Eppleton Academy Primary School
Science Policy

Our Vision

At Eppleton Primary Academy School, our vision is to provide a science curriculum which enables pupils to confidently explore and discover, so that they have a deeper understanding of the world we live in. We do this through exciting, practical, hands on experiences, which encourage curiosity and questioning.

Exploring and investigating science in a range of contexts will ensure a growth of knowledge and bank of core skills which will equip them for an ever-changing world. Children are encouraged to use scientific vocabulary in their investigations and to explain their thinking.

We promote the use of stories to initiate scientific enquiry and capture children's imaginations. This gives practical work a purpose and allows children to see how science can be used in real life situations.

In line with our school driver of raising aspirations we want to improve the depth and breadth of science understanding and knowledge that pupils take with them into secondary school, which may improve pupils' science capital and later curiosity and interest in the sciences.

We believe that these opportunities will ensure our children aspire to be confident, lifelong learners who will continue to explore the world around them.

Purpose of study

Science is an important core subject in our school as it provides the foundations for understanding the world. Through building key knowledge, concepts and skills, pupils should be encouraged to develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to explain what is occurring through conceptual models and practical activities that progressively build a deep understanding of the science curriculum and 'Working Scientifically'.

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding of science
- 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

At Eppleton Academy Primary School our aim is to provide a science curriculum which enables pupils to confidently explore and discover, so that they have a deeper understanding of the world we live in through an engaging and progressively structured science curriculum.

Structure and Expected Delivery of the Science Curriculum

The National Curriculum for Science is used as a framework for science content, skills and pupil expectations at our school. To support our key principles, we will deliver this curriculum through:

- A knowledge and skills-focussed approach to teaching that ensures an appropriate and flexible challenge within the classroom. This approach is called 'dual objective planning' . The Science National Curriculum states that *"Working and thinking scientifically … must always be taught through the substantive science content".* This is supported by the explicit use of dual objective planning.
- Conceptual threads called 'science models' that link topics and support progressively deeper learning. There are four science models that span the curriculum:
  a Force arrow model
  b Energy transfer model
  c Particle model
  d Big picture model
- Five key science skills that support both knowledge / conceptual development and Working Scientifically to match pupil performance to national Key Stage expectations:
  -Explaining science
  -Classification
  -Designing experiments
  -Data tables and graphs
  -Making conclusions

Teaching Expectations

Science at Eppleton Academy Primary School is a core curriculum subject.
We teach Science in the Reception and Nursery classes as an integral part of the topic work covered during the year. As this is part of the Foundation Stage of the National Curriculum, we relate the scientific aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs), which underpin the curriculum planning for children aged three to five. Science makes a significant contribution to the objective in the ELGs of developing a child's knowledge and understanding of the world, e.g. through investigating what floats and what sinks when placed in water.

In KS1 and KS2 Science is taught as a discrete lesson and as part of cross-curricular themes when appropriate. Science has links with other areas of the curriculum including Geography, English, Numeracy, Art and Design Technology. 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. Teachers have the flexibility to teach science weekly over the term or as part of a block of teaching.
Specific year group expectations are given in the schemes of work.

Overview of the units covered in KS1 and KS2

	Biology	Chemistry	Physics
Year 1	• Animals, including humans • Plants	• Everyday Materials	• Seasonal Changes
Year 2	• Animals, including humans • Plants • Living things and habitats	• Everyday Materials	
Year 3	• Animals, including humans • Plants – growth, transport, reproduction. • Living things and their habitats	• Rocks	• Forces and Magnets • Light
Year 4	• Animals, including humans • Living things and habitats	• States of Matter	• Electricity • Sounds
Year 5	• Animals, including humans • Living things and their habitats	• Properties of Materials	• Forces and Magnets • Earth and Space
Year 6	• Animals, including humans • Living things and their habitats • Evolution and Inheritance		• Light • Electricity

Science Across the Curriculum

Literacy -Science contributes significantly to the teaching of English at Eppleton by actively promoting the skills of thinking, reading, writing, speaking and listening. In line with Eppleton School's love of reading, we use a range of stories to promote each science topic.
The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their writing skills through writing reports and projects and by recording information. 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. In line with Eppleton School's love of reading, we use a range of stories to promote each science topic.

Mathematics -Science contributes to the teaching of mathematics in a number of ways - taking measurements (length, time, mass, etc), data handling and presenting data in tables and through the use of graphs and pie charts. Through working on investigations, pupils learn to estimate and predict.

History - children should have the opportunity to research and learn about famous scientists from history and how their achievements have changed or impacted upon our lives.

Computing – Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the internet.
Children use computers to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

Inclusion and differentiation

Science is taught across the whole spectrum of ability within the school to provide a broad and balanced curriculum whatever a child's needs. Learning and the schools expectations are matched to the individual needs of those with learning difficulties. These take into account individual targets to help children access the curriculum at their own pace so that appropriate challenge and progress can be made.
Our work in science takes into account the targets set in the children's individual support plans.

Also, more-able children are given open-ended tasks and opportunities for further research and more challenging studies. We recognise that our curriculum planning must allow pupils to gain a progressively deeper understanding and competency as they move through our school.

Science assessment

Teacher Tracking Data

Science assessment is on-going and formative. It happens in the classroom as part of the normal teaching process. It informs lesson pitch, differentiated intervention and future planning. The key document to support this process is the Science Skills Progression which provides criteria matched to year group expectation.

Topic based oral/activity/classwork/homework are used to inform on science knowledge and areas of individual/group misconception. Marking complies with the school policy and should include:

- 'short-term' topic-specific comments to correct misconceptions/errors and to drive progress within that topic. Work should then show short-term improved knowledge and accuracy within that topic.
- 'long-term' skill-specific comments to match work to skill criteria (see Skills Progression) and to drive progress between topics. Work should then show improved skill/model development, matched to expectations, over time. Progress will be recorded using '*Science Rockets*'

School Tracking Data

Science assessment will fit in with the schools assessment procedures. School tracking in science will involve a termly pupil assessment against year group expectation using teacher tracking data.

Maintaining Standards

Science teaching will work to ensure pupils reach a security of year group expectation according to school targets. These standards will be maintained by:

- Consistency of approach through the teaching of models and dual objective planning.
- Standardisation of assessment using a Science Standards File, collaborative marking, update training and science coordinator attendance at regional science network meetings.
- Science coordinator monitoring of science teaching and learning, and subsequent teacher support
- Science action planning to address longer term areas for development.

Health and Safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers and Teaching Assistants will check equipment regularly and report any damage, taking defective equipment out of action. A simple risk assessment will be carried out for all practical activities any perceived hazards will be reported to the Head who will determine the appropriateness of said activity.

The Science Coordinators Role

- Leadership of science throughout the school to ensure key principles, standards and staff support.
- Provide leadership of science to SLT, parents and the wider community.
- To link with cluster schools and beyond (e.g. regional network) to develop and improve science provision.

Important Information

Science Handbook (*access information*)
Science Assessment Board
Science Schemes of Work
Science Standards File
Science Procurement File
ASE Be Safe 4th Ed
Electronic science resources
School Policy Documents