St Peter's Roman Catholic Primary School

Science Policy

Mission Statement

This policy reflects our Mission Statement. We aim to provide education to all pupils in the Roman Catholic faith as well as children of other faiths and backgrounds from our catchment area. As a school community we observe the rites, practices and doctrines of the Roman Catholic Church. We take Jesus Christ as our model and the children are encouraged by word and example to live according to his Gospel in order to develop love and forgiveness, worship and prayer, truth and justice, freedom and tolerance, compassion and respect for others.

In keeping with the Catholic ethos of the school, we recognise that each child is a gift from God with his or her own abilities and needs. St Peter's RC Primary School is committed to meeting the medical needs of pupils and ensuring that they access full time education and are properly supported in school, so they can play a full and active role in school life and achieve their academic potential.

Science Statement of Intent

In Science, we aim to encourage all children to explore, enquire and investigate, confidently, to gain a deeper understanding of the world God created. It is our intention that children will engage in active science lessons using scientific equipment, making accurate measurements, conducting experiments, building arguments and explaining concepts confidently and that they ask questions and be curious about their surroundings. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. We aim to develop a real passion and love for Science in order that our children will transition to High School prepared for learning in KS3 and for later life with a love for Scientific enquiry and a real awareness of the world around them and the contribution that Science makes in our society. Science teaching at St Peter's will also fully support the school ethos as we aim to inspire awe and wonder of God's created world within all the children in our care.

Active Learning in Science

At St. Peter's, we are committed to engaging pupils in active, purposeful learning across all subjects. We believe that children learn best when they are fully involved in their learning. Physical movement, collaboration, and hands-on experiences help to deepen understanding, improve focus, and promote lifelong learning.

Wherever possible, we encourage lessons that allow pupils to get out of their seats - to move, think critically, explore, and interact with others both inside and outside the classroom. Across all subjects, and in Science, active learning strategies are embedded to

engage pupils, enhance progress, and make learning meaningful and memorable - supporting our simple but powerful approach: 'Sit less, move more and learn better!'

1.Aims and Objectives:

At St Peter's, we believe good Science teaching fosters a healthy curiosity in children about our universe and promotes respect and care for the earth and all living things on it. We aim to provide a program of Science learning so that the curriculum plan we have designed, will ensure children acquire and develop the key knowledge that has been identified within each unit, as well as progressively acquire and apply scientific skills to reach their full potential. As a school we recognise the need for all pupils to develop their scientific ability as an essential element of a broad and balanced curriculum and as a subject in its own right. We aim to prepare our pupils for life in an increasingly scientific and technological world so that they can understand how vital science is in today's society.

We aim to do this by –

• All staff delivering interesting and engaging lessons.

• Teaching cross-curricular links especially with Literacy, Maths and DT and computing.

• Developing and extending knowledge and understanding in the science topics we teach.

• Developing pupils' ability to work scientifically by inviting them to plan, carry out and evaluate investigations.

• Developing scientific vocabulary and using this appropriately in a variety of contexts.

• Ensuring all pupils are challenged to make good or better progress at their appropriate level.

• Encouraging a positive attitude to Science from both pupils and staff.

• Teaching the National curriculum for Science

The 2014 National Curriculum for Science aims to ensure that all children:

- *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 skills required to understand the uses and implications of science, today and for the future.*

Intended impact

The following learning outcomes are derived from the aims above and will assist us to evaluate our intentions for Science learning at St Peter's.

Children will:

• develop a knowledge and understanding of science and its processes

• develop a knowledge and appreciation of the contribution made by famous scientists to our knowledge of the world including scientists from different cultures

• relate their scientific studies to applications and effects within the real world

• show a curiosity and sense of awe in God's creation of the natural world

• develop a general sense of enquiry which encourages them to question and make suggestions

• predict the likely outcome of their investigations and practical activities.

• use a planned range of investigations and practical activities

• develop a greater understanding of scientific facts and concepts

• engage in a range of specific investigations and practical work which gives them a memorable experience to develop their understanding of science

• develop their ability to plan, carry out and evaluate simple scientific investigations and to appreciate the meaning of a "fair test"

• develop the ability to record results in an appropriate manner including the use of diagrams, graphs, tables and charts

• use scientific and mathematical language - including technical vocabulary and conventions - and draw diagrams and charts to communicate scientific ideas

• receive regular opportunities to use the scientific terms necessary to communicate ideas about science

• develop pupils' skills and their ability to make accurate and appropriate measurements, using a range of measuring equipment.

• receive opportunities to use technology to record their work and store results

• become independent learners and reach their potential in Science

2. Science curriculum planning

Statutory Requirements:

Statutory requirements for the teaching and learning of Science are laid out in, The National Curriculum in England (2014) and the statutory framework for the Early Years Foundation Stage.

Structure of Science throughout the school:

Planning for Science is a process in which all teachers are involved in to ensure that the school gives full coverage of, 'The National Curriculum' and, 'Understanding of the World' in the Early Years Foundation Stage.

Teachers carefully plan using the 4-year curriculum cycle document. This ensures progression between year groups and full skills and knowledge coverage as outlined in the national curriculum. Teachers have access to Lancashire planning units and key learning documents to support them in the delivery of Science lessons as outlined in the aims above and in section 3 below.

Early Years:

In the Early Years science is taught through the strand of, 'Understanding the World'. However, through science activities the children would also develop in the following strands of learning:

- Communication and Language
- Personal, Social and Emotional Development

Pupils explore science topics in various ways. Children are encouraged to be creative and inquisitive as they participate in activities. Pupils are encouraged to use their natural curiosity, while taking part in exploratory play in specific scientific area. They will learn to-

- Make comments about what they have heard and ask questions to clarify their understanding.
- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Key Stage One:

During Key Stage one, pupils observe, explore and ask questions. They begin to work together to collect evidence to help them answer questions and to complete basic research.

Pupils use various materials to find out more about how science works. They share their ideas and communicate them using scientific language, drawings and making models.

Key Stage Two:

Children are encouraged to extend the questions that they ask and answer about the world around them. Pupils carry out a range of independent and group based scientific enquiries including: observations over time, pattern seeking, classifying, grouping and researching using other sources.

3. Key features of Science teaching at St Peter's include:

- Lessons having clear learning objectives which are shared with the children.

• First hand practical experiences, where appropriate.

• Assessment for learning so that appropriate pace of learning and high expectations for all children including challenge for more able pupils and support and differentiation for those who struggle.

• Pupils' prior knowledge is revisited at the start of topics and additional lessons to cover this are planned, if required so that sticky/key knowledge is revised and secured.

• High standards of presentation are encouraged using different formats such as writing, diagrams, graphs and tables.

• Technology is used, where appropriate, to enhance learning.

• Where appropriate, the children are made aware of the importance and relevance of Science in today's society, including a focus on practical applications and contexts for their science learning at the end of each topic.

• Developing children towards becoming independent learners and the skills to work collaboratively.

• Using the outdoor environment, where possible.

4. Health and safety

All staff involved in Science lessons should be conversant with the school's Science risk assessment document which is based around the CLEAPSS safety guidance. Easy to find, activity based, advice can be found on https://primary.cleapss.org.uk/Resources/Doing-Things-Safely/

Individual class teachers must plan safe activities for Science and complete a risk assessment for activities if necessary. All staff must be aware of health and safety procedures when using food/equipment in the classroom. Safety hazards must be pointed out to the children. Pupils must be aware of the need for personal safety and the safety of others in lessons.

5. Assessment of science:

Pupils work will be assessed in accordance with the school's assessment policy. Teachers assess children's work in Science by making informal judgements as they observe pupils during lessons. Also, on completion of a lesson, the teacher marks and reviews the children's work and can further assesses a pupil's understanding and learning in each lesson, these observations are recorded by the teacher in their marking book. Feedback is given verbally to pupils from previous lessons and any misconceptions dealt with at the start of each lesson. At the end of a topic, a summative judgement is made is using Key/sticky learning grids for each topic for knowledge and scientific skills. Objectives for each unit are placed onto assessment sheets and teachers record whether children are working below, or above these objectives, unnamed pupils are at the expected levels. Children exceeding criteria will be provided with extension activities and those who are assessed as working below will be given extra support during the following unit.

At the end of each year, the teacher makes a summary judgement of both the scientific knowledge and ability to work scientifically of all children and will give them one of the following assessment levels for each year group.

• Mastery – pupils are consistently working above year group expected levels and show a deeper understanding of Scientific concepts and working.

• Secure – pupils are working at an appropriate ability for their year group and are able to recall and explain all key knowledge and demonstrate appropriate scientific skills.

• Developing – pupils are mostly working within an appropriate level for their age group and are able to recall most key learning but a few Science concepts, skills, knowledge and understanding within their year group are not quite secure.

• Emerging - pupils are starting to recall some key learning and use some of the skill appropriate for their age group.

Below – Pupils are struggling to access and understand Science learning from their year group.

These assessments are monitored and reviewed by the Science leader on a termly basis so standards in Science can be evaluated.

6. Equal opportunities

At St. Peter's, we teach Science to all children, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Science teaching, we provide learning opportunities that enable all pupils to make good progress. We recognise, however, that there are children of different abilities in all classes, so we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.

We achieve this in a variety of ways by:

• Setting open-ended tasks which allow children to respond at their own level;

• Setting tasks of increasing difficulty (not all children complete all tasks);

• Grouping children by ability in the room and setting different tasks to each ability group;

• Providing resources depending on the ability of the child;

• Using classroom assistants to support the work of individuals or groups of children.

We strive to meet the needs of those pupils with special educational needs, those with disabilities, Gifted and Talented pupils, and those learning English as an additional language. We take all reasonable steps to achieve these goals. We recognise the importance of ensuring that children with identified Special Educational Needs and/or Disabilities have access to an ambitious Science curriculum. Within the curriculum area of Science, SEND children will be provided with reasonable adjustments through their tasks and level of challenge provided. Advice can be sought from the school's SENCO where applicable.

Equal Opportunities Curriculum planning will ensure that all pupils have an equal opportunity to take part in the full scheme of work and its associated practical activities regardless of gender or cultural background. Gender stereotypes will be challenged when they arise and the context in which Science is taught will be monitored to ensure the interests of both boys and girls are maintained. Contexts used in teaching will also be sensitive to different ethnic and religious backgrounds and both gender and cultural differences will be reflected positively in the teaching materials used.

7. Curriculum Leadership

The Science leader will ensure that the monitoring and development of the subject is maintained at a high standard by

• monitoring teaching and learning of Science across school;

• undertaking discussions with pupils;

• conducting learning walks and book monitoring to observe the coverage of Science (some aspects of Science may be recorded in other ways such as videos in evidence folder on See Saw)

• analysing the data collected from each class to ensure good, if not better, progress is being made at child, year group and whole school level and taking relevant actions and interventions or providing teacher training if not.

• providing guidance to colleagues as needed;

• assisting with maintaining and replenishing resources that are required within the budget;

• assisting staff to implement assessment throughout school;

• ensuring that the Schemes of Work allow for progression across school;

• keeping up to date with changes or new initiatives that would support the development of Science at St. Peter's School;

• prepare reports on the above to inform the school's Governors;

• formulate an Action plan each year to ensure the provision of Science at St. Peter's remains current, relevant and of the highest possible quality;

• review this policy every 3 years.

8. Spiritual, Moral, Social and Cultural Links to Science

The **spiritual development** of pupils is shown by their:

- Appreciation, care and custodianship for God's world.
- sense of enjoyment and fascination in learning about themselves, others and the world around them
- use of imagination and creativity in their learning

- willingness to reflect on their experiences.

The **social development** of pupils is shown by their:

- willingness to participate in a variety of communities and social settings, including by volunteering, cooperating well with others and being able to resolve conflicts effectively.
- learning about themselves and the variation amongst individuals. They learn about health and hygiene.
- development of informed attitudes to many topical issues. By doing so, children can begin to develop mature, responsible opinions and values.

In science, opportunities should be taken to discuss aspects of environmental awareness with the aim of developing responsible attitudes to waste disposal, resource depletion, wildlife conservation etc. Pupils also have the opportunity to investigate living things and a respect for all organisms should be taught.

The **cultural development** of pupils is shown by their:

- understanding and appreciation of the wide range of cultural influences that have shaped their own heritage and that of others.
- willingness to participate in and respond positively to outdoor, artistic, sporting and cultural opportunities.
- interest in exploring, improving understanding of and showing respect for different faiths and cultural diversity, and the extent to which they understand, accept, respect and celebrate.

9. Resources:

Science resources are kept in the hall cupboard. The resources are clearly labelled. Staff are to notify the Science leader if any resources are broken or missing and also when supplies are running low. The Science leader should be notified of any necessary resources not found in the Science resource cupboard. It is each member of Staff's responsibility to return, safely store and tidily put away any resources they use from the cupboard.

10. Wider opportunities and Cross-Curricular Links

Science will be taught discretely, however, cross curricular links especially with use of the local and wider environment are encouraged. Each year enrichment experiences are organised by teachers and the senior leadership team, to enhance Science and enrich teaching, this can include, external visits (including residentials), expert visitors, and outdoor learning experiences. Through these experiences, children gain the understanding that science has changed our lives and that it is vital to the world's future prosperity and the possibilities for careers in science. We ensure that children have access to positive role models within the field of science from the immediate and wider local community. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving.

11. The Governing body:

Regular reports are made to the governors on the progress of Science provision. The policy will be reviewed every three years or in accordance with any changes to legal requirements.