

Intent

At Ravenbank, it is our vision for all children to leave our school excited, curious and knowledgeable about the disciplines of biology, physics and chemistry.

It is our intention to enable children to develop the intellectual and practical skills which will allow them to explore and investigate the world of science and develop a fuller understanding of science phenomena, the nature of the theories explaining these, and the procedures of scientific investigation. This should take place through activities that require a progressively more systematic and quantified approach which develops and draws upon an increased knowledge and understanding of science.

Implementation

During Foundation Stage, children will focus on the world and will explore similarities and differences in relation to places, objects, materials and living things. They will talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

Inclusion

Teachers personalise teaching and learning in science to meet individual needs of all children. Inclusive teaching involves multi-sensory strategies:

- Pictures, graphs, timelines, diagrams and storyboards
- Role play
- Card sorting
- Use of ICT
- Pre-teaching
- Scaffolding, writing and speaking frames
- Word banks
- Modelling
- Open ended questions/investigations
- Practical/hands on activities
- Independent, paired and group activities
- Mind maps
- Begin with children's knowledge, views and understanding and identify their preconceptions and misconceptions

Outdoor Learning and real-life links and the local community

Through outdoor learning across the school, we aim to create real, relevant and integrated learning opportunities that extend and enrich the curriculum. Our outdoor area at school is an excellent space to support the teaching of many areas of science curriculum and is utilised by all year groups. Science capital is added by educational visits and visitors to school in a range of year groups.

Each year, we celebrate British Science Week to celebrate the STEM subjects. During this week, children have the opportunity to take part in a range of different activities to extend their knowledge and build excitement surrounding STEM.

Enquiry based learning

Lots of science learning at Ravenbank stems from the children's prior knowledge and they are provided with enquiry based and investigative opportunities to address and explore questions which will embed and progress their scientific enquiry skills.

Cross Curricular Links/Local Community

Teachers make real links between science and other subjects and choose areas where genuine connections between subjects occur naturally. These connections make sense to the children and allow them to develop a deepened understanding of some science topics. When appropriate, educational visits and visitors are also included within the science curriculum to further enhance learning.

Impact

The curriculum for science is successfully implemented throughout school and is designed to ensure that progress can be measured by assessing both the knowledge and skills pupils gain each year. Assessments are carried out formatively throughout the year and class teachers plan regular assessment opportunities to assess children's learning. Assessment in science of substantive knowledge can be evidenced in a variety of ways including work in books, photographs, verbal questioning and in planning documents. To assess disciplinary knowledge, staff use TAPS focused assessment plans to gain a quality understanding of how confident children are applying scientific enquiry skills.

The science subject leaders will use a range of strategies including learning walks, book scrutinies and pupil voice sessions in order to monitor standards in this curriculum area.



Science at Ravenbank



Science is hands on, practical and investigative.

At Ravenbank, we want all children to leave our school excited, curious and knowledgeable about the disciplines of biology, physics and chemistry.

Develops our scientific knowledge, skills and vocabulary.

We are curious and ask questions about the things around us.

We learn about scientists who have shaped our world and are inspired to be scientists of the future.