



**St Mary's RC
Primary School**

Science Policy 2020-21

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Introduction

Definition of Science

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us.

Rationale

We believe that all pupils at St Mary's School must have regular access to science appropriate to their age and stage of development and that emphasis should be given to this as a core subject.

Aims

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for, our environment.
- Helping our children acquire a growing understanding of scientific ideas.
- Helping develop and extend our children's scientific concept of their world
- Developing our children's understanding of the international and collaborative nature of science.
- Developing children's independent questioning skills and fostering a curiosity to explore unknown concepts.

National Curriculum

Science is a core subject, broken down into knowledge and conceptual understanding and scientific skills for each year group.

Our role is to teach scientific enquiry through the contexts of knowledge based units. The breadth of study statement in the National Curriculum is concerned with issues such as the use of ICT, scientific language and health & safety.

Equal Opportunities

Science is taught within guidelines of the school's equal opportunities policy.

- We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- We draw examples from other cultures, recognizing that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences by encouraging the use of questioning and explanation from observation.
- In our teaching, science is closely linked with literacy, mathematics and Computing.

- We recognize the particular importance of first-hand experience for motivating all children inclusive of those with learning difficulties.
- We recognize that science may strongly engage our gifted and talented children, and we aim to challenge and extend them.
- We exploit science's special contribution to children's developing creativity: we develop this by asking and encouraging challenging questions and encouraging original thinking.
- Children with Special Needs are taught within the guidelines of the school SEND policy.

Methodology

Time

KS1 and foundation stage teachers should be teaching science for a minimum of 1 hour each week. KS2 teachers should be teaching science for a minimum of 1.5 -2 hours per week.

Teaching and Learning

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of National Curriculum science and science in the Foundation Stage. Science teaching in the school is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances of our school and the pupils. Science is taught within the guidelines of the school's teaching and learning policy. The manner in which Science is delivered in school is further pertinent to the needs of our children through the use of our REACH strapline which underpins everything we do. Teachers use the five elements of REACH proactively in both their planning and on the spot within lessons to help develop the key strands of REACH. Children are encouraged to notice when they are developing these and are positively and consistently acknowledged when having done so. The use of REACH is embedded throughout school and enables children to take ownership of their own directional thinking in Science.

Planning, Continuity and Progression

The school follows a two year rolling programme which constitutes the long term plan. The units taught are planned using the Lancashire Science Unit Guidelines to match the needs of the pupils. Teachers are expected to adapt and modify the model plans to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available. We must ensure that any modification does not overlook key scientific skills and key knowledge covered. Lancashire KLIPs are used to assess children on their science skills and key knowledge appropriate to the year group. The units are changed on a half termly basis and follow the rolling programme. This ensures progression between year groups and guarantees topics are revisited. (See appendix for units of work). Generally, one unit of work is taught each half term.

Units on Life and Living Processes are commonly taught in the spring and summer terms. Because of mixed-age classes in the school, some units may be taught out of their year group order and so plans are adapted to suit the needs of the pupils. The two year rolling programme however, ensures over their seven year journey children do not gain

learning gaps in their knowledge and conceptual understanding. The 'Working Scientifically' skills are always taught year group specifically to ensure progression and application to the content taught.

Medium term plans are adapted by the teachers and are done on a half termly basis prior to the unit of work being taught. All medium term plans must have a clear focus on teaching and assessing pupils on a focus of scientific enquiry. The focuses of enquiry are as follows:

- Planning/Testing
- Using equipment & measures
- Considering results/ writing conclusions
- Exploring/observing
- Grouping/Classifying
- Questioning
- Researching
- Modelling
- Collaboration

Medium term plans are handed in to the science co-ordinator after each unit of work. At the start of each unit, a cover sheet is placed in all pupils' books which shows the topic title, key vocabulary, the key scientific skill to be taught which is appropriate to the child's year group and the key knowledge for that unit.

Lesson plans should include: a WOW starter activity to engage the children or to revise old knowledge and concepts; a main teaching focus with clear objectives for enquiry and knowledge; a plenary and key vocabulary.

Vocabulary on the lesson plan should be explicitly taught and evidence of application should be found throughout the unit in both children's independent work and verbal understanding within lessons.

At the end of the unit of work, teachers assess each pupil in an area of enquiry and this is recorded on a group pupil assessment document and kept in a science cohort tracker file. At the end of each term, the assessment data for each pupil is put into the school's Lancashire Tracker and is used to monitor pupil progress.

Health and Safety

Science is taught within the guidelines of the school Health & Safety Policy. Science should use both the indoor and outdoor school environment and teachers have the responsibility for ensuring the Health & Safety of pupils, following the guidelines in the 'Safe' publication and in accordance with CLEAPSS. Children are encouraged to be involved in being responsible for their own health & safety.

Cross Curricular Links

Science is closely linked to Design Technology units and where possible, the two subjects are taught together.

Computing is widely used in science to measure via data logging equipment, to observe through the use of digital microscopes, to record observations and to report results in various formats.

Science has close links with literacy especially when communicating and collaborating, through speaking and listening activities such as group discussion and debate, and also in the application specific scientific vocabulary and the writing of investigations.

Science can aid the application of maths in the real world and is closely linked to units on measuring and data handling.

Key Skills

- Giving our children an understanding of scientific processes.
- Helping our children to acquire practical scientific skills.
- Developing the skills of investigation – including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Developing the use of scientific language, recording and techniques.
- Developing the use of ICT in investigating and recording.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

Differentiation

All lessons are differentiated according to ability to enable children to achieve their potential and to demonstrate progression in both knowledge and scientific enquiry.

Assessment

We use assessment to inform and develop our teaching.

- Topics commonly begin with an assessment of what children already know. This is often formative and teachers use their professional judgement to plan accordingly.
- We assess for both scientific knowledge and enquiry. Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. At the end of each unit of work children are involved in assessing their own progress by reviewing key vocabulary and evaluating the skill which they have been taught.
- We mark each piece of work positively, making it clear verbally, or on paper, where the work is good, and how it could be further improved. Children's work is compared with model answers to determine its level. Assessment records are reviewed termly and are used to update the Lancashire school's pupil tracker for each cohort. Marking is within the guidelines of the school marking policy.
- We have a tracking system to follow and accelerate children's progress. The school science coordinator monitors progress through the school by sampling children's work at regular intervals and pupil interviews. Children who are not

succeeding, and children who demonstrate high ability in science, are identified and supported.

- The school uses Lancashire guidelines and exemplification documents. Equally important is the continuous assessment of children's work, much of which is informal. This assessment is used to inform teaching throughout the school.
- The Y2 and Y6 staff assess children's level of attainment at the end of both the KS1 and KS2 programmes of study. This teacher assessment is based on assessment records and work samples. Age related expectations in scientific enquiry, life processes and living things, materials and their properties and physical processes are reported to parents and the LEA as part of the statutory assessment.
- Reports to parents are written once a year, describing each child's attitude to science and his/her progress in scientific enquiry and understanding of the content of science.

Review

This science policy will be reviewed by the science coordinator and the senior management team.

Reviewed September 2020

Date of next review of this document September 2021