Simonside Primary School

Science Policy

2025-26

AIMS

Science teaches an understanding of and develops a sense of excitement and curiosity about natural phenomena. It aims to stimulate pupils to find out why things happen in the way they do and encourages them to understand how science can be used to explain what is occurring, predict how things behave and analyse causes. It teaches pupils to work scientifically to stimulate creative thought and understand the nature, processes and methods of science. Pupils learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national, and global level.

The objectives of teaching science are to enable children to:

- Develop scientific knowledge and conceptual understanding in the following areas:

  - Biology: including plants, animals, habitats, evolution and inheritance.

  - Chemistry: including everyday materials and their uses, rocks, states of matter and the properties and changes of materials.

  - Physics: including seasonal changes, light, forces, magnets, sound, electricity and earth and space.

- Understand the uses and implications of science, today and for the future.

- Engage as learners at many levels through linking ideas with practical experience;

- To learn to question and discuss scientific issues that may affect their own lives;

- To develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;

- To understand how major scientific ideas contribute to technological change and how these impacts on improving the quality of our everyday lives;

- To recognise the cultural significance of science and trace its development

- To increase knowledge and understanding of the world.

- To develop attitudes of curiosity, originality, co-operation, perseverance, open mindedness, self-criticism, responsibility and independence in thinking.

TEACHING AND LEARNING STYLE

We use a variety of teaching and learning styles in discrete science based teaching and also in some cross-curricular science led themes. Our principal aim is to develop children's knowledge, skills, and understanding. Sometimes this is achieved through whole-class teaching, while at other times we engage the pupils in enquiry-based research activities and investigations.

At Simonside we invest significant time and resources into preparing enjoyable and engaging lessons for our pupils to take part in. We value the importance of nurturing a natural curiosity amongst the pupils to enable them to develop their scientific knowledge, therefore pupils are encouraged to investigate possible hypothesis; they explore answers to these themselves instead of simply being told them. It is common place to see pupils completely applied and engaged, and striving to answer these questions.

We encourage the pupils to ask, as well as answer, scientific questions and they have the opportunity to collect, analyse and present a variety of data, such as statistics, graphs, pictures, and photographs. Teaching and learning is also based outside within the school grounds whenever possible. Pupils also use ICT in science because it enhances their learning. They take part in role-play and discussions and they present reports to the rest of the class, enabling them to make their thinking clear to themselves and others, to develop their use of scientific vocabulary and to articulate scientific concepts clearly. They engage in a wide variety of problemsolving activities, and wherever possible we involve the pupils in real scientific activities, for example, carrying out a practical experiment and analysing the results. We recognise that in all classes, pupils have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all pupils by matching the challenge of the task to the ability of the pupil.

We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all pupils to complete all tasks);
- grouping pupils flexibly within the classroom, and setting different tasks for each group;
- providing resources of different complexity, matched to the ability of the pupil;
- using teaching assistants to support and extend the work of individual children or groups of pupils.

SCIENCE CURRICULUM PLANNING

Simonside follows a dynamic and comprehensive science curriculum, packed with inspirational resources, designed to help us deliver outstanding science throughout our school. It provides clear progression within the “big ideas in science,” which are evident within each topic and module. This structure allows us to make challenging concepts meaningful for pupils, with guidance and support throughout each year group.

Our teaching is underpinned by a **6-part teaching approach**, which ensures consistency and depth across all science lessons. Each session incorporates:

1. **Retrieval practice** to revisit prior learning,
2. **Vocabulary and concept introduction** to secure key terminology,
3. **Teacher modelling and demonstration** to clarify new ideas,

4. **Guided practice** to apply understanding collaboratively,
5. **Independent investigation or enquiry**, and
6. **Reflection and review**, allowing pupils to evaluate their learning and next steps.

This structured approach enables all learners to build on existing knowledge, develop scientific thinking, and engage with practical and conceptual aspects of science with increasing independence.

The combination and use of **White Rose Science** and **Grammarsaurus** enables our teachers to plan and adapt high-quality lessons that can be tailored to our learners across the school. Children are assessed regularly at the end of each topic, and learning and progress are recorded using the **Chris Quigley Depth of Learning Tracker**. Vocabulary and knowledge matrices from **PLAN (Planning for Assessment)** are used to ensure thorough, targeted learning that matches each year group's capabilities.

From **EYFS to KS2**, children are taught through the core strands of **Chemistry, Physics, and Biology**. Our children understand how their previous learning links to their current studies and use this to ask questions and connect prior scientific knowledge. Biology is explored through topics such as *My Senses*, *Human Body*, *Plants*, *Living Things*, and *Habitats*, progressing to *Evolution and Inheritance* in Year 6. Chemistry learning includes *Imagine*, *Rocks*, *States of Matter*, and *Properties of Materials*, while Physics understanding is developed through *Light*, *Sound*, *Forces and Magnets*, *Seasonal Changes*, *Earth and Space*, and *Electricity*.

We foster **pupil ownership** of learning by encouraging children to contribute ideas about what they would like to learn and how we can explore these together. To deepen our understanding of how science is experienced by pupils, we use **Pupil Book Study**. This process allows staff to explore pupils' scientific thinking through their recorded work, conversations, and progression over time, ensuring that our curriculum intentions are reflected in classroom practice and pupil outcomes.

This theme-based approach covers all statutory science skills and content set out in the National Curriculum. We have carefully planned science skills and content within our themes so they build upon prior learning. We ensure that there are opportunities for pupils of all abilities to develop their skills, knowledge, learning, and metacognition through rich, enquiry-led experiences supported by our 6-part teaching model.

<u>The Foundation Stage</u>

Science is taught in Early Years within one of the seven areas of Learning, Understanding the World, as an integral part of themed work covered during the year. As the EYFS classes are part of the Early Years Foundation Stage National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the 'Development Matters' and Early Learning Goals (ELGs) which underpin the curriculum planning for pupils from birth to age five. Science makes a significant contribution to developing a pupil's knowledge and understanding of the world, for example through exploration and investigation of what floats and what sinks when placed in water.

THE CONTRIBUTION OF SCIENCE TO TEACHING IN OTHER CURRICULUM AREAS

English

Science contributes significantly to the teaching of English in our school because we are actively promoting the skills of reading, writing, speaking and listening within a science- based theme. Pupils will use the skills of report writing when conducting investigations.

Mathematics

Science contributes to the teaching of mathematics in a number of ways. When working scientifically the pupils learn to use and apply number, measurements and statistics. They also develop maths skills such as estimating, predicting, spotting and explaining patterns and develop accuracy in their observation and recording of events. Many of their answers and conclusions in an investigation, include numbers and measurements.

Personal, social and health education (PSHE) and citizenship

Science makes a significant contribution to the teaching of PSHE and citizenship. This is mainly in three areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, pupils study the way people recycle 5 material and how environments are changed for better or worse. Secondly, the subject gives pupils numerous opportunities to debate and discuss. Thirdly, within the scientific study of animals, knowledge and understanding of human biology, lifecycles and healthy living are taught which link directly to of PSHE.

Religious Education

Theme- based Science teaching offers pupils many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things pupils develop a sense of awe and wonder regarding the nature of our world. Science also raises many social and moral questions. Through the teaching of science, pupils have the opportunity to discuss, for example, the effects of smoking, and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the earth's resources. Science teaches pupils about the reasons why people are different and, by developing the pupil's knowledge and understanding of physical and environmental factors, it promotes respect for other people.

Computer Science

Information and communication technology enhances the teaching of science in our school significantly because there are some tasks for which ICT is particularly useful. It also offers ways of impacting on learning which are not possible with conventional methods. Software is used to animate and model scientific concepts and to allow pupils to investigate processes which it would be impracticable to do directly in the classroom. Pupils use ICT to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation. Pupils learn how to find, select, and analyse information on the Internet and on other media.

SCIENCE AND INCLUSION

At Simonside we teach science to all pupils, whatever their ability and individual needs. Science forms part of the school curriculum policy to provide a broad and balanced education to all pupils. Through our science teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this.

We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities off the school site (a trip to a science museum, for example) we carry out a risk assessment prior to the activity to ensure that the activity is safe and appropriate for all pupils.

ASSESSMENT FOR LEARNING

Teachers will assess pupil's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it, and uses this assessment to plan for future learning. Written or verbal feedback is given to the pupils to help guide his/her progress. Older pupils are encouraged to make 6 judgements about how they can improve their own work and also to work together to peer assess.

At the end of each half term, teachers make a summary judgement about the work of each pupil in relation to the expected milestones for their key stage. This summary includes judgements on a pupil's knowledge and understanding of science and their practical use of scientific methods, processes and skills, using the Pupil Asset assessment system.

RESOURCES

At Simonside, resources are regularly updated and added to and kept in central science storage areas. Class libraries contain a good supply of science topic books and we have computer software and Internet access to support pupil's individual research.

MONITORING AND REVIEW

It is the responsibility of the subject leader to monitor the standards of children's work and the quality of teaching in science. This will be conducted in year groups in the form of a 'learning search'. The subject leader is also responsible for supporting colleagues in their teaching, for being informed about current developments in the subject, and for providing a strategic lead and direction for science in the school. The subject leader will provide INSETs to support colleagues in their teaching and knowledge of science.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Human Body	Materials	Animals	Caring for our planet	Plants	Growing and Cooking
Year 2	Animals needs for survival	Materials	Plants	Living things	Plants	Growing up/Wildlife
Year 3	Skeletons	Nutrition and Diet	Fossils/Soils	Light	Plants	Forces / Magnets
Year 4	Grouping and classifying things	States of Matter	Sound	Electricity	Habitats	The Digestive System
Year 5	Forces	Space	Properties of Materials	Animals including Humans	Reproduction	Reversible and Irreversible changes
Year 6	Living things and their habitats	Electricity	Light	The Circulatory System	Variation/ Adaptation	Fossils/Themed projects (ready for year 7)

Link to White Rose planning and resources:

Maths resources for teachers | White Rose Maths (whiteroseeducation.com)

Link to PLAN (Planning for Assessment) resources:

PLAN primary science resources (planassessment.com)