



Science



Curriculum Intent

Speak to the earth and it shall teach thee.'

Book of Job (12:8)

At St Joseph's, our pupils are taught essential aspects of the knowledge, methods, processes and uses of science. Our aim is for children to develop a secure understanding and to be in awe of the scientific world in which they live. The practical nature of science is promoted to stimulate children's curiosity about the world we live in. The children use first hand experiences and investigations to explore, discover and gain scientific knowledge. They are encouraged to investigate problems through close observations, planning, predicting and fair testing. In EYFS, Science is taught through the learning area of 'Knowledge and Understanding of the World'.

Implementation

As a school within Bishop Hogarth Catholic Education Trust, we worked closely with subject specialists from our secondary schools to design a curriculum specifically for our children. This means our curriculum has been designed to ensure clear progression, in the acquisition of knowledge and for key skills, building on pupil's prior learning. We teach termly, discreet topics for all pupils from Year 1 to Year 6.

The curriculum units of work have clearly identified minimum knowledge 'end points,' and have been sequenced to ensure that pupils know more and remember more as they move through primary school and transfer into KS3.

Our curriculum covers the National Curriculum and is underpinned by the building blocks of Science (Threshold Concepts) which are emphasised and reinforced in the Science curriculum across our schools from KS1 to KS5.

Threshold concepts

A 'threshold concept' is a concept that, once understood, changes the way that a person thinks – it unlocks understanding.



Animals, humans and plants are made up of complex interacting systems in order to function.	The particle theory of matter is the idea that helps us to develop an understanding of why materials behave as they do.
Organisms require a supply of energy to carry out the basic functions of life and to grow.	Energy is a powerful and unifying abstract idea which is difficult to define.
The Earth is a complex of interacting rock, water, air and life.	Forces change the state of rest or motion of a body. They hold matter together and interplay between all objects.

Each unit of work has a clear rationale, key topic vocabulary and builds on pupil's prior learning and defines the minimum knowledge and skills (end points) that pupils will learn. Assessment strands in topics give pupils the opportunity to demonstrate their learning and the knowledge companions that we call 'Learn it! Link It! help pupils to remember the key elements of the topic. This helps pupils to organise their learning into relevant areas and make links to other areas and subjects. Conceptual (Golden) threads of Science are woven through our curriculum to ensure consistency, add focus and promote purposeful learning.

All topics in Science come with misconception busters and related investigation cards

Topics and units lay out **sequential components of learning** which equates to 8-10 hours of teaching.

Curriculum Sequence

Year	Autumn	Spring	Summer
1	Animals including Humans Unit 1	Plants Unit 1 Earth and Space: Seasonal Changes Unit 1	Everyday Materials Unit 1 Magnets and Forces Unit 1
2	Animals including Humans Unit 2 Living Things and their Habitat Unit 1	Plants Unit 2	Use of Everyday Materials Unit 2 Electricity Unit 1
3	Animals including Humans Unit 3	Plants Unit 3 Rocks and Soils Unit 3	Forces and Magnets Unit 2 Light and Seeing Unit 1
4	Animals including Humans Unit 4 Living Things and their Habitat Unit 2	Sound and Hearing Unit 1	Materials - States of Matter Unit 3 Electricity Unit 2
5	Animals including Humans Unit 5 Living Things and their Habitat Unit 3	Sound and Hearing Unit 2 Earth and Space Unit 3	Materials - Properties and Changes Unit 4 Forces Unit 3
6	Animals including Humans Unit 6 Living Things and their Habitat Unit 4	Evolution and Inheritance	Light and Seeing Unit 2 Electricity Unit 3

Each topic includes a knowledge retention/recap element so that we build on prior learning. Pupils take an assessed task in each unit which draws on their learning and vocabulary.

In EY, the children study a range of topics that link to learning through play and continuous provision. Topics include: New Life - Plants and growth, including how we care

for them. Animals- Pets and animals that live in different environments. For example, jungle, arctic, British wildlife. Floating and Sinking, Sorting by material, Magnetism. The Seasons- exploring the main characteristics of each season.

Impact

When pupils leave our school, pupils will know more, remember more and understand more about Science. They will have developed a secure understanding and will be in awe of the scientific world in which they live and will have developed the ability to think, write and explore like a Scientist.

The outcomes in Science books will evidence a broad and balanced Science curriculum and demonstrate the pupil's acquisition of key knowledge and topic, 'end points'. The majority of pupils will achieve age related expectations in Science and clear progress will be evident in their topic work and in topic assessed tasks. They will have the firm foundations in Science and will be well placed to make good progress at Key Stage 3.