Our Lady of Perpetual Succour Catholic Primary School

Science Policy

We learn to love everyone as Jesus loves us

Intent

At Our Lady's our Science curriculum is intended to challenge all children to gain a strong understanding of the world around them through the disciplines of biology, chemistry and physics. All pupils should be taught essential aspects of the vocabulary, knowledge, methods, processes and uses of science. Children are encouraged to develop a sense of excitement and curiosity about natural phenomena, by using practical investigative skills and by applying scientific concepts to answer their own and others' questions.

The five principles that make science good in Our Lady's are:

- that it is practical.
- that is uses enquiry.
- there are high quality resources.
- it is challenging.
- it is exciting for the children.

Implementation

How is Science Planned For?

The science curriculum is planned into Our Lady's Curriculum, linking with other topic areas and areas of learning. It is based on National Curriculum objectives so topics are progressive and sequential over the course of Key Stages or phases.

From each topic we plan lessons based on the ASE's PLAN matrices to ensure that suitable challenge and pitch are in place, enabling pupils to achieve as highly as possible.

Big Questions are also planned for each year group and topic, which are used as starters for Science Enquiry and ensure all different types of enquiry are covered.

Teachers plan individual lessons based around the medium term plans and using guidance from ASE PLAN documents to ensure that their classes needs are met and that sufficient challenge is present.

How is Science taught?

Science is taught for an average of 1.5 hours per week in timetabled sessions by the class teacher.

Where possible science should be taught using practical science enquiry. Practical enquiry allows children to answer their own and others' questions about the world using practical skills (working scientifically).

Each class has a set of "Big questions" for ach topic they must answer using a variety science enquiry types, allowing them to develop their working scientifically skills.

In EYFS, children start Science in school by Understanding the World. This is taught through play and activities linked to their topic, that develop children's curiosity and encourages them to ask questions about things in the world around them.

Impact

Subject leaders are continuously monitoring their subject to ensure that it meets the needs of our pupils. Senior Leaders also monitor each curriculum subject. This is done through:

- Learning walks
- Book scrutiny
- Lesson observations
- Pupil surveys and discussions
- Staff surveys and discussions.

Science is assessed through teacher assessments. We assess children's work in science by making informal judgements as we observe them during lessons and as we feedback on the work in their books. The class teacher is responsible for assessing all areas of science and logging the progress of each child using O'Track to assess against each of the objectives taught. We use ASE's PLAN documents as exemplification to show age-related expectations, and teachers compare work to this when assessing.

Policy Update: September 2022

Policy Review Date: September 2024

Appendix 1 – Science Topic Overview

	Reception	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Autumn 1	Ourselves	Plants and Seasonal Changes	Materials	Animals including humans – Diet, skeletal system.	Electricity	Earth and Space	Electricity
Autumn 2	Little Red Riding Hood/ The Nativity	Materials	Plants	Forces & Magnets	Animals including Humans - the digestive system	Light	Animals Including Humans – The circulatory system.
Spring 1	Rainbow Fish	Materials	Living things and their habitats	Forces & Magnets	States of matter	Forces	Evolution and Adaptation
Spring 2	Whatever Next	Animals including Humans, Plants & Seasonal changes.	Living things and their habitats	Light and Shadows	Living things and their habitats	Forces	Animals and their habitats – Classification
Summer 1	The Naughty Bus	Animals including Humans, Plants and Seasonal Changes.	Animals including Humans	Rocks and Soils	Sound	Animals including humans – Growing and Ageing	Changing States

Summer 2	Travels with Barnaby	Plants	Materials	Plants	Living things and their habitats	Living things and their habitats	Changing States

Appendix 2 - Big Question Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	How can we sort the leaves that we collected on our walk? – Identifying and Classifying Do trees with bigger leaves lose their leaves first in autumn? – Pattern Seeking How does a daffodil bulb change over the year? –Observing Over time	Which materials are the most flexible? – Comparative testing What happens to materials over time if we bury them in the ground? – Observing over time	Which materials are the most absorbent? – Comparative testing Which materials can be recycled? - Research	What are the names for all the parts of our bodies? – identifying and classifying How are the animals in Australia different to the ones that we find in Britain? - Research	How can we organise all the zoo animals? identifying and classifying Do you get better at smelling as you get older? Pattern Seeking	Which tree has the biggest leaves? – comparative testing How does my sunflower change each week? – Observing Over time What are the most common British plants and where can we find them? - Research
Year 2	Which materials are shiny and which are dull? – identifying and classifying How have the materials we use changed over time? - Research Which material would be best for a waterproof coat? Comparative testing	Do cress seeds grow quicker inside or outside? – comparative testing	How would you group these plants and animals based on what habitat you would find them in? – identifying and classifying Which habitat do worms prefer – where can we find the most worms? – Pattern Seeking	How does the habitat of the Arctic compare with the habitat of the rainforest? – Research What conditions do woodlice prefer to live in?	Which offspring belongs to which animal? – Identifying and Classifying What food do you need in a healthy diet and why? – Research How much food and drink do I have over a week? – Observing over time	Which shapes make the strongest paper bridge? – comparative testing How long do bubble bath bubbles last for? – Observing over time Are metal materials always rigid? – pattern seeking
Year 3	How does the angle that your elbow/knee is bent affect the circumference of your upper arm/thigh? – fair testing How does the skull circumference of a girl compare with that of a boy? – comparative testing How do the skeletons of different animals	Which magnet is strongest? – comparative testing Which materials are magnetic? – identifying and classifying Does the size and shape of a magnet affect how strong it is? – pattern seeking	How does the mass of an object affect how much force is needed to make it move? – fair testing How have our ideas about forces changed over time? - research	How does the distance between the shadow puppet and the screen affect the size of the shadow? – fair testing When is our classroom darkest? – observing over time	Can you use the identification key to find out the name of each of the rocks in your collection? – identifying and classifying Is there a pattern in where we find volcanos on planet Earth? – pattern seeking Who was Mary Anning and what did she discover? - research	Which conditions help seeds germinate faster? – comparative testing How do flowers in a vase change over time? – observing over time What are all the different ways that seeds disperse? - research

	compare? – identifying and classifying					
Year 4	How does the thickness of a conducting material affect how bright the lamp is? – fair testing Which metal is the best conductor of electricity? – comparative testing How long does a battery light a torch for? – observing over time	What are the names for all the organs involved in the digestive system? – identifying and classifying How does an egg shell change when it is left in different drinks? – observing over time Which room has the most electrical sockets in a house? – pattern seeking	How does the mass of a block of ice affect how long it takes to melt? – fair testing Does seawater evaporate quicker than fresh water? – comparative testing Can you group these materials and objects into solids, liquids, and gases? – identifying and classifying	How has the use of insecticides affected bee population? – pattern seeking	How does the volume of a drum change as you move further away from it? – fair testing Which material is best to use for muffling sound in ear defenders? – comparative testing Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school? – pattern seeking	Can we use the classification keys to identify animals we have studied? – identifying and classifying Why are people cutting down the rainforests and what effect does that have? - research
Year 5	Can you identify all the phases in the cycle of the Moon? – identifying and classifying Is there a pattern between the size of a planet and the time it takes to travel around the Sun? – pattern seeking How have our ideas about the solar system changed over time? - research	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface? – fair testing Is there a pattern to how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom? – pattern seeking How does my shadow change over the day? – observing over time	How does the surface area of a parachute affect the time it takes to fall to the ground? – fair testing Which shoe is the most slippy? – comparative testing	How does the surface area of an object affect the time it takes to sink? – fair testing Can you label and name all the forces acting on the objects in each of these situations? – identifying and classifying	Who grows the fastest, girls or boys? – comparative testing Is there a relationship between a mammal's size and its gestation period? – pattern seeking Why do people get grey/white hair when they get older? – research Are the oldest children in our school the tallest? – pattern seeking Can you identify all the stages in the human life cycle? – identifying and classifying	Compare this collection of animals based on similarities and differences in their lifecycle. – identifying and classifying

Year 6	How does the voltage of the batteries in a circuit affect the brightness of the lamp? – fair testing Which type of fruit makes the best fruity battery? – comparative testing Does the temperature of a light bulb go up the longer it is on? – observing over time/pattern seeking	How does the length of time we exercise for affect our heart rate? – Fair testing What is the most common eye colour in our class? – comparative testing Which organs of the body make up the circulation system, and where are they found? Identifying and classifying	Is there a pattern between the size and shape of a bird's beak and the food it will eat? – pattern seeking Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different? – identifying and classifying What happened when Charles Darwin visited the Galapagos islands? - research	How would you make a classification key for vertebrates/invertebrates or microorganisms? – identifying classifying What happens to a piece of bread if you leave it on the windowsill for two weeks? – observing over time What do different types of microorganisms do? Are they always harmful? - research	How does a nail in salt water change over time? – observing over time How does a sugar cube change as it is put in a glass of water? – observing over time	How does the temperature of tea affect how long it takes for a sugar cube to dissolve? – Fair testing Which type of sugar dissolves the fastest? – comparative testing