables to identify which will change and which will remain constant for a fair test.</p>	<p>Humankind</p> <p>Animal Nutrition and the Skeletal System</p> <p>In Year 3 children learn about the skeleton and muscles, naming key bones in the human body as well as muscle groups. Pupils learn about endo and exoskeletons and that some animals have no skeleton.</p> <p>Food and the digestive system</p> <p>In Year 4 pupils build on this knowledge to learn about the digestive system, naming key parts within this. They understand the purpose, the main parts and their functions. They explore food chains, food webs, producers/consumers and ecosystems.</p> <p>Healthy lifestyle</p> <p>Animal Nutrition and the Skeletal System</p> <p>In Year 3 pupils learn that humans get nutrition from what they eat. They learn about the main food groups and the importance of hydration as well as a balanced diet.</p> <p>Food and the digestive system</p> <p>In Year 4 pupils build on knowledge about healthy teeth</p>	<p>Properties and uses</p> <p>Rocks, Relics and Rumbles</p> <p>In Year 3 pupils learn about three different types of rocks: sedimentary, igneous and metamorphic including examples of each.</p> <p>Forces and magnets</p> <p>In Year 3 pupils learn that some materials have magnetic properties and compare/group materials based on this.</p> <p>Light and Shadows</p> <p>In Year 3 pupils learn about opaque, transparent and translucent materials.</p> <p>Electrical circuits and conductors</p> <p>In Year 4 pupils learn about electrical conductors and these are commonly metals. Pupils also learn about insulators and describe these types of materials.</p> <p>States of matter</p> <p>In Year 4 pupils learn about the properties of solids, liquids and gases and how states can change.</p>	<p>Forces</p> <p>Forces and magnets</p> <p>In Year 3 pupils learn about magnetic force, focusing on pushing and pulling. They also learn about distance and how this can affect force.</p> <p>Electrical circuits and conductors</p> <p>In Year 4 pupils learn about electricity in the flow of simple circuits. They learn that batteries/cells are a force of power.</p> <p>Light and Shadows</p> <p>In Year 3 pupils learn about light sources, reflectors, how shadows are formed and sun safety.</p> <p>Sound</p> <p>In Year 4 pupils learn about sound and how sounds are made and travel as vibrations through a medium to the ear. They learn about pitch and volume and find out how both can be changed</p>
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	<p>Observation Understand an observation involves looking closely at living things, objects or materials. Understand observations can be made regularly to observe changes over time. Begin to identify connections within changes.</p> <p>Pattern seeking In Year 3 pupils learn about shadows and how they change shape and size linked to the light source. They explore how to find patterns in shadows across the day.</p> <p>In Year 4 pupils learn about pitch and how this is how high or low a sound is. They learn about parts of instruments and compare the pitch of sounds.</p>	<p>by looking at regular brushing, limiting sugar foods and visiting the dentist to describe damages to teeth.</p> <p>Identification and classification Plant nutrition and reproduction In Year 3 pupils learn about the purposes of plant parts (roots, stems, flowers, leaves), the life cycle of a plant and pollination.</p> <p>Grouping and classifying In Year 4 pupils learn that scientists classify living things according to shared characteristics. Pupils build on prior learning of the six animal groups and learn how these groups can be subdivided. Pupils compare, sort and group based on observational features and behaviour.</p>		
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<p>Upper KS2</p> <p>Y5 (4 topics)</p> <p>Y6 (4 topics)</p>	<p>Measurement</p> <p>More specialised equipment is used to take accurate measurements in standard units. Pupils take repeated measurements with a focus on being accurate and precise.</p> <p>Questioning</p> <p>Pupils learn that questions can be answered using a range of scientific enquiries including fair tests, research and observation. Pupils ask and answer deeper and broader questions about the local and wider world extending on their own and others' experiences and knowledge.</p> <p>Data</p> <p>Pupils learn that data can be displayed in a variety of ways including bar/line charts, scatter graphs and classification keys. Pupils choose an appropriate approach to recording results linking to their mathematical knowledge.</p> <p>Investigation</p> <p>Pupils learn that a method is a clear set of instructions and includes what equipment is needed and the observations to make. They know the importance of variables for fair testing and make predictions. Pupils also plan and carry out a range of enquiries.</p>	<p>Humankind</p> <p>Human reproduction and ageing</p> <p>In Year 5 pupils learn how humans reproduce sexually learning more about human reproduction including life cycles and gestation. This is supplemented by our Ten Ten programme.</p> <p>Circulatory system</p> <p>In Year 6 pupils learn about the circulatory system including types of blood vessel, blood cells and parts of the heart. They name and describe the purpose and function of these.</p> <p>Light theory</p> <p>Pupils in Year 6 learn about the parts of a human eye and how messages travel to the brain.</p> <p>Human lifestyle</p> <p>Human reproduction and ageing</p> <p>In Year 5 pupils learn about puberty and how this causes physical and emotional changes, understanding the importance of personal hygiene. This is supplemented by our Ten Ten programme.</p> <p>Circulatory system</p>	<p>Properties and uses</p> <p>Properties and changes of materials</p> <p>In Year 5 pupils learn that mixtures can be separated by filtering, sieving and evaporating. Pupils know properties of materials dictate what it can be used for and describe using evidence why it has been chosen.</p> <p>Electrical circuits and components</p> <p>In Year 6 pupils learn about conductors and insulators.</p>	<p>Forces</p> <p>Earth and Space</p> <p>In Year 5 pupils learn about gravity and how mass affects gravitational pull. They learn about the Earth and solar system, exploring different models and beliefs. They look at sundials as a timekeeping device.</p> <p>Forces and mechanisms</p> <p>In Year 5 pupils learn about contact and non-contact forces, the impact of mass and weight, levers, pulleys and gears and how force can be measured using a force meter.</p> <p>Electrical circuits and components</p> <p>In Year 6 pupils learn about voltage and how this is a measure of the difference in electrical energy. Pupils describe how voltage can change a component in the circuit eg higher voltage means brighter bulb.</p> <p>Light theory</p> <p>In Year 6 pupils learn about light sources, how light travels, more on shadows, reflection and refraction.</p>
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	<p>Observation Know that accurate observations can be made repeatedly or at regular intervals. Decide observations to make, when and how long for using them to classify and make links between cause and effect.</p> <p>Pattern seeking In Year 5 pupils learn about how the Earth orbits the Sun, spinning on an axis. Pupils learn how this affects the sun rising and setting and the length of the day, understanding day and night. They build on year 3 knowledge about shadows too.</p> <p>In Year 6 pupils extend this further by learning how an object blocks a passage of light. They learn about distortion and how shadows can be changed.</p>	<p>In Year 6 pupils look at negative lifestyle choices such as drugs, alcohol smoking, exercise and diet. They explain the impact these can have on the body.</p> <p>Identification and classification Evolution and Inheritance</p> <p>In Year 6 pupils build on their knowledge in Year 4 on classification. Pupils use and construct classification systems to identify animals and plants from a range of habitats. Pupils learn there are a number of ranks within the biological classification system.</p>		
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