

Science Curriculum

Key threads

Biology	Chemistry	Physics	Working scientifically
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Intent of study

Our Science curriculum is designed to develop all children's knowledge, vocabulary and curiosity about the 'big ideas in science'. Maturing Scientific knowledge and conceptual understanding through the disciplines of biology, chemistry and physics, underpinned by working scientifically. These key threads within science are taught progressively to build solid subject foundation and a breath of scientific vocabulary, which they can use confidently and contextually, this is visible within each topic we teach (see Science progression overviews for links through each key thread). Our comprehensive science curriculum clearly meets the aims of the new National Curriculum for Science.

We aim to cultivate a spirit of enquiry through practical exploration and investigation activities both inside and outside the classroom. For example, our youngest children in EYFS make observations of earthworms and the life cycle of butterflies, with our oldest pupils making detailed observations of animal behaviour at different times over the year. Identifications of plants and animals with a range of habitats are made (Year 2), leading to classification of plants over the year (Year 4). We teach challenging scientific concepts meaningful for our children with carefully pitched activities, with complementing videos, diagrams, charts, interactive investigations, ICT and wider text. Supporting every child to achieve. They are encouraged to understand how science can be used to explain what is occurring, predict how things will behave/change, analyse causes and an understanding of the uses and implications of Science, today and for the future.

As a product of our pupil's study of science we intend to encourage a respect for living organisms, the physical environment and provide opportunities for critical evaluation of evidence. Alongside the enjoyment and enthusiasm of scientific understanding and discovery.

Subject specific vocabulary for each thread is taught and built up, and effective questioning to communicate ideas is encouraged. Knowledge and concepts taught are reinforced by focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Implementation:

Teachers are provided with support for subject leaders and CPD to plan their curriculum. Science is taught termly blocks for two hours per week over predominantly two separate lessons.

As part of this planning process, our teachers need to plan the following:

- Science is taught in planned and arranged topic blocks using Collins Snap Science. This is a strategy to enable the achievement of a greater depth of knowledge.
- Lessons are supported by the knowledge organiser which outlines knowledge which children must master and apply in lessons and identify explicit links to previous studies;
- A cycle of lessons for discipline studied, which carefully plans for progression and depth concentrating on the scientific knowledge and skills suited to the age group;
 - New vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Formative assessment is built in to all lessons
- Provide regularly knowledge checks to support learners' ability to block learning and increase space in the working memory;
- Pose scientific questions for pupils to apply their learning to previous studies or to a wider topic
- Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout school
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding.

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- Scientific experiments routinely planned and organised to develop Working Scientifically skills and support children to apply the skills and knowledge they have learned.
- = Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning.
- Trips and visiting experts who will enhance the learning experience;
- Explicit links are made to our forest school provision.
- Summative tests are undertaken after each termly topic.

Impact:

Our Science Curriculum is of high quality, knowledge rich and is planned to demonstrate progression. That provides children with the foundations for understanding the world and its natural processes, leading to an appreciation of our environment and all which inhabit it.

If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- A reflection on standards achieved against the planned knowledge outcomes.
- A celebration of learning for each term, which demonstrates progression across the school.
- Tracking of knowledge and vocabulary through regular knowledge checks.
- Analysis of summative end of topic assessments.
- The undertaking of experiments and investigations.
- Pupil discussions about their learning.
- Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.

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