

Science

Introduction to Science

Science is a core subject of the National Curriculum. Sunnyside Spencer Academy aims to give all children a strong understanding of the world around them, whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of science in the world around them.

The importance of science is evident through our weekly science lessons, as well as our yearly participation of British Science Week, in which we plan and deliver a school based investigation, as well as include themed assemblies and further enrichment opportunities. Our aim is to ensure that the children “develop an 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,” (National Curriculum in England: Science Programmes Of Study).

Curriculum Intent

At Sunnyside Spencer Academy, we value science as an important part of the children’s entitlement to a broad and balanced curriculum. Science provides the children with the opportunities to think critically, whilst having an opportunity to investigate how science is currently impacting the world around them, as well as in the future. A high-quality science education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to investigate, predict and conclude their own ideas from their enquiries. Scientific enquiry skills are embedded in each topic the children study and these topics are revisited and developed throughout their time at school.

As pupils progress, they should be able to think critically and develop a more rigorous understanding of science and as it evolves, so does our understanding of the world and universe.

Aims

The national curriculum for science aims to ensure that 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.

Curriculum Implementation

The teaching and implementation of the Science Curriculum at Sunnyside Spencer Academy is based on the National Curriculum, as well as research lead advice from the National STEM Learning Centre, ensuring a well-structured approach to this core subject.

The children are taught science as part of their termly topic work. Biology, physics and chemistry are all covered throughout each year group, where specific areas are embedded in the topics the children are learning. For example, during the year 3/4 topic Rainforests, the pupils covered the Plants, including their parts, their lifecycles and requirements for life. More detail can be found in our Long Term plan. The children's learning is further enhanced with the use of knowledge organisers, which outline the knowledge the children must master, as well as key vocabulary. Knowledge organisers also include diagrams to allow children to visually understand the key theories during that topic. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers.

We build upon the learning and skill development of the previous years. As the children’s knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children’s school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.

Curriculum Impact

The successful approach at Sunnyside Spencer Academy results in a fun, engaging, high-quality science education that provides children with the foundations for understanding the world.

Via Teacher Assessment in Primary Science (TAPS) project, active, verbal assessments take place throughout each topic and teachers record the progress and attainment against the National Curriculum expectations of attainment. Pupils also undertake termly quizzes and activities to review prior learning and assess attainment of the topic content. Teachers use this information to inform future lessons; ensuring children are supported and challenged appropriately. This data is analysed on a termly basis to inform and address any trends or gaps in attainment.

Further information is gathered through pupil questionnaires; highlighting strengths and achievement and any improvements, knowledge and skills that still need to be embedded.

Through various trips, British Science Week and interactions with experts, children have the understanding that science has changed our lives and that it is vital to the prosperity of the world's future. Through our connections with the local community and through agencies such as the STEM Learning Centre, children learn the possibilities for careers in science.

An Example of a Sequence of Lessons

Staff complete ReachOut CPD on the science topic that they will teach the half term before teaching it, as well as use varied resources to build a unit of 6 lessons to teach the children once every week.

<p>Science</p> <p>Light: Light and Dark</p> <p>Lesson 1: To identify light sources and explain why dark occurs.</p>
<p>Light: Reflective Surfaces</p> <p>Lesson 2: To explain reflection and identify reflective materials.</p>

<p>Light: Marvellous Mirrors</p> <p>Lesson 3: To explain why mirrors are good reflectors.</p>
<p>Light: Sun Safety</p> <p>Lesson 4: To explain the dangers and benefits of the sun.</p>

<p>Light: Making Shadows</p> <p>Lesson 5: To explain how light travels and classify materials that are opaque, transparent and translucent.</p>
<p>Light: Changing Shadows</p> <p>Lesson 6: To investigate how shadows change size.</p>



