

Gwladys Street Community Primary and Nursery School



SCIENCE POLICY

2021

Curriculum Statement

Intent

We are committed to provide an exciting, engaging and personalised curriculum that ensures pupils can make sense of the world around them.

We aim to do this by:

- Ensuring children 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, today and for the future.
- Develop scientific enquiry skills while building upon prior learning.
- Develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions.
- Vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught should be reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.
- Provide our children with wider opportunities in science and make links to other subjects.

Throughout the science curriculum, children will cover topics to develop a greater understanding within Physics, Chemistry and Biology, building upon this as they progress through the school. All of this is underpinned through working scientifically and developing practical enquiry and investigation skills.

Implementation

Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following:

- Through planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their

own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving quality resources to aid understanding of conceptual knowledge.

- Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children at the end of each topic to identify those children with gaps in learning, so that all children keep up.
- 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.
- Where possible links are made to other curriculum areas to allow children to link knowledge and apply their learning in other areas.
- Teachers demonstrate how to use scientific equipment, and become increasingly confident with their scientific skills in order to embed scientific understanding.

Impact

The successful approach at Gwladys Street results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our curriculum ensures children learn through varied and first hand experiences of the world around them. Children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science as a result of our community links and connection with national agencies such as the STEM association. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.

Teachers assess children's scientific skills through assessment focussed investigations and end of term written assessments themed based. Assessment judgements are tracked on the school's pupil tracker.

Teaching and Learning Gwladys Street Science Code:

We recognise that science teaching and learning is good when:

We apply our 'working scientifically skills' to solve problems, explore, observe and investigate.

We ask questions and work together to discover the answers using correct scientific vocabulary.

Our learning is enhanced by outdoor learning and specialist visitors and we have access to quality resources.

Science promotes curiosity for children to investigate.

We are involved in planning and conducting investigations and can share and explain our ideas and conclusions.

It is recognised as a core subject and working walls are kept up to date with children's learning and vocabulary displayed.

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. Children's starting points are identified at the beginning of each science topic and the children are able to convey and record what they know already. At the end of the block, children's knowledge is checked in line with the key knowledge identified prior to the teaching block. 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 and teachers ensure that this is developed within each lesson and throughout each science topic. The science curriculum ensures that children are provided with regular opportunities to apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. Starting points are established at the beginning of each teaching sequence to ensure the teacher adapts planning to continue progression of skills and knowledge.

The nature, processes and methods of science

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group and this is embedded within lessons and focuses 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 include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils are given opportunity to seek answers to questions through collecting, analysing and presenting data.

Spoken language

The National Curriculum for science reflects the importance of spoken language in pupils' development across the whole curriculum. Science lessons provide a quality and variety of subject specific language to enable the development of children's confident and accurate use of scientific vocabulary and their ability to articulate scientific concepts clearly and precisely. They are encouraged and assisted in making their thinking clear, both to themselves and others, and teachers ensure that pupils build secure foundations by using discussion to probing and remedying their misconceptions.

Assessment

Children's progress is continually monitored throughout their time at Gwladys Street Community Primary and Nursery School and is used to inform future teaching and learning. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study as set out in the National Curriculum. These are set out as statutory requirements. We also draw on the non-statutory requirements to extend our children and provide an appropriate level of challenge. Children receive effective feedback through teacher assessment, both orally and through written feedback in line with the success criteria. Children are guided towards achievement of the main objective through the use of process based 'success criteria', provided by and explained by the teacher. Children will have these to refer to in the lesson, where they will be evident in their books and used to identify areas of difficulty by children and teachers when reviewing and assessing work. Assessment for learning is continuous throughout the planning, teaching and learning cycle. However children are more formally assessed termly in KS1 and KS2 using a variety of methods:-

- Observing children at work, individually, in pairs, in a group, and in classes.
- Questioning, talking and listening to children
- Considering work/materials / investigations produced by children together with discussion about this with them.

Using Headstart Materials which assess children's ability to 'Work Scientifically' and the science subject knowledge they have gained.

Curriculum

Teachers are to ensure they apply skills and make links across the curriculum such as RSE, Mathematics, English (ie. Vocabulary and spelling), History, Geography, Design and Technology, RE, Computing.

Year	Topics taught each term		
1	Animals (including humans)	Everyday living things Plants	Seasonal change
2 Plants each term to look allow for growth and seasonal changes.	Plants Everyday materials and their uses	Plants Living things and their habitats	Plants Animals and their habitats
3	Rocks Forces	Plants Light	Animals (including humans)
4	Sounds States of matter	Animals (including humans)	Electricity

		Living things and their habitats.	
5	Earth and Space	Properties and their materials	Forces and Magnets Animals (including humans) Living things and their habitats
6	Electricity Light	Evolution and Inheritance	Animals (including humans) Living things and their habitats

EYFS

At Gwladys Street Community Primary and Nursery School, EYFS deliver science content through the specific area of learning, Understanding the World. This involves practitioners guiding children to make sense of their physical world and their community. Children will be provided with opportunities to explore, observe, discuss and foster their understanding of our culturally, socially, technologically and ecologically diverse world. A best fit judgement of children's learning is made using Development Matters, focusing upon independently and consistently applying scientific skills and knowledge through learning and play.

FS1:

Talk about the differences between materials and changes they notice.

Explore and talk about different forces they can feel.

Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties.

FS2:

Understand the effect of changing seasons on the natural world around them.

Recognise some environments that are different to the one in which they live.

Describe what they see, hear and feel whilst outside.

Explore the natural world around them.

Health and Safety

Health and Safety Safe working practices are an integral part of all Science activities. All staff are aware of safe and correct handling of tools, materials and equipment. The teaching staff demonstrate to pupils how to work safely and ensures that all children using equipment are properly supervised. School has access to the CLEAPPS website, to support with risk assessing and including safe science investigations.

Equal Opportunities (eg Gender, race)

We are committed to providing all children with an equal entitlement to scientific activities and opportunities regardless of race, gender, culture or class.

Inclusion (eg EAL/SEN/PPG/Provision for HA)

In school we aim to meet the needs of all our children by differentiation in our science planning and in providing a variety of approaches and tasks appropriate to ability levels. This involves providing opportunities for SEND children to complete their own projects, with support, to develop speech and language skills, as well as scientific skills and knowledge. This will enable children with learning and/or physical difficulties to take an active part in scientific learning and practical activities and investigations and to achieve the goals they have been set. Some children will require closer supervision and more adult support to allow them to progress, whilst more able children will be extended through differentiated activities.

Role of the Subject Leader

It is the responsibility of the subject leader to monitor the standards of children's work, teachers' planning and the learning environment. 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 monitors the budget, resources and promotes enrichment across the school eg. organising a Science Week.

Science Lead: A M Berry

Date of policy - March 2021

Review of policy - March 2022