Science Policy

Our Curriculum at Finchale

At Finchale Primary School we are proud of our curriculum and the range of experiences we provide for our children. Our curriculum is accessible to all children, irrespective of their ethnic background, gender, disability, religious or linguistic background. We strive to meet the needs of those pupils with additional needs, including special educational needs, those with disabilities, those who are more able, those with gifts or talents and the children who are learning English as an additional language. We provide a rich and challenging curriculum which aims to stretch our children. Staff monitor our children to ensure that they are supported in their learning, whatever their ability.

Statement of Intent for Science

At Finchale Primary School, 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. We provide a science curriculum that provides opportunities for investigative lessons and children are exposed to a wide variety of topics that support their natural curiosity for learning. Our curriculum aims to broaden the children's scientific view of, and respect for, the world around them, whilst promoting a love for enquiry and wanting to explore new things. We also want to extend their scientific knowledge and skills by revisiting aspects and providing opportunities to deepen learning. We want our pupils to develop a love for science that carries through into later life, instilling in them an awareness of how science is relevant in today's society. We build on and develop the 'Working Scientifically' skills throughout children's time at Finchale. This will help enable pupils to independently plan and carry out investigations so that they can answer questions that puzzle them, competently use scientific equipment to measure and record data accurately, and have the necessary skills and vocabulary to confidently explain concepts and articulate their findings.

We want our pupils to leave us with the skills and attitudes that will equip them to become successful scientists at secondary school.

This Policy was agreed in January 2024 and will be reviewed in Autumn 2026.

Chair of Governors: Mrs. Gayle Foster Date: 24.01.2024

Head Teacher: Dr. Sandra Whitton Date: 24.01.2024

The Importance of

The National Curriculum (DfE, 2014) states that a high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

"We look at science as something very elite, which only a few people can learn. That's just not true. You just have to start early and give kids a foundation. Kids live up, or down, to expectations." Mae Jemison

Aims

At Finchale our core curriculum covers those elements set out in the EYFS statutory framework, as well as the programmes of study for both Key Stage 1 and Key Stage 2 within the National Curriculum for England. In addition, our teaching goes beyond this to include a range of areas and activities which we believe equip our pupils not only with the skills and knowledge but also the confidence and resilience to be happy, productive members of our society today.

To ensure a smooth transition between what children learn in the Early Years and Key Stage 1, we have carefully structured our planning to ensure there are strong and purposeful links between what children learn and experience in Reception and what they go on to learn and experience in Year 1. This helps to build confidence, maximizes opportunities for learning and demonstrates how our staff have a good understanding of how children progress and develop within each subject.

Our starting point for teaching Science at Finchale is within the EYFS. Here, a key component comes within the specific area, Understanding the World-The Natural World. Within this, pupils:

- ★ Explore the natural world around them, making observations and drawing pictures of animals and plants;
- ★ Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what
- ★ Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Our pupils then move on to develop their scientific knowledge and understanding as they study the attainment targets and programmes of study for Science as set out in the National Curriculum. This 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.

What This Means at Finchale Primary

Our vision for science learning is that it is enquiry based, engaging and challenging. Science is taught by giving our children the opportunity to investigate, discover, make mistakes and improve. The children are encouraged to find and make links to their learning through practical experience. Our curriculum builds knowledge, develops working scientifically skills and increases children's

scientific vocabulary. We strive to provide an environment that promotes the use of children's natural curiosity, and one where children become independent thinkers willing to take the lead in their learning. The use of technology to help children learn is encouraged.

We want our children to use their knowledge of science to develop their understanding of the constantly changing world that they live in. We want them to appreciate how science impacts upon and underpins much of our lives in today's society. We aim to inspire our children to become the scientists of the future

We believe that the Early Years Foundation Stage is crucial in securing solid foundations that children are going to continue to build upon. We believe that all children deserve to be valued as individuals and we are passionate in encouraging all children to achieve their full, unique potential. Children begin their learning as scientists through the 'Understanding the World' Area of Learning. Observation skills are developed as children are encouraged to look for and describe similarities, differences and changes.

Key Stage 1 & 2 Implementation
A bespoke long term plan has been created to ensure that the requirements of the National Curriculum are met in full. It also ensures that the teaching units are distributed across the key stages in a sequence which promotes curriculum continuity and progression, enabling the coordinator, in particular, to monitor the breadth and balance of the subject. Detailed objectives from
the LTP allow teachers to plan and deliver Science lessons effectively. Working Scientifically is embedded in all the areas of Science.

Teaching Science Should Equip Children To Use Scientific Enquiry To Answer Questions By:

- ★ Observing Over Time
- ★ Pattern Seeking
- ★ Identifying, Classifying and Grouping
- ★ Comparative and Fair Testing (Controlled Investigations)
- ★ Researching Using Secondary Sources

Threads of Learning

We have identified a set of key concepts or 'threads', that children will repeatedly revisit throughout their time at Finchale. Our threads within Working Scientifically are: Asking Questions, Planning, Making Observations, Taking Measurements, Gather, Record and Classifying Data, Present Findings, Answer Questions and Make Conclusions and Evaluate. Our threads within Substantive Knowledge are: Animals including Humans, Living Things and Their Habitats, Plants, Materials, Rocks, States of Matter, Electricity, Earth and Space, Seasonal Changes, Sound, Light, Forces and Magnets and Evolution and Inheritance.

Making Learning Memorable

At Finchale, we aim to make learning memorable through the careful planning and delivery of enriching activities.
Learning is practical where possible as we believe this helps learning 'stick'.
Planning is carefully mapped across school to ensure that, when appropriate, links are made with other subject areas to deepen children's understanding.
Children have the opportunity to experience field trips and have a day with 'Captain Chemistry'

Organisation

Our Science Curriculum is drawn from a range of resources which include but are not restricted to: White Rose Science, Explore, Primary Science Trust and BBC Bitesize.
As Science is a core subject it taught roughly every week.
Long term plans and the Progression of Skills, detail the units taught and the sequence of

learning through school. Teachers identify their content from these and provide knowledge organisers for each unit of work. The knowledge organisers have a clear knowledge and skill development focus and place importance and priority on developing a child's vocabulary understanding and use.

The content for each year group, along with long-term plans, content can be found on our school website: www.finchale.durham.sch.uk .

Resources

We use a range of resources to support our teaching within history which include the following:

- https://whiteroseeducation.com/
- https://www.twinkl.co.uk/
- https://grammarsaurus.co.uk
- https://explorify.uk/
- https://www.bbc.co.uk/bitesize
- https://pstt.org.uk/

We are continually adapting and amending our resources to meet the needs of our children.

Assessment

Our subject leader for Science will oversee the planning and monitoring of pupils' work. Throughout a unit we will continually assess children's current knowledge and previous learning using the 'Fast 4'. This retrieval practice is a key aspect of assessment and is carefully placed through school to 'keep learning warm'. Children revisit learning at a distance from taught content to ensure a retention of understanding. At the end of each unit, the key knowledge and understanding will also be assessed by the class teacher usually, through the use of a quiz. These, alongside the 'Fast 4', give a picture of where the children's understanding and knowledge recall sits and provide clear information from which to build further teaching sequences and to extend children's learning.

Assessments will be 'high challenge and low threat' and could be undertaken using the following methods (this is not an exhaustive list):

- Fast 4
- Quizzes
- Observation of pupils
- Talking with pupils
- Marking written work
- Self-assessment
- Peer assessment
- Discussion and debates
- End of Unit Assessments

"Equipped with their five senses, humans explore the universe around them and calls the adventure Science."
Edwin Powell Hubble