SCIENCE POLICY
OUR LADY & ST JOSEPH CATHOLIC PRIMARY SCHOOL

PREPARED BY: Amy Charles
APPROVED BY: Governing Body
DATE: Oct 2019
REVIEW DATE: Oct 2021
DPO Checked: May 2018

Science Policy

OLSJ's Vision for Science

'Through a practical, enquiry based approach, our learners will grow into the scientists of the future – an engaging curriculum will allow them to question and learn about the world around them.'

OLSJ's Core Principles of Science Teaching and Learning

- Science inspires and challenges our pupils.
- Lessons are practical and engaging.
- Questions are asked to explore the world around us.
- Lessons develop key enquiry skills.
- Dialogic talk is used to assist learning.

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of **the nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them

- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future

Scientific Knowledge and Conceptual Understanding

The programs of study in the 2014 Primary National Curriculum describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

The Nature, Processes and Methods of Science

The term in the 2014 Primary Curriculum 'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance provided with the 2014 Primary Curriculum give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Spoken Language

The 2014 Primary National Curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Our Lady and St Joseph's Science Curriculum

The programmes of study for science in the 2014 Primary National Curriculum are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, we therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, we can introduce key stage content during an earlier key stage if appropriate. Our Lady and Saint Joseph will set out our curriculum for science on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Programmes of Study

Key stage 1 programme of study				
Year 1	Working scientifically		Year 2	Working scientifically
	Plants			Living things and their habitats
	Animals, including humans			Plants
	Everyday materials			Animals, including humans
	Seasonal changes			Use of everyday materials
Lower key stage 2 programme of study				
Year 3	Working scientifically		Year 4	Working scientifically
	Plants			Living things and their habitats
	Animals, including humans			Animals, including humans
	Rocks			States of matter
	Light			Sound
	Forces and magnets			Electricity
Upper key stage 2 programme of study				
Year 5	Working scientifically		Year 6	Working scientifically
	Living things and their habitats			Living things and their habitats
	Animals, including humans			Animals, including humans
	Properties and changes in materials			Evolution and inheritance
	Earth and space			Light
	Forces			Electricity

Assessment

Children are assessed in science, using a combination of:

- Teacher knowledge of each child through working with them during science lessons
- Work in books

- Using Pupil Asset to identify targets achieved – these targets are linked to the 2014 Primary Curriculum.

Early Years Foundation Stage

Science in the foundation stage is based on developing children's knowledge and understanding of the world around them, as well as, developing their scientific skills. Children will be provided with the opportunities to explore science first hand. Children will also be encouraged to use scientific vocabulary to express their observations and experiences.

Evaluation and Monitoring

The science policy of the school is reflected in our practice. This is monitored by the Lead Teacher for Science and is reviewed annually by the staff. New members of staff will be introduced to the policy by the Lead Teacher for Science and the members of staff in the same year group will team plan.
The Lead Teacher for Science will monitor books and displays regularly to ensure work is appropriate to the age group and in line with the school policy and schemes of work.
The Lead Teacher for Science will observe the teaching and learning of science across the school at least once a year.
Success of our science teaching will be judged by:

- The motivation and interest displayed by our pupils.
- The development, over time, of pupils' understanding of scientific concepts and processes
- Pupil's ability to apply their understanding in a variety of new situations
- Ensuring whether work is differentiated appropriately to cater for the needs of each child.
- Whether lessons follow the school's core principles for Science.

Equal Opportunities and Special Needs

Teachers will have high expectations of all children regardless of gender, race, class and special needs. Teachers will strive to ensure that all children have equal access to the science curriculum. Planning will be differentiated so that all children can participate and reach their full potential.

Information and Communication Technology

Computers are used throughout the school to enhance the work of the pupils. Pupils can use the internet for research. There are also a range of interactive activities located online that children can use to further develop their scientific knowledge.
Digital cameras can be used to record evidence of practical work.

Role of the Lead Teacher for Science

The Lead Teacher for Science will lead focused INSETs. They will also select and orders new equipment and book materials as appropriate. Staff will be updated regularly as a result of the Lead Teacher for Science attending training courses and disseminating information.
The Lead Teacher for Science will also help individual teachers by assisting in planning, offering support in class and providing relevant scientific background for non-specialist teachers.

Health and Safety

It is the responsibility of the staff to adhere to all safety measures in the school Health and Safety Policy.
In accordance with The Department for Education Statement dated 28th November 2011.
When children work with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar they are taught:

- About hazards, risks and risk control.
- To recognise hazards, assess consequent risks and take steps to control the risks to themselves and others.
- To use information to assess the immediate and cumulative risks.
- To manage their environment to ensure the health and safety of themselves and others to explain the steps they take to control risks.

The school has a risk assessment form which focuses on health and safety issues surrounding the teaching and learning of science.

Organisation of Science Resources

Classrooms are equipped with a selection of books that are age-appropriate and support the science curriculum.
Resources are stored in the Science resources area in the cupboard below Year 2 and are arranged according to the units of work they support.
The school grounds are a valuable resource particularly for attainment target 2. Children will become familiar with animal life, plant growth and seasonal change by visiting the garden at least once a term.