



SSMJ POLICY FOR

Science

Following the example of Jesus, together we learn, love and respect one another to be the best we can be.

Written by: M Duckworth

Role: Science lead

Date policy agreed: October 2023

Policy reviewed: September 2025

Date to be next reviewed: September 2028 (or earlier as required)



“Following the example of Jesus, together we learn, love and respect one another to be the best we can be,”

Science Policy September 2025

Contents

1. The Purpose of Study in Science
2. Aims
3. Subject Statement (Intent, Implementation and Impact)
4. Teaching and Learning
5. Assessment
6. Planning and Resources
7. Organisation
8. EYFS
9. KS1 and KS2
10. Equal Opportunities
11. Inclusion
12. Role of the Subject Leader
13. Parents

1. The Purpose of studying Science:

At SSMJ we follow the National Curriculum Programme of Study for Science. Our science lessons consider the children's interests, as well as the context of the local area. The science curriculum at SSMJ is carefully planned and structured to ensure that current learning is linked to previous learning and that the school's approaches are informed by current pedagogy.

2. Aims:

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. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability. In line with the national curriculum 2014, the curriculum at SSMJ aims to ensure that all pupils:

- Are prepared for life in an increasingly scientific and technological world.
- Foster concern about, and active care for, our environment.
- Acquire a growing understanding of scientific ideas.
- Develop and extend scientific concepts of their world.
- Develop an understanding of the international and collaborative nature of science.
- Make connections and draw contrasts from prior learning.

Attitudes

- Develop positive attitudes to science.
- Build on their natural curiosity and developing a scientific approach to problems.
- Show open-mindedness, self-assessment, perseverance and responsibility.
- Show self-confidence to enable them to work cooperatively with others.

- Accrue an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills

- Gain an understanding of scientific processes (these involve careful observation, the formulation of a hypothesis and the use of skills such as classifying, measuring, inferring and predicting).
- Acquire practical scientific skills.
- Develop the skills of investigation – including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Develop the use of scientific language, recording and techniques.
- Develop the use of ICT in investigating and recording.
- Become effective communicators of scientific ideas, facts and data.

3. Subject Statement

Intent:

Science is held in high regard at SSMJ. The teaching of science allows children to appreciate, understand and utilise our unique local environment, namely the school field and garden, as well as the near locality of Clitheroe Castle and Salt Hill Quarry, which may be used for a variety of scientific investigations. The Science curriculum at SSMJ makes full use of resources within the immediate and wider local area, including the school field and local area, enabling children to develop a deep understanding of the environment within their locality, making links, where possible, with our faith, which is at the heart of our curriculum.

‘But God made the earth by his power; he founded the world by his wisdom and stretched out the heavens by his understanding.’ Jeremiah 10:12

Implementation:

Science is taught in blocks throughout the year, so that children achieve depth in their learning. Key knowledge and skills have been identified and distributed to teachers to ensure progression across lessons and units of work, throughout each year group and across the school. By the end of year 6, children will have a scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. They will show 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. The children will be equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Cross curricular outcomes in Science are specifically planned for with strong links between the Science curriculum, English, maths, computing, art, design and technology. The local area is also fully utilised to achieve the desired outcomes with extensive opportunities for learning outside the classroom embedded in practice such as regular use of the school garden and field as well as trips to the castle. Planning is in line with the national curriculum. Teachers' lesson design is informed by national agencies e.g. through the school's membership of the Association for Science Education (ASE) and the PLAN (Planning for Assessment) website for exemplar work as well as assessment guidance. Consideration is given to provision for our most able children as well as support for SEND children in line with the school's commitment to inclusion. Outcomes of work are regularly monitored to ensure that they reflect a sound understanding of the key identified knowledge.

The Early Years Foundation Stage (EYFS) follows the 'Development Matters in the EYFS' guidance which aims for all children in reception to have an 'Understanding of the World; people and communities, the world and technology' by the end of the academic year. It is further supported by the Lancashire Document 'EYFS: A Framework to Support Curriculum Planning'

Impact

Outcomes in Science, English and maths books, alongside work in other subjects such as computing and design technology, evidence a broad and balanced science curriculum and demonstrate the children's acquisition of identified key knowledge. There is also an extra emphasis on the creation and use of graphs and tables to support children moving on to high school. Children review the agreed successes at the end of every session and are actively encouraged to identify their own target areas, with support from their teachers.

Emphasis is placed on scientific enquiry and questioning which helps pupils ask their own questions and make decisions as to which approach would best suit their enquiry question (observation over time, identifying and classifying, pattern seeking, research or comparative and fair testing.)

Through this study, pupils learn to ask perceptive questions, think critically, weigh evidence, sift arguments, and develop perspective and judgement. Our science curriculum also engages members of the community in children's learning and provides positive role models from the community for children to learn from.

4. Teaching and Learning

Across the whole school, there are four main scientific learning strands that the children will explore over the course of their education at SSMJ:

- Physics;
- Biology;
- Chemistry; and
- Earth Science.

These are over-arched/ under-pinned by the scientific enquiry strand of learning.

As pupils develop these skills in a range of contexts, so too will they develop the ability to be independent learners, using the key scientific skills they have gained to analyse, question and compare sources of evidence to form their own judgements and answers. Learning from these strands helps children to foster

an enthusiasm and sense of curiosity about the world around them, encouraging pupils in their first steps towards being life-long learners.

The learning intention for each lesson is taken from the national curriculum 2014 and children are guided towards this within each lesson through the use of a success criteria. Teaching and learning in science is supported by a variety of resources, including links with local schools (both primary and secondary), BBC Primary Science, Developing Experts, Lancashire County Council's Key learning, End of Year Expectations and the Association for Science Education (ASE) online platform as well as the PLAN website. Outdoor learning is planned for throughout the school and programmes of work are embedded with key knowledge, which itself has been mapped, along with key skills, to support effective assessment and ensure progression across the school.

5. Assessment:

The National Curriculum states that:

'Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.'

Children's attainment is assessed and recorded at the start and end of each unit of work and year using the school progression documents which have been created using guidance from the ASE and PLAN websites (see separate document). This is used in conjunction with the Lancashire Key Learning document (progression in knowledge, skills and understanding.) Assessment at the start of the topic is done through elicitation of knowledge using a variety of methods such as discussions, annotated diagrams, use of mini whiteboards, word definitions, KWL grids, quizzes (BBC Bitesize) and concept cartoons. Assessment at the end of the unit is completed through the use of the recommended activities on the PLAN knowledge matrices as well as the working scientifically matrices.

Assessment for learning is continuous throughout the planning, teaching and learning cycle. Key scientific knowledge is taught to enable and promote the development of children's science enquiry skills. Assessment is supported by use of the following strategies:

- Monitoring and observation;
- Differentiation;
- Quality questioning
- Providing effective feedback
- Assessment

(See our teaching and Learning Policy for more detail.)

Children are involved in the process of self-improvement, recognising their achievements and acknowledging where they could improve. KS2 children also complete end of topic assessments. The school science coordinator monitors progress through the school by sampling children's work at regular intervals (minimum of once every half term, ideally every 3 weeks). For more detail, refer to the full Assessment policy. The subject leader also develops a portfolio of work, to support assessment.

6. Planning and Resources:

Existing science resources are stored centrally and are organised into topic themes. The library contains a good supply of science books to support children's individual research.

Class teachers are encouraged to have a science display to support/expand children's knowledge, including those with EAL and SEND.

The subject leader has identified the key knowledge that is being taught, as well as the skills that are being developed across each topic, and these are recorded on the Science progression document, teachers' own MTP, STP and knowledge organisers, which make explicit links to the national curriculum 2014. Key vocabulary and links to the school's context are also outlined. Cross curricular outcomes are also identified prior to teaching and these are evidenced through outcomes of work, as well as being stated explicitly in planning.

7. Organisation:

At SSMJ, we follow a sequence of lessons within each unit. This allows children to enhance their knowledge of science and develop related skills. KS1, KS2 and Foundation stage should teach a minimum of one lesson per week for science, with a third of these lessons overall including practical scientific enquiry.

Teachers are expected to adapt and modify their plans using the guidance from the ASE and PLAN websites to suit their children's interest, current events, their own teaching style, the use of any support staff and the resources available, ensuring secure links with the Religious Education curriculum. These are set out on an agreed, consistent format for the Medium Term Plan, which includes headings such as 'prior knowledge, key vocabulary, assessment opportunities (prior, interim and post) and key skills' this format also includes space for the knowledge organiser for each topic. We must ensure that any modification does not overlook any areas of the objectives for the year groups/ Key stages, and so use the 'progression for Science' and 'progression in scientific knowledge' documentation.

Some units may be taught in collaboration with outside agencies, including neighbouring secondary schools, and utilise the school garden and field, whilst also developing school field trips.

8. EYFS:

Early years explore scientific themes and content through the 'Understanding of the World' strand of the EYFS curriculum. This involves guiding children to make sense of their physical world and to know about similarities and differences in relation to places, objects, materials and living things. It helps them talk about the features of their own immediate environment and how environments might vary from one another; and also helps them to make observations of animals and plants and explain why some things occur, and talk about changes. They are assessed according to the Development Matters Attainment targets.

9. KS1 and KS2:

KS1:

During Key Stage 1, children begin to develop an awareness of God's wonderful world around them, using common words and phrases relating to the plants and animals. They demonstrate a growing confidence and accuracy when using commonplace scientific vocabulary. Through practical activities and investigations, children explore the different elements of Science (Biology, Physics and Chemistry).

Science is taught with an emphasis on pupils engaging with and experiencing observable phenomena, looking more closely at the natural and humanly-constructed world around them. Teachers use a range of strategies to encourage children to be curious and ask questions about what they notice. Children are 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 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, such as: simple investigation recording sheet, labelled diagrams, photographs and discussion.

Most of the learning about science is done through the use of first-hand practical experiences, but there is also an emphasis on using books, photographs and videos to gather further information. All activities utilise the school garden and field.

KS2:

Science is taught with an emphasis on the pupils engaging in practical enquiry to support and develop their understanding of scientific concepts and skills. Teachers use a range of strategies including: exploration, investigative enquiry

and illustrative enquiry. Teachers try to ensure that the children's ideas are used as a basis for enquiry. Children are encouraged to record their investigations using the relevant enquiry skills 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 draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. These key enquiry skills are introduced in year 3, further developed in year 4 and fully utilised in years 5 and 6.

The principal focus of the science teaching in Upper Key Stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They will explore and talk about their ideas; ask their own questions about scientific phenomena; and analyse functions, relationships and interactions more systematically. At Upper Key Stage 2, they will encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They will also begin to recognise that scientific ideas change and develop over time.

10. Equal Opportunities:

At SSMJ Primary school, we are committed to providing a teaching environment which ensures all children are provided with the same learning opportunities regardless of social class, gender, culture, race, special educational need or disability. Teachers use a range of strategies to ensure inclusion and also to maintain a positive ethos where children demonstrate affirming attitudes towards others. Support for specific individuals is well considered and planned for, with consideration given to how deeper learning and further challenge can be provided for and demonstrated by children who require further challenge, suggestions as to how this can be done are found using websites such as 'the Crest awards' website: <https://primarylibrary.crestawards.org/all-star-challenges/61746949> (KS1) and <https://primarylibrary.crestawards.org/#SuperStar> (KS2) as well as the 'Explorify' website <https://www.stem.org.uk/primary/resources> .

11. Inclusion:

Science is taught within the 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, recognising 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.
- In our teaching, Science is closely linked with English, mathematics, computing and religious education. We recognise the particular importance of first-hand experience for motivating all children, especially those with learning difficulties.
- We recognise 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.
- Teaching takes account of the children's own interests to ensure topic relevance to all individual learners. Opportunities for enrichment are also fully utilised, to ensure a fully inclusive and engaging science curriculum and this is supported through a number of links with places of scientific interest in the immediate and wider locality which engage the children further through practical learning activities.

12. The Role of the Subject Leader:

The Subject Leader's responsibilities are:

- To ensure a high profile for the subject.
- To ensure a full range of relevant and effective resources are available to enhance and support learning.
- To model the teaching of science.
- To ensure progression of the key knowledge and skills identified within each unit and that these are integral to the programme of study and secure at the end of each age phase.
- To monitor books and ensure that key knowledge is evidenced in outcomes, alongside and as supported, by SLT.
- To monitor planning and oversee the teaching of science.
- To lead further improvement in and development of the subject as informed by effective subject overview.
- To ensure that the science curriculum has a positive effect on all pupils, including those who are disadvantaged or have low attainment.
- To ensure that the science curriculum takes account of the school's context, promotes children's pride in the local area and provides access to positive role models from the local area to enhance the science curriculum.
- To ensure that approaches are informed by and in line with current identified good practice and pedagogy.
- To develop a portfolio of evidence for staff to use as a guide for assessment alongside the exemplar material from the PLAN website.

13. Parents (Including Homework):

We, at SSMJ, actively encourage the involvement of families and the wider community to help support the teaching of science. The annual STEM week involves the whole school (and other schools where applicable); it has helped to establish greater involvement with parents and the wider community to share their knowledge and expertise of science. Parents and carers are involved with supporting their children with any topic- based science homework.