Science Policy

'Learning and growing together: inspired by the love of Jesus'

Our Mission Statement lies at the heart of all that we do and helps us to define our sense of direction and purpose.

Our curriculum is designed around what makes a Catholic school distinctive and reflects the key areas identified by The Bishop's Conference of England and Wales 2014. These include:

- The Search for Excellence
- The Uniqueness of the Individual
- The Education of the Whole Person
- The Education of All
- Moral Principles

Intent – *How is the school's curriculum is coherently planned and sequenced towards cumulatively sufficient knowledge and skills for future learning and employment?(Ofsted Handbook 2019)*

The curriculum for science has been set in light of the requirements of the National Curriculum:

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.*

At St. Aidan's we want all of our children to be **excited** by science and enjoy their science lessons. Our children should realise that science is constantly happening around us and is not limited to work in class or in a laboratory. We want our children to be able to **talk** about science both to peers and those outside of the school setting. We want our children to know that there are many different careers that stem from a having an interest in science.

Principles of Good Science

- Children's **curiosity** is encouraged and valued; they are **excited** and **enthusiastic** when anticipating in their science lessons.
- Science is **practical** and hands on and children **enjoy learning** through exploration and questioning; they have the opportunity to use good quality resources.
- **Enrichment** events/school visits/workshops happen when possible.
- Progression of science skills is evident and taught throughout the school.
- Children confidently use accurate scientific **vocabulary** in context.
- Teachers use different assessment strategies during science lessons.
- All pupils are **actively** engaged in a science enquiry; using a variety of enquiry strategies, independently making **decisions**, answering their own questions.

The curriculum has been **planned** as a clear framework that guides teachers and children through weekly objectives that have been **sequenced** to ensure knowledge, skills and understanding are retained and remembered.

Implementation - ***Teachers have good knowledge of the subject(s) and courses they teach. Leaders provide effective support for those teaching outside their main areas of expertise; Teachers present subject matter clearly, promoting appropriate discussion about the subject matter being taught. They check pupils' understanding systematically, identify misconceptions accurately and provide clear, direct feedback. In so doing, they respond and adapt their teaching as necessary without unnecessarily elaborate or individualised approaches.(Ofsted handbook 2019)***

Science Curriculum Planning

At St Aidan's Catholic Primary School we use the current National Curriculum as the basis for our curriculum planning in science. Our long-term and medium-term plans, give **details** of each area to be taught for each term or half term.
It is the science subject lead's responsibility to ensure children have the opportunity to build upon **prior learning**, which is taught and developed through the whole school progression map for science.

Teachers are expected to develop their planning using the National Curriculum as a guideline. Teachers are free to use their **own ideas** to plan and the coordinator has provided all class teachers with a breakdown of each unit of work. Websites such as twinkl and Hamilton trust have been suggested as a source of help should teachers require this. Assessment materials have been created by the science coordinator. Teachers are not to rely solely on this resource but use it for ideas, reference and guidance so the children can have more **creative, memorable** and **inspiring** science lessons.

EYFS

We encourage creative work within EYFS as this is a part of the Early Years curriculum. We look to introduce, practise and develop these skills by **teaching and modelling** and then encouraging children to apply these skills independently.
We use the **Understanding the World** specific area in the Early Years Framework as a starting point for developing early knowledge,skills and understanding in science:

> *The world: children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate*

environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

The range of experience encourages children to **make connections** between one area of learning and another and so extends their understanding.

At this phase children are:
• Developing the crucial knowledge, skills and understanding that help them make sense of the world;
• Involved in activities based on first-hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking and decision-making and discussion;
• Experiencing a wide range of activities, indoors and outdoors, including adult focused, child-initiated and independent play;
• Stimulated, interested and curious;
• Observed by adults and learning is recorded in a variety of ways.

We provide a **rich environment** in which we encourage and value creativity. We give them the opportunity to work independently, within small groups and alongside other adults.

Key Stage 1

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Year 1

- Plants
- Animals, including humans
- Everyday materials
- Seasonal changes

Year 2

- Living things and their habitats
- Plants
- Animals, including humans
- Uses of everyday materials

Key Stage 2

'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Year 3

- Plants
- Animals, including humans
- Rocks
- Light
- Forces and magnets

Year 4

- Living things and their habitats
- Animals, including humans
- States of matter
- Sound
- Electricity

Year 5

- Living things and their habitats
- Animals, including humans
- Properties and changes of materials
- Earth and space
- Forces

Year 6

- Living things and their habitats
- Animals, including humans
- Evolution and inheritance
- Light
- Electricity

At KS1 and 2 children are:

- Learning through a science process skill-based approach;
- Undertaking practical enquiries;
- Working collaboratively and independently;
- Developing high quality, purposeful talk for science;
- Recording findings in a variety of stimulating and purposeful ways;
- Building upon prior science learning, both skill and knowledge based;
- Beginning to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts;
- Evaluating their own science learning;
- Using ICT to support and extend their learning in science;
- Making links across subjects;
- Experiencing a variety of teaching styles and strategies that promote positive science learning;
- Learning that science promotes the concept of positive citizenship;
- Learning through science, to raise social and moral questions, to understand differences between people and to have respect for others including those with disabilities.

At St Aidan's, we know that effective teaching of this subject requires **expertise** and **knowledge** on the part of the teachers. We commit to engaging with training where available for all staff and for the subject leader to remain a point of help and advice.
We use questioning and evidence within the science book to **check** childrens' understanding and deeper learning. We look to be persistent in asking children to **remember** what they have learned. **Feedback** in the science book will be positive and formative in developing key skills, knowledge and understanding.

Impact - Pupils develop detailed knowledge and skills across the curriculum and, as a result, achieve well.

Assessment and recording

The impact and measure of this, is to ensure that children at St. Aidan's Catholic Primary are equipped with scientific skills and knowledge that will enable them to be **ready** for the curriculum at Key Stage 3 and for life as an **adult** in the wider world.
We want the children to have thoroughly **enjoyed** learning science, therefore encouraging them to undertake new life experiences now and in the future.

We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of the topic **after** the unit is taught.
- Summative assessment of pupil discussions about their learning.
- **Interviewing** the pupils about their learning (pupil's voice).
- Through book **scrutinies** and **learning walks**.
- **Marking** of written work in books and how this **reflects** the planned programme **faithfully**.

We are moving towards a clearer picture of what age related and greater depth will look like in the primary phase.

Resources

We have a wide range of resources to support the teaching of science across the school which are stored in a central resource area. Staff are responsible for informing the Science coordinator when extra resources are needed, when there are breakages and when consumables are running low. The Science Coordinator will update and replenish resources when needed/ a request can be granted.

Health and Safety

• Health and safety is in line with the school's policy
• The safe use of equipment is to be promoted at all times.
• Risk Assessment should be included on plans to cater for allergies and disabled children when appropriate.

Monitoring and review

Our science leader monitors this subject through scrutiny of books or examples of work for each year group, observing lessons/learning walks and through pupil voice feedback. This monitoring will reflect the 'deep dive' methodology applied to other subjects by senior leaders. It is also the responsibility of our science leader to support colleagues in the teaching of science where and when applicable.