SACRED HEART
CATHOLIC PRIMARY
SCHOOL & NURSERY

Science Policy

This is our school.

Together we worship; Together we learn; Together we belong.

With the love of God, our dreams and ambitions come true

September 2023

Policy Date: September 2023

Policy Status: Statutory Policy

Awaiting approval by Governing

Body October 2023

Review Cycle: 18months or as required

Next Review Date: January 2025

At Sacred Heart Catholic Primary School & Nursery we are proud to provide a safe, stimulating and inclusive learning environment where every member of our community is valued and respected.

Mission Statement

'Together we worship, Together we learn,
Together we belong – with the love of God…
our dreams and ambitions come true.'

Our broad, balanced, creative curriculum and enrichment activities provide opportunities for everyone to achieve and succeed. Together we take pride in making a positive contribution to our school and the wider community.

This policy should be referred to in conjunction with the curriculum, assessment and teaching and learning policies.

SAFEGUARDING STATEMENT

"Sacred Heart Catholic Primary School is committed to safeguarding and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment".

The Science curriculum at Sacred Heart has been designed to motivate children to become inquisitive, critical thinkers who can articulate their questions, results and evaluations using specific scientific vocabulary. Children are naturally curious and we want to nurture their enquiring minds in order to understand the world around them.

Science is a systematic investigation of the physical, chemical and biological aspect of the world we live in and beyond. The study of science enables children to think creatively to understand and explore their environment.

"The important thing is not to stop questioning. Curiosity has its own reason for existence. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvelous structure of reality. It is enough if one tries merely to comprehend a little of this mystery each day." – Albert Einstein

We provide opportunities for the pupils to explore the valuable contributions Science and scientists and inventors have made to our world and how we live today. Through this teaching, we then encourage pupils to be independent thinkers and use scientific knowledge and skills to make links and conclusions of their own experiences.

Our curriculum has been designed so that the pupils are constantly given the opportunity to revisit previous knowledge and make links with different areas of science – biology, chemistry and physics and the strands within each of these disciplines. Pupils are expected to measure, record and analyse results in their chosen presentation which will enable them to discuss their findings with others based on their experiments or observations. This will then lead the pupils to be able to make predictions in the future as they will understand processes and behavioural systems as they progress throughout the curriculum.

Intent

Science involves practical investigations, observations and collecting evidence to develop pupils' understanding of fundamental concepts. Science should always encourage creative and critical thought by encouraging children to engage in questioning, discussion and research about science-based issues which affect their lives now and in the future. Through their work in science, children will gain the knowledge and understanding to begin to make sense of phenomena and events in our world today.

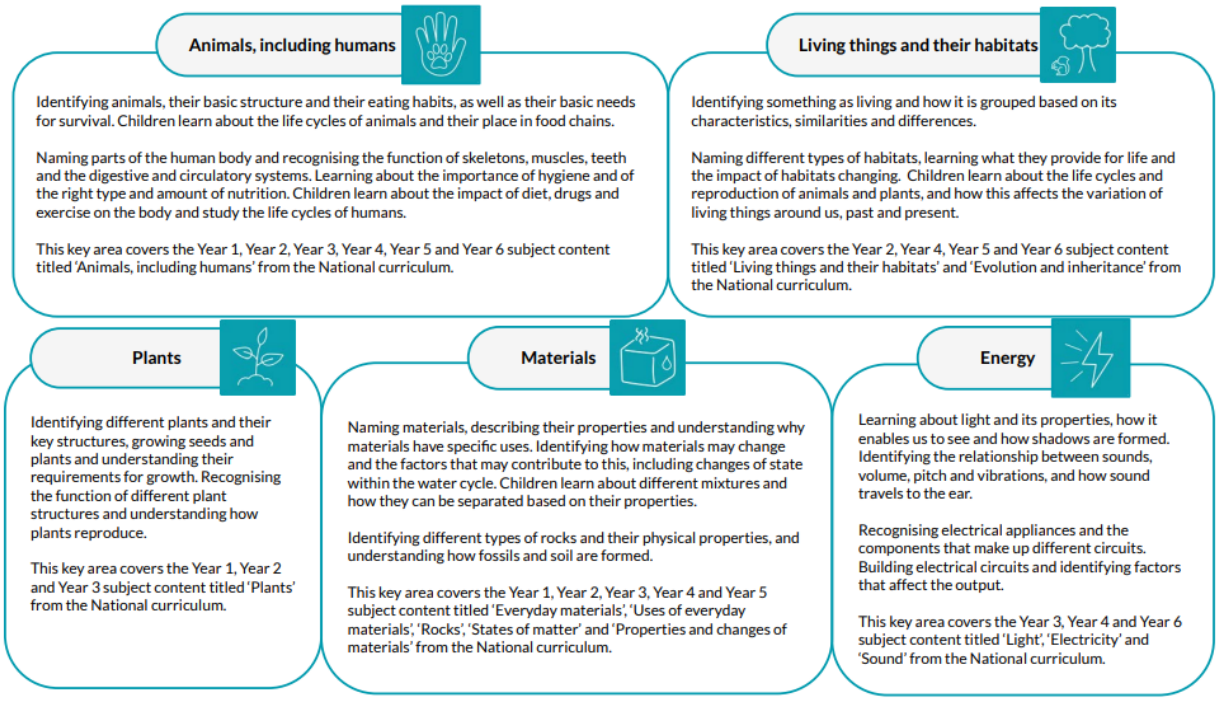
At Sacred Heart we value Science because;
- It makes an increasingly important contribution to all aspects of life
- All children are naturally curious about their environment and Science makes a valuable contribution to their knowledge and understanding of the world.
- It provides children with insights into the way science is applied and how science works in the community and it helps them to make informed decisions about scientific issues.
- It is important to enable children to actively learn by teaching them the skills they need to find answers to questions so as to increase their scientific knowledge.

The objectives of teaching science are to enable children to:

- ask and answer scientific questions using disciplinary knowledge of 'Working Scientifically'
- plan and carry out scientific investigations, using equipment (including computers) correctly;
- record and share our findings;
- reflect and correct any errors to ensure it is fair testing
- know and understand the substantive knowledge in the three strands of science – Biology, Chemistry and Physics;
- make links across the curriculum;
- use scientific vocabulary
- develop knowledge and appreciation of the contribution from scientists across the world
- develop a knowledge and drive for relatable STEM careers
- 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 regularly.
- 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.
- Meet the end of Key Stage requirements in the National Curriculum. EYFS pupils will have been exposed to knowledge and skills in the Early Years Framework, developing their Understanding the World awareness in order to meet the Early Learning Goals.

Implementation

To meet the requirements of the National Curriculum, we use content from PLAN, Ogden Trust, and STEM to plan our Science units. We will be exploring Kapow Science as content is made available throughout the year. Teachers adjust plans and activities to allow for cross-curricular, interactive and outdoor learning opportunities where deemed appropriate and valuable. We recognise that, in all classes, children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.



Science is taught discretely following the medium term plans delivered by our teachers. Each unit has 6 lessons that will progress the pupils' knowledge and skills by building on their previous knowledge through engaging, well-planned lessons. There are frequent opportunities for the pupils to make links with other strands of science and use scientific enquiry to ask relevant, pertinent questions. This will help the pupils to understand more about cause and effect and scientific processes that will enable them to know more and remember more about the world around them.

EYFS have the opportunity to develop an understanding of each of the science strands through the objectives in Understanding the World taken from Development Matters and The Early Years Framework. The pupils get to observe and discuss the 'The Natural World' and ask questions, using What… Why… When… Pupils will have the opportunity to discover and explore in child initiated activities in provision as well as have some adult-led tasks to complete to measure progress and understanding of each pupil.

We encourage the children to ask, as well as answer, scientific questions whilst making cross-curricular links. They have the opportunity to use a variety of mathematical skills, using data, such as statistics, graphs, pictures, and photographs. They use ICT in science lessons, where appropriate, to enhance their learning to make observations, analyse and evaluate their findings. They take part in active learning and discussions, and they present reports to the rest of the class, school or parents/guardians.

They engage in a wide variety of problem-solving activities. Wherever possible, we involve the pupils in real scientific activities, for example, investigating a local environmental problem, or carrying out a practical experiment and analysing the results. We enrich our science curriculum where possible with visitors and trips linked to the topics being studied in individual year groups.

Teachers adapt plans and activities to allow for cross-curricular, interactive and outdoor learning opportunities where deemed appropriate and valuable. The Long-Term plan shows the

progression of units from Year 1 through to Year 6. From this, Medium-Term plans are developed and created by the relevant year group teacher.

- Medium term planning is completed for each block
- Science is taught every week for a minimum of one hour
- Lessons are evaluated by class teachers and this is used to inform future teaching and learning
- We combine scientific study with work in other subject areas where possible making cross curricular links when possible
- ICT should be integrated into planning when possible including use of laptops, ipads, data loggers and database software etc.
- We have planned the topics in science so that they build on prior learning;
- Knowledge organisers are used to summarise the knowledge and facts of the unit which promotes discussion with parents and the chance to recall their embedded knowledge using subject specific vocabulary
- We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into our lessons shown clearly through the assessment guidelines provided by the science leader, so that the children are challenged as they move up through the school
- End of unit tests will be completed to assess secure knowledge retention

Inclusion

- Our inclusive approach and differentiation allows all children to learn regardless of race, gender, faith, culture or disability We select and use resources that positively reflect all of the above
- Inclusion for science is carried out in line with the school's policies for SEN, Equal Opportunities and the Disability Equality Scheme
- Planning and teaching and learning in science set high expectations for all children
- Science provides opportunities for all children to achieve including, boys and girls, children with SEN, children with disabilities, children who are G&T, children from all social and cultural backgrounds, children from different ethnic groups and those from diverse linguistic backgrounds
- Teachers are aware that children bring to school different experiences, interests and strengths that will influence the way in which they learn science
- Teachers will use a variety of teaching styles and strategies to meet the needs of all children in their science learning

Early Years

The Foundation Stage curriculum is based around the three Prime Areas and Four Specific Areas of learning, where science is included as an aspect of 'Understanding the World' and 'The Natural World' it often ensures that pupils meet the objectives in Communication and Language' as they are developing a wider vocabulary and talking about changes within life cycles or materials and the environment.

• Children are provided with a broad range of opportunities and experiences in science, enabling them to work towards all of the appropriate Early Learning Goals in the above areas.

They have practical, engaging and stimulating activities set up for the pupils to develop their enjoyment and enquiring minds.

• Children develop their understanding of the world around them on a daily basis, using their senses to explore and learn about objects and materials. They are encouraged to make observations of the changes that they see.

• Children are given holistic learning experiences, incorporating elements of science/experimental play in their everyday activities

Impact

As we are using an enquiry-based method, we will be able to use specific objectives throughout the Science curriculum and therefore teachers can then assess against the National Curriculum. However, assessment will be carried out during teaching and pupils will be supported and scaffolded in their learning so that they can reach the objective.

Our pupils will leave Sacred Heart as inquisitive and critical thinkers, confident, knowledgeable challengers and ready to study science at Key Stage 3. Pupils will be able to explain why we should look after our environment and why it is important to appreciate all aspects of our natural world.

The expected impact will be:

- Pupils will achieve the 'Understanding the World – Natural World' Early Learning Goal at the end of EYFS and the Science objectives will have been taught and embedded.
- To develop children's scientific knowledge and skills.
- To build resilience in seeing failed experiments as an opportunity to learn more and success as an opportunity to build on that knowledge to make further learning links.
- Pupils will have met the requirements of the KS1 and KS2 National Curriculum objectives.
- Name the three strands of science (Biology, Chemistry and Physics) and give examples of each.
- Understand how scientific experiments need to be controlled and 'Fair Testing' needs to be carried out.
- Develop an awareness for people who have made a significant scientific impact to the world and be aware of modern scientists, their findings and how they are affecting our daily lives.
- Children will become resilient, independent and curious scientists who ask questions and find things out for themselves.
- Children will be enthusiastic and motivated scientific learners.
- Outdoor learning will be utilised where appropriate for science lessons.
- STEM ambassadors and the wider community will support science learning through trips and visits on regular basis.
- Children will have an awareness of the full range of scientific careers and pathways available to them and will be keen to pursue STEM subjects at secondary school.

- Children develop a love and enjoyment of science.

The pupils will meet 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

Promoting Science

- School visits for science are organised where possible in line with the current unit of work, to enhance and extend learning
- Local resources, such as scientists from industry are used to support units of work where possible
- Each year the school participates in and celebrates Science Week
- All children to attend school visits - disability provision must be noted in Risk Assessment
- Science displays in classrooms promote scientific vocabulary to support children and celebrate their work in a range of ways
- Science displays around the school will celebrate children's work and evidence progression

Assessment for Learning

Assessment for science is carried out in line with the school policy.

- Observations of pupils at work, both individually, in pairs and within groups
- Questioning and listening to pupils
- Marking of any work pupils have produced
- Objective sheets are updated for individual pupils, kept in the front of each child's science book
- End of unit assessment, where progress is monitoring by recording the names of pupils who are above, below or meeting expectations in Skills and Knowledge and Understanding
- At the end of each academic year, Science assessments are uploaded to the school tracking system Sonar
- Within the Early Years Provision the children's learning will be recorded in floor books or as key observations on Class Dojo.

Monitoring

- Monitoring for science is carried out in line with the school monitoring policy
- Best practice for science is identified and shared amongst practitioners
- Next steps are identified to support teachers with how to further improve
- Samples of children's work will be collected

Health and Safety

Health and safety is in line with the

- Safe use of equipment promoted at all times
- Be Safe (ASE) is available for teachers on the shared drive
- Risk Assessment is included on plans to cater for children with disabilities, SEN or allergies

The role of the Subject Lead

At Sacred Heart Primary School, the Science subject leader will:

• Ensure the development of a progressive curriculum map, monitor its implementation and impact

• Promote the integration of Science within appropriate teaching and learning activities

• Manage the provision and deployment of resources and give guidance on classroom organisation support

• inspire colleagues to deliver high quality teaching and learning opportunities

• lead INSET within the school, and investigate suitable courses elsewhere

• Act as a contact point between the school and support agencies, including the LA

• Analyse data to identify strengths and weaknesses in outcomes; planning for improvement accordingly

• Write, monitor and evaluate an action plan for Science for the School Improvement Plan

• Lead the evaluation and review of the school's Science policy

• Monitor and review the science provision within the school

Policy to be reviewed in line with the review cycle, or sooner if needed.