



Shining Together Through Courage, Connection and Curiosity.

Guided by Christian values, we inspire every child to let their light shine through a love of learning.

'Let your light shine for all to see' Matthew 5:16

Science

Intent

At Huby, we believe that every child is a scientist. Science enables children to develop their understanding of the world around them, to ask questions, investigate, make sense of evidence and develop informed explanations about the natural and physical world. We want our children to develop a genuine sense of curiosity and wonder about the world God has created and to recognise the important role that science plays in our lives.

Our science curriculum is designed to develop the knowledge, vocabulary, skills and scientific thinking that pupils need to understand and explore the world around them. Through carefully sequenced learning, children build a secure understanding of scientific concepts while developing the skills of observation, questioning, predicting, investigating, measuring, recording, interpreting evidence and drawing conclusions.

We want every child to shine as a scientist. Through science, children develop the **curiosity** to ask questions and explore how and why things happen, the **courage** to investigate, test ideas and learn from unexpected results, and the **connection** to recognise how science relates to themselves, other people, the world around them and their responsibility towards creation.

Our science curriculum reflects our Christian vision:

“Shining Together Through Courage, Connection and Curiosity.

Guided by Christian values, we inspire every child to let their light shine through a love of learning.”

Science provides rich opportunities for children to marvel at the complexity, beauty and diversity of the world around them. We encourage pupils to wonder, question and explore without always expecting an immediate answer. We want them to recognise that scientific knowledge has been developed through the curiosity, perseverance and collaboration of many people, and that their own questions and ideas have value.

Our curriculum is ambitious for all pupils. We recognise that children develop their scientific understanding at different rates and may require different levels of support, but we maintain high expectations for every child. Adaptation, scaffolding, explicit teaching, practical experiences and appropriate challenge enable all pupils to develop increasing independence as scientists.

We want children to understand that science is not simply a collection of facts to remember. It is a way of thinking, questioning and finding out about the world. Through practical investigations and meaningful scientific experiences, pupils learn to use evidence, recognise patterns, identify relationships, explain phenomena and consider how scientific knowledge can be used responsibly.

Ultimately, we want our pupils to leave Year 6 as curious, knowledgeable and confident young scientists who are able to ask thoughtful questions, investigate the world around them and appreciate its wonder and complexity. We want them to have the courage to explore, the connection to learn with and from others, and the curiosity to keep asking **“Why?” “How?” and “What if?”**

In doing so, we want every child to recognise that they too can let their light shine through a love of learning.

Implementation

Our science curriculum is carefully sequenced from EYFS to Year 6 so that children progressively develop the knowledge, vocabulary, understanding and scientific skills required to become successful scientists.

We use **Kapow Primary Science** as the foundation for our science curriculum. The scheme provides a coherent progression of scientific knowledge and Working Scientifically skills across the primary years. Teachers use the Kapow sequence alongside their professional knowledge to ensure that learning is appropriately adapted to the needs and experiences of pupils at Huby.

Science is taught as a discrete subject, while meaningful links are made with other areas of the curriculum wherever these strengthen children's understanding. Teachers also identify opportunities for science to connect with pupils' experiences, the local environment and the wider world.

The Science Learning Journey

Across school, pupils are explicitly taught that scientists:

Question → Predict → Investigate → Observe/Measure → Record → Analyse → Explain → Reflect

Children are encouraged to understand that scientific enquiry does not always produce the result we expect. They learn that unexpected results can lead to further questions and investigations and that changing our ideas in response to evidence is an important part of being a scientist.

Lessons provide a balance of:

- explicit teaching of scientific knowledge and vocabulary
- opportunities to ask and answer questions
- practical investigation and exploration
- observation and careful measurement

- prediction and discussion
- teacher modelling of scientific thinking and enquiry
- opportunities to work collaboratively
- recording and representing findings
- interpreting and discussing evidence
- drawing conclusions and explaining ideas
- reflection on learning and consideration of further questions.

EYFS

In EYFS, children develop the foundations of scientific understanding through **Understanding the World** and through the rich experiences provided across the learning environment.

Children are encouraged to notice, explore, compare, question and talk about the world around them. Adults model curiosity and scientific vocabulary and encourage children to investigate through their senses, play and first-hand experiences.

Children have opportunities to:

- observe changes in the natural environment
- explore plants, animals and living things
- investigate materials and their properties
- notice changes in weather and seasons
- explore light, sound, movement and forces
- talk about similarities, differences and patterns
- ask questions about why things happen
- make predictions and test their ideas.

The natural environment provides an important stimulus for children's curiosity and wonder. Through first-hand experiences, children begin to recognise the beauty, diversity and complexity of the world around them.

Key Stage 1

In KS1, children begin to develop a more systematic understanding of the world around them.

They learn about living things and their habitats, plants, animals including humans, everyday materials, seasonal change, light, sound and forces.

Children are taught to observe closely, using simple equipment where appropriate, and to perform simple tests. They begin to ask questions, make predictions, gather and record data and use their observations to suggest answers.

Practical experiences are used to develop children's understanding and vocabulary, while teachers explicitly model how scientists observe, describe, compare, classify and explain.

Children are encouraged to share their ideas and recognise that scientific investigation is a collaborative process.

Key Stage 2

In KS2, pupils build increasingly secure and sophisticated scientific knowledge and understanding.

Through Kapow Primary Science, pupils encounter progressively challenging concepts relating to:

- living things and their habitats
- plants and animals, including humans
- materials and their properties and changes
- forces and magnets
- light
- sound
- electricity
- Earth and space
- evolution and inheritance.

Pupils increasingly apply their knowledge to explain scientific phenomena and make connections between different areas of science.

They develop greater independence in planning and carrying out investigations, selecting appropriate equipment, taking accurate measurements, recording results, identifying patterns and using evidence to draw conclusions.

Pupils are encouraged to recognise that scientific knowledge develops over time and that scientists may investigate questions collaboratively, building upon the work and discoveries of others.

Working Scientifically

Working Scientifically is integral to our science curriculum rather than being taught as a separate collection of skills.

Pupils progressively develop their ability to:

- ask relevant scientific questions
- make predictions and give reasons
- plan and carry out investigations
- identify and manage variables appropriately
- observe and measure carefully
- select and use appropriate equipment
- record data accurately
- present findings in appropriate ways

- identify patterns and relationships
- use evidence to support explanations
- draw conclusions
- evaluate investigations and suggest improvements
- communicate scientific ideas using appropriate vocabulary.

Teachers explicitly model scientific thinking and language, helping pupils understand both **what scientists do and why they do it**.

Children are encouraged to understand that mistakes, unexpected outcomes and results that challenge their predictions are valuable parts of scientific learning. This develops resilience and courage and helps pupils to see that changing an idea in response to evidence is a strength rather than a failure.

Vocabulary and Scientific Language

Vocabulary development is integral to our science curriculum.

Teachers identify and explicitly teach key scientific vocabulary within each unit. Pupils are given opportunities to hear, discuss, read, rehearse and use scientific terminology in meaningful contexts.

Children are encouraged to move from everyday language towards increasingly precise scientific language as their understanding develops.

We want pupils to be able to explain their scientific thinking clearly and confidently, both orally and in writing.

Practical Science and Enquiry

First-hand experience is central to our science curriculum.

Where appropriate, pupils handle materials, observe living things, carry out investigations, take measurements and use scientific equipment. Practical experiences are purposeful and linked directly to the scientific knowledge and enquiry skills being developed.

Teachers ensure that practical work is accessible to all pupils and that children understand the scientific purpose behind an investigation rather than simply following a set of instructions.

Pupils are encouraged to work collaboratively, listen to the ideas of others and communicate their findings. This develops both scientific understanding and the connection we have with one another as learners.

Science in the Real World

We want children to understand that science is relevant to their everyday lives and to the wider world.

Teachers make meaningful connections between scientific learning and:

- children's own bodies, health and wellbeing
- the natural environment
- technology and everyday materials

- sustainability and caring for creation
- the work of scientists and other professionals
- significant scientific discoveries
- current and local environmental issues
- the ways in which science can improve lives.

Where appropriate, pupils encounter a diverse range of scientists and scientific contributions so that they recognise that science is something **everyone can participate in**.

We encourage children to see themselves as potential scientists and to understand that curiosity, perseverance, collaboration and asking questions are more important than having all the answers immediately.

Inclusion and Adaptation

We recognise that barriers to science learning can arise from a range of factors, including language development, SEND, prior experience, working memory, literacy and confidence with practical activities.

Teachers adapt teaching appropriately while maintaining high expectations. This may include:

- explicit teaching and rehearsal of vocabulary
- visual representations and practical resources
- real-life examples and first-hand experiences
- carefully structured questioning
- sentence stems
- worked examples and teacher modelling
- scaffolds for recording results
- adult support where appropriate
- opportunities to revisit prior learning
- additional practical experiences
- targeted intervention
- appropriate challenge for pupils working beyond age-related expectations.

The aim of support is to enable pupils to participate meaningfully in scientific learning and develop increasing independence and confidence.

Spiritual Development Through Science

Spiritual development is deliberately woven through our science curriculum. Science provides rich opportunities for pupils to reflect on **themselves, other people, the beauty and wonder of creation, and questions that extend beyond what can be immediately observed or measured.**

We use the **Mirrors, Windows, Doors and Candles** model to help teachers identify and plan meaningful spiritual opportunities within science units.

These opportunities are not intended to turn science lessons into RE lessons. Instead, they provide moments where scientific learning naturally invites children to pause, wonder, reflect, question and consider their place within the world.

Mirrors – Looking at ourselves

Science provides opportunities for pupils to develop greater understanding of themselves, their bodies, their needs and their responses to the world around them.

Pupils may:

- learn about the human body and how its different systems work together
- consider how lifestyle choices affect health and wellbeing
- explore how humans grow and change
- reflect on their own senses and experiences
- recognise their own strengths and differences
- consider how their actions affect their health and environment
- reflect on their own questions, ideas and developing understanding
- recognise that it is acceptable not to know an answer and that curiosity can lead to learning.

Through these experiences, pupils develop self-awareness and the confidence to ask questions, investigate and allow their own light to shine.

Doors – Looking at others

Science helps pupils recognise that our understanding of the world is developed through the contributions of many people.

Pupils may:

- learn about scientists from different backgrounds, cultures and periods of history
- explore how scientific discoveries have affected people's lives
- consider different perspectives on scientific and environmental issues
- investigate how science can be used to help others
- consider questions of fairness, access and responsibility
- work collaboratively and value the ideas and contributions of others
- recognise the importance of communication and teamwork in scientific discovery.

Children learn that science is a shared human endeavour and that every person's questions, ideas and contributions can have value.

This develops **connection** and encourages pupils to recognise their responsibility towards others.

Windows – Looking at beauty and wonder

Science provides some of our richest opportunities to encounter the beauty, diversity and complexity of the natural world.

Pupils may:

- observe the patterns and structures found in nature
- explore the diversity of plants and animals
- investigate the beauty and complexity of the human body
- consider the scale and wonder of Earth, the solar system and the universe
- explore patterns, cycles and relationships within the natural world
- use magnification or technology to reveal things that cannot normally be seen
- pause to appreciate unexpected or surprising scientific phenomena
- encounter the beauty of light, colour, sound, movement and living things.

These experiences encourage children to stop, notice and wonder.

Through science, pupils are encouraged to develop a sense of **awe and wonder** and to appreciate the beauty and complexity of creation.

Candles – Looking beyond ourselves

Science can lead naturally to deeper questions about life, creation, responsibility, meaning and our place in the world.

Where appropriate, pupils may explore:

- questions about the origins and diversity of life
- humanity's place within the natural world
- our responsibility to care for creation
- environmental sustainability and stewardship
- ethical questions arising from scientific developments
- how scientific knowledge can be used for good
- questions about what science can explain and what remains beyond scientific explanation
- the wonder and mystery of the universe
- Christian perspectives on creation and our responsibility towards the world.

For example, learning about habitats may lead to questions about our responsibility to care for living things; studying Earth and space may prompt pupils to consider the vastness and wonder of creation; learning about evolution and inheritance may lead to thoughtful discussion about diversity, change and what it means to be human.

These opportunities allow pupils to consider questions that extend beyond the immediate scientific task and to develop a sense of humility, wonder and responsibility.

We want children to understand that **science encourages us to ask questions, while spiritual development encourages us to consider what those questions might mean for ourselves, others and the world in which we live.**

Impact

The impact of our science curriculum is seen in pupils who:

- demonstrate secure and increasingly sophisticated scientific knowledge
- use scientific vocabulary accurately and confidently
- ask relevant and increasingly thoughtful scientific questions
- show curiosity about the world around them
- make predictions and explain their reasoning
- plan and carry out investigations safely and purposefully
- make careful observations and accurate measurements
- record and present results appropriately
- identify patterns and relationships within data
- use evidence to support explanations and conclusions
- recognise when evidence challenges their initial ideas
- evaluate investigations and suggest improvements
- make connections between different areas of scientific learning
- apply scientific knowledge to real-life situations
- work collaboratively and value the ideas of others
- demonstrate resilience when investigations do not produce expected results
- have the courage to share ideas, ask questions and say when they are unsure
- recognise the contributions of scientists and the importance of scientific collaboration
- appreciate the beauty, diversity and complexity of the natural world
- demonstrate a growing sense of responsibility for caring for creation
- engage thoughtfully with ethical and spiritual questions arising from scientific learning

- recognise that their own curiosity and ideas have value.

Assessment is used to identify what pupils know, understand and can apply and to inform subsequent teaching. Teachers use ongoing formative assessment alongside appropriate summative assessment to identify gaps, misconceptions and next steps.

Teachers assess pupils' understanding through questioning, discussion, practical work, observations, investigations, written work and assessment activities. Pupils are given opportunities to demonstrate both their scientific knowledge and their ability to work scientifically.

Pupil books, practical work, assessment information, we want every child to leave Huby with a secure foundation of scientific knowledge and the confidence to use it. We want them to be moderate, pupil voice, lesson visits and curriculum monitoring are used to evaluate the effectiveness of our science curriculum and inform ongoing improvement.

By the end of Year 6, we want every child to leave Huby with a secure foundation of scientific knowledge and the confidence to use it. We want them to be curious about the world, courageous enough to ask questions and investigate, and connected to the people and world around them.

Above all, we want our children to recognise the **wonder, beauty and complexity of creation**, to understand their responsibility to care for it, and to have the confidence to continue asking questions, seeking answers and letting their light shine through a lifelong love of learning.