

St. Clare's Catholic Primary School Science Policy



Member of staff responsible: Mrs R Noonan
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MISSION STATEMENT St. Clare's is a Christ-centered family where everyone is valued and respected. We learn and grow, whilst strengthening our relationship with God and one another. Together in His love, we can achieve our full potential.

Play, learn and grow together with Christ.

2. AIMS

The aims of Science in this school are set out below and are reflective of the school's mission policy, along with the National Curriculum:

- develop an enquiring mind
- develop and nurture an interest in Science
- develop scientific knowledge and conceptual understanding
- 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 making full use of nature areas and school grounds
- to be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

3. STATUTORY REQUIREMENTS

The National Curriculum for Science in England 2014 states the following:

Scientific knowledge and conceptual understanding

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school),

build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils' engagement with and motivation to study science.

The Nature, Processes and Methods of Science

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Spoken Language

The national curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum - cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their scientific vocabulary and articulating scientific concepts clearly and precisely. They must be assisted in making their thinking clear, both to themselves and others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School Curriculum

In order to achieve these aims and to ensure all areas of the Curriculum are met the teachers are following the scheme of work outlined in by Lancashire County Council 2014. Within this, the programmes of study for science are set out year-by-year for key stages 1 and 2 and are linked to other areas of the Curriculum in order to develop cross curricular studies.

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

'Working scientifically' is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

The National Curriculum for Science in England 2014

Within Key Stage 2 the curriculum has been split into lower (years 3 and 4) and upper (years 5 and 6) key stages.

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

'Working scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of

time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

'Working and thinking scientifically' is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.

Pupils should read, spell and pronounce scientific vocabulary correctly.

The National Curriculum for Science in England 2014

In Reception, Science is planned and taught to meet the requirements set out in the Early Years Foundation Stage document (EYFS). The science elements of the EYFS are within the area of 'Understanding the World', however all areas of the Foundation Stage curriculum are link and taught alongside each other.

'Understanding the world' involves guiding children to make sense of their physical world and their community through opportunities to explore, observe and find out about people, places, technology and the environment.

4. SUBJECT ORGANISATION

Subject Planning and Evaluation

Planning follows the Statutory requirements from the National Curriculum and the plentiful resources from the Lancashire plans. We at St Clares have tailored the areas of learning to suit the needs of our school year groups and stream lined our objectives ensuring a broad and balanced curriculum showing clear progression and development. Lessons should be

challenging and engaging for all pupils and make good use of our outside space where applicable. Assessment for Science is of high importance and follows the same format as maths and English. Pupils are assessed after each objective.

5. APPROACHES OR METHODS

Class Organisation and Teaching Styles

Within classes pupils are taught individually, as groups or as a whole class when appropriate. It is recognised that through group work, co operation, communication and collaboration are promoted, but to ensure effective differentiation, match and assessment, children may be required to work individually on occasion.

Pupils receive direct teaching in relation to scientific knowledge and skills and are provided with problems and challenges so they have the opportunities to apply their understanding and test their ideas. Childrens' scientific thoughts are extended through relevant visual programmes, ICT and other cross curricular links, along with educational visits were possible.

The subject requires the provision of a range of equipment and materials to enable children to investigate the world around them. Teachers should allow the children to select their own equipment from time to time, provided the pupils are aware of any health and safety issues.

The curriculum needs to be organised to meet the needs of individual pupils, their age and ability.

6. ASSESSMENT AND TARGET SETTING

Attainment

Assessment is weekly and used to inform future planning and to provide information about individuals throughout their time in the school. Assessment techniques will ensure that teachers assess the investigative process and not simply the final outcome.

These techniques should include:

- teachers' observations of pupils
- teacher-pupil discussion and questioning
- pupils' work produced
- pupils' ongoing analysis of their achievements
- photographs of children involved in the investigation process
- use of ICT as appropriate

When reviewing the pupils' progress in Science, teachers must consider the children's:

- ability to turn a question into a form that can be investigated
- ability to recognise the need to control variables to conduct a fair test
- ability to select and use appropriate equipment safely and effectively
- accuracy in terms of observing and measuring
- ability to select an appropriate way of recording and presenting data
- ability to interpret results and draw conclusions
- interest and motivation in Science.

End of Key Stage assessments occur in Year 2 and 6.

Reporting Progress

Teachers use their assessment to inform planning and set targets. Children's individual progress and achievements in Science are shared with parents in the form of a written report at the end of the year. Furthermore each teacher meets with the next teacher to discuss each child's progress, successes and areas for development.

7. SPECIAL EDUCATIONAL NEEDS

Inclusion

In planning and delivering the Science curriculum, teachers must ensure all children experience effective learning opportunities. To meet the specific needs of individuals, attention must be given to:

- setting suitable learning challenges

- responding to pupils' diverse learning needs
- overcoming potential barriers to learning and assessment for individuals and groups of children.

Equal opportunities

It is the responsibility of all the teachers to ensure that all pupils, irrespective of gender, ability (including gifted and talented), ethnicity and social circumstance, have access to the curriculum and make the greatest progress possible.

Special Educational Needs

All pupils will have access to a broad, balanced curriculum, which includes Science, and have opportunity to make the greatest progress possible.

8. ROLE OF SUBJECT LEADER:

The teacher responsible for leading Science is Mrs Rachel Noonan and her role is described in her job description. This may include the following:

- plan work with teachers
- review and contribute to teacher planning
- prepare a policy and scheme of work
- develop the policy and scheme of work with staff
- prepare a subject development plan
- lead staff meetings
- plan and lead inset activities
- provide guidance, advice and skill
- in class teaching support
- specifying and ordering resources in consultation with staff
- monitoring and maintaining condition and availability of resources
- monitoring teaching and learning in Science.

The leader is able to monitor teaching and learning through monitoring teachers' planning, displays, work scrutinies, learning walks and lesson observations.

9. CONCLUSION

This policy also needs to be in line with other school policies and therefore should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment and Record Keeping
- Responding to pupils' work / Feedback / Marking policy
- Special Educational Needs Policy
- ICT Policy
- Equal Opportunities Policy
- Health and Safety Policy