

HOWE DELL PRIMARY SCHOOL
Science Policy
Autumn 2025
Next review: Autumn 2027

Intent

Howe Dell's Science Curriculum encourages children to be curious and inquisitive learners, through the specific disciplines of Biology, Physics and Chemistry. Children acquire the confidence to use their enquiry skills and work scientifically to ask and answer questions. Teachers deliver our curriculum using CUSP resources and Curriculum Visions; this is tailored to meet the needs of the children within our school, for instance by using pictorial prompts and practical resources.

At Howe Dell we are privileged to have within our grounds allotments, two nature trails, an ECO bus and a wildlife habitat where the children learn to take care of living things and the environment. We use these destinations to promote children's curiosity through applying their learning and providing them with hands on learning experiences. We also incorporate opportunities for the children to use equipment designed for scientific enquiry: for instance in Year 6, the children design their own investigation on mould growth and explore the optimal environment in which it needs to grow. This allows the children to apply their knowledge from the taught curriculum to their own investigation.

We enrich the Science curriculum through experiences, such as Year 5's visit to Kew Gardens where they observe and learn about plants from different parts of the world.

Through the use of the CUSP resources we ensure that we embed scientific vocabulary within the learning so that the children have a deep and rich understanding of our topics. This is interlinked with the progression of skills that the children acquire during their time at Howe Dell.

Aims of the National Curriculum

The national curriculum for science 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

Key Stage One

The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range

of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Lower Key Stage Two

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Upper Key Stage Two

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.

Early Years

In Early Years, children are encouraged and guided to use investigation and exploration to develop their understanding of the world. Our curriculum is designed to enable children to make sense of their physical world and their community. Children are encouraged to be scientists, to:

- Show curiosity and interest in the features of objects and living things
- Describe and talk about what they see
- Show curiosity about why things happen and how things work
- Show understanding of cause-effect relations
- Notice and comment on patterns
- Show an awareness of change
- Explain own knowledge and understanding, and ask appropriate questions of others
- Investigate objects and materials by using all of their senses as appropriate
- Find out about, and identify, some features of living things, objects and events they observe
- Look closely at similarities, differences, patterns and change
- Ask questions about why things happen and how things work

Specific Area of Learning
Understanding the World

ELG 13 The Natural World	How this is achieved in EYFS	Key Vocabulary to be developed in EYFS	Science KS1
<ul style="list-style-type: none"> 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 has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and the changing states of matter. 	<p>Naming body parts through songs.</p> <p>Exploring minibeast and recording our observations over time.</p> <p>Going on walks to observe the local environment and to compare and learn about the seasons.</p> <p>Taking photos to compare seasons and discuss.</p> <p>Planting seeds and plants. Growing plants from bulbs and seeds.</p> <p>Creating bug hotels.</p> <p>Water tray activities to explore water, ice, and materials that float and sink.</p> <p>Exploration of gravity and forces through explore and learn.</p>	<ul style="list-style-type: none"> Animal Alive Food See Hear Touch Smell Taste Plant Seed Grow Flower Leaf Shiny Hard Rough Weather Seasons 	<p><u>Living things and their habitats</u> Pupils should be taught to:</p> <ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food <p><u>Plants</u> Pupils should be taught to:</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy <p><u>Animals, including humans</u> Pupils should be taught to:</p>

				<ul style="list-style-type: none"> • notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene <p><u>Uses of everyday materials</u> Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
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Implementation

Planning

At Howe Dell, Science is taught across each year group and is sequenced to enable pupils to study in depth key scientific understanding, skills and vocabulary. Each unit aims to activate and build upon prior learning, including EYFS, to ensure better cognition and retention. Our learning is carefully sequenced to enable pupils to purposefully layer learning from previous sessions to facilitate the acquisition and retention of key scientific knowledge. We ensure learning is revisited either later in the year or in the following year as part of a spaced retrieval practice method to ensure pupils retain key knowledge and information.

EYFS		
Science is taught in EYFS through a range of provision as part of Early Learning Goals in line with the statutory framework.		
Year 1		
Autumn	Spring	Summer
Subject area: Physics Topic: Seasonal changes and daily weather Subject area: Biology Topic: Introduce plants – (trees) Subject area: Biology Topic: Animals, including humans	Subject area: Chemistry Topic: Everyday materials Subject area: Biology Topic: Revisit - Animals, including humans	Subject area: Biology Topic: Plants Subject area: Biology Topic: Revisit – Plants/Animals including humans
Year 2		
Autumn	Spring	Summer
Subject area: Biology Topic: Living things and their habitats Subject area: Biology Topic: Animals, including humans	Subject area: Chemistry Topic: Uses of everyday materials Subject area: Biology/Chemistry Topic: Revisit - Living things and their habitats/materials	Subject area: Biology Topic: Plants Subject area: Biology Topic: Revisit – Living things and their habitats/Animals including humans
Year 3		
Autumn	Spring	Summer
Subject area: Chemistry Topic: Rocks Subject area: Biology Topic: Animals, including humans Subject area: Chemistry Topic: Revisit – Rocks	Subject area: Physics Topic: Forces and Magnets Subject area: Biology Topic: Plants	Subject area: Biology Topic: Plants continued Subject area: Physics Topic: Light

Year 4		
Autumn	Spring	Summer
Subject area: Biology Topic: Living things and their habitats Subject area: Chemistry Topic: States of matter	Subject area: Biology Topic: Animals, including humans	Subject area: Physics Topic: Electricity Subject area: Physics Topic: Sound
Year 5		
Autumn	Spring	Summer
Subject area: Chemistry Topic: Properties and changes of materials Subject area: Biology Topic: Animals, including humans	Subject area: Physics Topic: Forces (Gravity and Galileo) Subject area: Physics Topic: Earth and space	Subject area: Biology Topic: Living things and their habitats Subject area: Physics Topic: Forces continued
Year 6		
Autumn	Spring	Summer
Subject area: Physics Topic: Electricity Subject area: Biology Topic: Animals, including humans (circulatory system) Subject area: Biology Topic: Animals, including humans (water transport)	Subject area: Physics Topic: Light Subject area: Biology Topic: Living things and their habitats	Subject area: Biology Topic: Evolution and inheritance

Knowledge Organisers and Notes

Accompanying each module is a Knowledge Organiser which contains key vocabulary, information and concepts which all pupils are expected to understand and retain. Knowledge notes are the elaboration and detail to help pupils acquire the content of each module. They support vocabulary and concept acquisition through a well-structured sequence that is cumulative. Each Knowledge Note begins with questions that link back to the cumulative quizzing, focussing on key content to be learnt and understood. Knowledge Organisers and Knowledge Notes are dual coded to provide pupils with visual calls to aid understanding and recall.

Knowledge Organisers and Knowledge notes are referenced throughout each module. In addition, pupils can access at home key learning platforms that are used in school e.g. Curriculum Visions.

Vocabulary

Vocabulary forms a key part of our wider curriculum. Subject specific Tier 2 and Tier 3 words are incorporated in each module.

Continuous Professional Development

All staff have undergone CPD in Cognitive Load Theory, Spaced Practice Retrieval Theory and planning the wider curriculum which has supported the development of a modular wider curriculum.

Impact

Pupil Book Study

Senior leaders and subject leaders regularly undertake book studies to monitor the effectiveness of teaching and learning. This includes sessions with small groups of pupils using questioning to check and ensure information and knowledge is acquired and understood with increasing confidence. Feedback is given to teaching staff to inform future planning.



What features does your structure have?

How does it protect the egg?

Are any features similar to a human skeleton?

Hand-drawn sketches of a structure with various parts labeled. A pink checkmark is visible on the right side.

20.10.22

Observation

After 10 minutes: [Handwritten notes]

After 20 minutes: [Handwritten notes]

After 30 minutes: [Handwritten notes]

Handwritten notes and diagrams on the right page of a notebook, including a flowchart with hexagonal nodes and arrows.

Hand-drawn sketches of a person's body parts with handwritten labels and notes.

Handwritten notes describing the sketches, including terms like "Shoulder", "Elbow", "Wrist", "Hand", "Finger", "Toe", "Heel", "Ankle", "Knee", "Hip", "Shoulder blade", "Chest", "Back", "Neck", "Head", "Eyes", "Ears", "Nose", "Mouth", "Teeth", "Tongue", "Lips", "Cheeks", "Jawline", "Chin", "Neckline", "Collarbone", "Shoulder joint", "Elbow joint", "Wrist joint", "Ball and socket joint", "Hinge joint", "Pivot joint", "Saddle joint", "Gliding joint", "Sliding joint", "Ball and socket joint", "Hinge joint", "Pivot joint", "Saddle joint", "Gliding joint", "Sliding joint".

Hand-drawn sketches of a person's body parts with handwritten labels and notes.

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Handwritten notes and diagrams on the right page of a notebook, including a diagram with a sequence of hexagonal shapes and arrows.

Ongoing Teacher Assessment

Teachers assess pupils throughout each session using the grids below to monitor pupils and inform planning for subsequent sessions.

Animals, including humans

- What is an animal?
- What types of animals are there? (Mammals and Birds)
- What types of animals are there? (Amphibians, Reptiles, Fish)
- What is similar and what is different?
- What does food tell us about an animal?
- What makes me an animal? What senses do I have?

Total number of pupils in class	Initials of those WTS / F20%	Number EXS	Initials of stand out pupils
Assessment notes: E.g. areas to revisit next half term.			