

LONG TERM PLANNING: 2024/25 Cycle B

Science

Science teaching at St. Paul's Peel Primary School aims to give all pupils a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future. We use the Kapow Primary Scheme of learning to support teaching and learning in Key Stage 2. The scheme provides a clear progression of learning through EYFS, Key Stage 1 and Key Stage 2, in-built subject specific CPD to support staff teaching of the content and a range of opportunities to truly embed and secure the knowledge, skills and understanding pupils acquire through their primary learning journey.

Age Phase	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Ourselves <i>See Nursery/Reception Long Term planning for overview</i>	Nocturnal animals <i>See Nursery/Reception Long Term planning for overview</i>	Melting solids to liquids <i>See Nursery/Reception Long Term planning for overview</i>	Staying healthy <i>See Nursery/Reception Long Term planning for overview</i>	Mini Beasts: Life cycles of mini-beasts <i>See Nursery/Reception Long Term planning for overview</i>	Forces: (N) Pushes and pulls (R) Floating and sinking <i>See Nursery/Reception Long Term planning for overview</i>
Key Stage 1	Plants: <u>Introduction to plants</u> Venturing outside, pupils identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They use magnifying glasses to observe and name plant parts and draw and label diagrams of flowers. Children closely observe leaves and sort them into groups based on their appearance. They use non-standard units to measure leaf length and record their observations in a table. Pupils investigate if beans need water for growth and identify edible plant parts..	Forces, Earth and Space: <u>Seasonal changes</u> Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and our choices about outfits. They plan and carry out their own weather reports, considering the knowledge required for this job.	Living things and their habitats: <u>Habitats</u> Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. Pupils explore global habitats, naming plants and animals that can be found there. They learn how a range of different living things depend on each other for food or shelter. Pupils explore this further by creating food chains to show the sequence that living things eat each other for energy to grow and stay healthy.	Animals, including humans <u>Life cycles and health</u> Studying the life cycles of various animals, children learn what animals need to survive and how they change over time. Pupils collect data that allows them to observe changes in their peers, while also developing their ability to take measurements and record data. They consider how scientific knowledge helps people to make healthy choices.	Plants: <u>Plant growth</u> Carrying out comparative tests, pupils identify the conditions required for seed germination and compare these to the survival needs of plants in later growth phases. Pupils use rulers to measure stem growth and record data in a table. They use their results to conclude that plants need water, light and a suitable temperature to grow and stay healthy. Children identify the stages in a plant's life cycle and discover how humans impact plants in the environment.	Making connections: Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.

<p>Lower Key Stage 2</p>	<p>Energy: <u>Light and Shadows</u></p> <p><i>Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation, including how different factors affect shadows. They explore how shadows can be used to entertain in the arts and create shadow puppets to recount how different people work or experiment with light.</i></p>	<p>Animals, including humans: <u>Movement and nutrition</u></p> <p><i>Studying the human skeleton, children identify key bones and compare them to other animals explaining the role within the body. Pupils explore how changes in muscles result in movement and the implications these discoveries have in the scientific development of prosthetic limbs. They study how energy is used by the body, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.</i></p>	<p>Materials: <u>Rocks and soil</u></p> <p><i>Studying rocks and their properties, children learn how to classify rocks and identify how they were formed. They look at the work of paleontologists to learn about fossil formation and use models to explore how fossils tell us about the past. Pupils investigate the physical properties of rocks and link these to their particular uses. Pupils also explore soil formation, separate soil using a sedimentation jar and test soil drainage.</i></p>	<p>Animals, including humans: <u>Digestion and food</u></p> <p><i>Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth to create their own model and investigate factors that impact our dental health. They compare human teeth to other animals' and consider this in the light of prior knowledge about predators, prey and food chains. Children take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.</i></p>	<p>Energy: <u>Electricity and circuits</u></p> <p><i>Exploring appliances that use electricity in their setting, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of bulbs and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.</i></p>	<p>Making connections:</p> <p>Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.</p>
<p>Upper Key Stage 2</p>	<p>Materials: <u>Mixtures and separation</u></p> <p><i>Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.</i></p>	<p>Materials: <u>Properties and changes</u></p> <p><i>Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.</i></p>	<p>Forces, Earth and Space: <u>Earth and space</u></p> <p><i>Exploring some of the key celestial bodies in our Solar System, children learn their names and compare their movements. Pupils discover the relationship between the Earth's rotation and daylight, making models to represent their knowledge. They make their own sundials and consider how and why humans' ideas about the universe have changed over time.</i></p>	<p>Animals: <u>Circulation and health</u></p> <p><i>Studying the human circulatory system, pupils learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. Pupils devise their own investigation to look at the relationship between exercise and heart rate, applying their knowledge of variables and then analysing secondary data to understand fitness better.</i></p>	<p>Energy: <u>Light and reflection</u></p> <p><i>Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. They explore how our eyes allow us to see and how mirrors can be used in a variety of ways. Pupils investigate factors affecting the size of shadows and the laws of reflection. Children apply what they have learned about light by exploring real-life uses of mirrors.</i></p>	<p>Making connections:</p> <p>Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.</p>