St John's CE VA Primary School

Science Policy

"The best educated human being is the one who understands most about the life in which he is placed."

– Helen Keller

At St John's we are: Loved by God - Learning with Jesus - Living by the Spirit.

1 Introduction

A high quality science education provides the foundations for understanding the world around us through the disciplines of biology, chemistry and physics. Science teaching helps us to prepare children for life and to discover more about how the world works and our responsibilities within it.

Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation. They should learn to deepen their respect, care and appreciation for the world and to develop a sense of excitement and curiosity about natural phenomena.

At St John's, we aim to provide our children with first hand experiences, which allow them to observe, question, investigate, make sense of and evaluate their findings.

This policy reflects St. John's values and philosophy in relation to the teaching and learning of science. It sets out a framework within which teaching and non-teaching staff can work, and gives guidance on planning, teaching and assessment. The policy also facilitates how we, as a school, meet the legal requirements of the Education Acts and National Curriculum 2014.

2 Aims and objectives

From the National curriculum 2014:

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 John's we aim for all pupils to:

- know and understand key scientific concepts from the three key branches of science (biology, physics and chemistry)
- be curious about things they observe in the world around them
- think independently and develop a questioning and reflective mind
- be able to work scientifically and take the initiative in planning and carrying out investigative work
- evaluate evidence and present logical conclusions which are demonstrated in high quality verbal and written explanations
- develop a respect for living things and the environment, and for their own health and safety
- develop a passion for science and its application in past, present and future technologies
- understand the role that key scientists have played in societal advances
- be able to make links with other areas of the curriculum in their science learning

3 Roles and Responsibilities

The Science co-ordinator will:

- be enthusiastic about science and demonstrate good practice
- highlight areas for development within the school development plan and regularly inform the head teacher of progress being made
- review the Continuing Professional Development needs of all the staff and provide suitable training opportunities with the support of the Senior Leadership team
- encourage and support staff in the implementation of the curriculum and school approaches to science teaching
- co-ordinate assessment procedures and record keeping to ensure progression and development throughout the school
- monitor the teaching and learning of science throughout the school
- organise and review all science-based resources, ensuring they are readily available and maintained

The class teacher will:

- develop pupils' science capabilities in accordance with school policy
- provide a range of hands-on, practical experiences
- monitor and evaluate pupil's experiences

4 Teaching and Learning

At St John's our Science programme of study satisfies the National Curriculum 2014 requirements. We recognise the importance of enabling all children to experience a range of scientific activities in ways that are appropriate to their needs and abilities.

Our principal aim is for children to develop a strong understanding of the world around them through enquiry. We want them to be explorers in knowledge where they discover and use their own learning style to propel them forwards. We encourage children to engage actively and creatively with challenges, problems and questions, often in collaboration with other students or with staff and supported where necessary. We provide learning challenges, which are 'rich', and often open-ended, allowing children to contribute different individual experiences, responses and solutions.

5 Science curriculum planning and organisation

Our school curriculum is developed from the National Curriculum 2014 programmes of study for Key Stage 1/2 and the EYFS Framework in the Foundation Stage. We also use Chris Quigley's concept of Milestones to structure and describe progression within science (which is based on the National Curriculum). Milestones run in two-year increments and include the knowledge our children need to understand and create connections between the Threshold Concepts or the Big Ideas, creating a mental intra-curriculum, where science objectives and ideas are connected with the rest of the curriculum. This enables cross-curricular teaching to take place, which helps to deepen understanding of scientific concepts and ensures that all learning is meaningful for our children. Pupils in the Foundation Stage work towards achieving the Early Learning Goals in 'understanding the world'. Teachers plan specific topics that build upon and develop children's own interests and curiosity about the world.

Teachers at St John's use a range of resources to plan science lessons. We use Medium Term Plans (with objectives taken from the National Curriculum), PSTT resources and Chris Quigley plans. This range of resources ensures that there is breadth of study as well as opportunities to 'Work Scientifically'. Our pupils learn to use a variety of approaches to answer relevant scientific questions by collecting, analysing and presenting their findings. Children will use different types of enquiry throughout each year such as observing over time, pattern seeking, comparative and fair testing, predicting and evaluating findings.

Scientific vocabulary is taught at the start of each unit of work to enable children to articulate concepts clearly and precisely. The teaching of science at St John's may be as a whole class, in small groups or individual work. Each science lesson is planned so that it builds upon prior learning and progression is built into the curriculum so that children are increasingly challenged as they move through the school.

6 Curriculum Enrichment

We aim to ensure that children have access to a wide range of scientific opportunities. We do this through:

- celebrating National Science Week and taking part in STEM competitions
- inviting STEM ambassadors to deliver talks and workshops to inspire learning
- 'Super Scientists'. Pupils across the whole school are introduced to an eminent scientist within each unit of work. They study their work and achievements and learn that scientists come from a range of spheres and backgrounds.

7 Equal Opportunities and Inclusion

All children have equal access to the full Science Programme of Study that satisfies the National Curriculum 2014 requirements. It is important for all children to experience a range of scientific activities in ways that are appropriate to their needs and abilities. Children are always supported according to need and when required, with an ultimate aim of independence. The school also uses a wide range of visual and kinaesthetic resources to support and facilitate whole class teaching and learning.

8 Assessment

Assessment is an integral part of teaching and learning and is a continuous process. Assessment happens continually through Assessment for Learning (AfL) and is a key tool allowing teachers to understand where children are with their learning. Assessment at St John's is both formative and summative. Teachers provide children opportunities to assess key knowledge and vocabulary at the start and end of a topic.

Teachers may also deliver end of topic Proof of Progress (PoP) tasks that monitor development and highlight any specific gaps that children may have. We also collect assessment data three times a year using Insight Tracking. Teachers assess children against the objectives of The National Curriculum and state whether each child is Approaching, Meeting or Exceeding the expected standard of their relative Milestone in science.

9 Health and safety

All science lessons at St John's are planned and taught with pupil safety as a priority. Teachers carry out the appropriate risk assessments before practical activities, identifying potential hazards and taking steps to minimise risks. This includes checking equipment, using age-appropriate resources and following DfE (Department for Education), ASE (Association for Science) guidance where applicable, ensuring activities are suitable for the pupils' developmental stage.

Clear instructions and demonstrations are given and safe working practices are reinforced, where applicable, throughout the lesson such as hair tied back, latex gloves, no loose clothes or jewellery, clear desks etc. Pupils are supervised at all times, with class sizes and groupings

carefully managed by teachers during the planning of the lesson and in the Science lesson itself.

Any necessary safety equipment, such as goggles or gloves, is provided and used correctly. Teachers model safe behaviour and ensure pupils understand how to handle equipment responsibly. Any accidents or near misses are dealt with in line with the school's health and safety and safeguarding policies and reported appropriately.

10 Monitoring and review

The science curriculum is monitored by the science co-ordinator through staff meetings, observation of teaching, monitoring of medium term plans, children's work, pupil voice and analysis of data. The science co-ordinator ensures science plans are progressive and provide a deeper level of challenge as children move up the school. The science co-ordinator should be aware of current developments and feed such information back to staff through regular CPD sessions.

This Policy is fluid and will be reviewed at least every two years; or earlier if required, in line with government legislation. The St John's CE VA Primary School Governing Body: Curriculum Committee is responsible for the monitoring and ratification of this Policy.

11. Responsibilities of the Governing Body

As well as fulfilling their legal obligations, the governing body should also make sure that:

- all pupils make progress in achieving the expected educational outcomes;
- the subjects are well led, effectively managed and well planned;
- the quality of provision is subject to regular and effective self-evaluation;
- teaching is delivered in ways that are accessible to all pupils with SEND;
- clear information is provided for parents on the subject content and the right to request that their child is withdrawn;
- the subjects are resourced, staffed and timetabled in a way that ensures that the school can fulfil its legal obligations.
- the religious ethos of the school is maintained and developed.

12. Linked Policies

Due to the focus and purpose of this policy, there are also direct and intrinsic links to the following:

- Behaviour and Discipline Policy
- Anti-Bullying Policy
- Online Safety Policy
- Safeguarding Policy

- Collective Worship Policy
- SMSC Policy
- SRE Policy
- Equalities Policy
- Science Policy
- RE Policy
- PE Policy
- SEN Policy

Please also refer to those named policies for more comprehensive information.

Signed:
H Sheehan

Science Lead

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