St. Jude's Catholic Primary School

We live, love and learn together joyfully in Jesus' name.

Science Policy

'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.' (Purpose of study, National Curriculum 2014)

At St. Jude's Catholic Primary School, our vision is to deliver a science curriculum to our children which enables them to explore and make discoveries about the world around them. We provide practical experiences that encourage curiosity and welcome questioning.

Statement of intent

Our intent for our Science curriculum is for the children to have:

• The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.

• Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.

• Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.

• The ability to enquire, research, ask questions and use challenging vocabulary correctly.

• The ability to undertake practical work in a variety of contexts, including fieldwork.

• A passion for science and its application in past, present and future technologies.

Legal framework

This policy has due regard to statutory legislation and guidance including, but not limited to, the following:

- DfE (2013) 'Science programmes of study: key stage 1 and 2'
- DfE (2014) 'Statutory framework for the early years foundation stage'
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013

This policy will be used in conjunction with the following school policies and procedures:

- Health and Safety Policy
- Assessment Policy

Roles and responsibilities

The science leader is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of science, providing support for staff where necessary.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out annual audit of all science resources.
- Liaising with teachers across the key stages.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.
- Advising on the contribution of science to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for the development of science in subsequent years.

The class teacher is responsible for:

- Acting in accordance with St Jude's Catholic Primary School's Science Policy, ensuring that lessons are taught in line with the school's Health and Safety Policy at all times.
- Liaising with the science leader about key topics, resources and supporting individual pupils.
- Ensuring that all of the relevant statutory content is covered within the school year.
- Monitoring the progress of pupils in their class and reporting this on an annual basis.
- Reporting any concerns regarding the teaching of the subject to the science leader or a member of the senior leadership team.
- Undertaking any training that is necessary in order to effectively teach the subject.

The National Curriculum

The national curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.

During Nursery and Reception class, in accordance with the 'Statutory framework for the Early Years Foundation Stage', focus will be put on the seven areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework.

During Years One and Two, pupils will be taught to:

- Ask simple questions and recognise that they can be answered in different ways.
- Observe closely, using simple equipment.
- Perform simple tests.
- Identify and classify
- Use their observations and ideas to suggest answers to questions.

During years Three and Four, pupils will be taught to:

- Ask relevant questions and use different types of scientific enquiries to answer these questions, setting up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers.
- Gather, record present and classify data in a variety of ways to help answer questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.

During Years Five and Six, pupils will be taught to:

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of the results and the degree of trust in them. This should be in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas/arguments.

The sequence of learning for the Science curriculum is available on our school website.

Cross-curricular links

Wherever possible, the science curriculum will provide opportunities to establish links with other curriculum areas.

English

- Pupils are encouraged to use their speaking and listening skills to describe what is happening.
- Pupils' writing skills are developed through recording their planning, what they observe and what they found out.
- Science based texts are sometimes used in English lessons and in guided reading sessions.

Maths

- Science will involve a degree of numeracy at all levels.
- Pupils use their knowledge and understanding of measurement and data handling.
- Where appropriate, pupils record their findings using charts, tables and graphs.

ICT

- Pupils will use ICT to locate and research information.
- ICT will be used to record findings, using text, data, tables.
- Pupils are encouraged to use calculators and other electronical devices, gaining confidence throughout their school experience.

PHSE

Health education is taught as part of the science unit about ourselves, which covers:

Health and Growing

Teeth and eating

Moving and growing

Keeping healthy

Life cycles

History

Scientific discoveries and the contribution of individuals to science will be studied.

Religious Education

Pupils' development will be focussed on the vastness of science and the natural world, encouraging a sense of awe.

Pupils are encouraged to think about the effect of scientific discoveries on the modern world.

Current scientific developments and issues will be discussed in the classroom, where appropriate.

Teaching and learning

Pupils will be taught to describe associated processes and key characteristics in common language, as well as understand and use technical terminology and specialist vocabulary.

Lessons will allow for a wide range of scientific enquiry, including the following:

- Questioning, predicting and interpreting
- Pattern seeking
- Practical experiences
- Collaborative work
- Carrying out investigations
- Carrying out time-controlled observations
- Classifying and grouping
- Undertaking comparative and fair testing
- Researching using secondary sources

Opportunities for outdoor learning will be provided wherever possible.

Each year group will have the opportunity to undertake an external educational visit, which is science based at least once a year, although it is recognised that, at the time of writing this policy, opportunities for visits are limited because of Covid-19.

Planning

All relevant staff members are briefed on the school's planning procedures as part of staff training.

Throughout St Jude's Catholic Primary School, science is taught as a discrete lesson and as part of cross-curricular themes where appropriate.

Teachers will use the key learning content in the DfE's 'Science programmes of study: key stages 1 and 2' and the national curriculum as a starting point for their planning.

Lesson plans will demonstrate the balance of visual, auditory and kinesthetic elements used in teaching, ensuring that all pupils with different learning styles can access the learning experience.

Long-term planning will be used to outline the units to be taught within each year group.

Knowledge Organisers will be used to outline the vocabulary and skills that will be taught in each unit of work as well as highlighting the opportunities for assessment

Knowledge Organisers will be shared with the science leader to ensure progression between years.

Short-term planning will be used flexibly to reflect the objective of the lesson, the success criteria, the aim of the lesson and questions that could be asked

Short-term planning is the responsibility of the class teacher. This achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.

Short-term plans are solely for the benefit of the class teacher and do not need to be shared with the science leader.

All lessons will have clear learning objectives, which are shared and reviewed with pupils.

Assessment and Reporting

Pupils will be assessed and their progression recorded in line with the school's Primary Assessment Policy.

Pupils will be assessed continuously throughout the year. At the start of each unit the children will complete a quiz based on the unit and then at the end of the unit they will complete the same quiz again. This is to measure what the pupils have learnt over the course of the unit.

Assessment in science is based upon scientific knowledge and understanding, rather than achievements in English or maths.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them

- Marking work against the learning objective
- Specific assignments for individual pupils
- Observing practical tasks and activities
- Pupils' self-evaluation of their work
- Start/end of unit quizzes

Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupil's understanding of subjects and informs their immediate lesson planning.

Parents will be provided with a written report about their child's progress during the summer term every year.

Verbal reports will be provided at parents evening during the autumn and spring term.

Pupils with special educational needs and disabilities (SEND) will be monitored by the Inclusion Manager.

Equipment and resources

Science resources are centrally located in the cupboard opposite the staffroom.

The science leader in liaison with the head teacher is responsible for ensuring that all resources and equipment are sufficiently maintained.

Equipment will be checked prior to each use and any damages must be reported to the science leader immediately.

The science leader is responsible for maintaining an inventory of resources.

Staff members must inform the subject lead of any changes regarding science resources, such as broken items or when new resources are required.

Any equipment or resources which are a cause for concern will be removed immediately.

The science leader will carry out an annual audit of the science resources, reordering any consumables when necessary.

Class teachers can discuss the need for new resources with the science lead.

The science lead is responsible for negotiating requests from staff members and ensuring resources are bought within the amount allocated in the annual budget.

Health and safety

Staff members will act in accordance with the school's Health and Safety Policy at all times.

Accidents and near-misses will be reported following the procedure outlined in the school's Accident Reporting Procedure.

A risk assessment will be carried out by class teachers before conducting an experiment or undertaking practical activities as needed.

All pupils will be shown how to correctly use equipment and will be monitored by staff whilst using the equipment.

All pupils will be made aware of how they are expected to behave, ensuring that they show respect to other people and the environment.

Pupils are made aware of the personal safety protocols and equipment needed when using different equipment or carrying out different tasks.

Any 'new' experiments or activities which a teacher has not used in the classroom before will be trialed prior to being performed by the pupils.

At the beginning of any experiment, the teacher will outline the purpose of the experiment to the class, and all hazards and safety precautions will be thoroughly outlined.

Equal opportunities

All pupils will have equal access to the entire science curriculum, including practical experiments.

Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all science lessons.

Where it is inappropriate for a pupil to participate in a lesson because of related to any of the factors outlined above, the lesson will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided when necessary.

All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

St. Jude's Catholic Primary School aims to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigation work and research of a scientific nature.

Monitoring and review

This policy will be reviewed every two by the science lead in collaboration with the headteacher.

The science lead will monitor teaching and learning in science at St Jude's Catholic Primary School, ensuring that the content of the national curriculum is covered.

Any changes made to this policy will be communicated to all teaching staff.

Signed by:

_____ Headteacher Date: _____

_____ Chair of governors Date: _____

Review date: December 2022