

Science Intent

What Science looks like in our school:

- ▶ Throughout the school our science topics and teaching provide rich opportunities for children to be inspired to develop a love of science
- ▶ We ensure topics provide opportunities for enjoyment and exploration, and incorporate environmental links wherever possible, to deliver excellence
- ▶ We want our children to have a knowledge of the world around them and how and why things happen
- ▶ Children work alone, with partners and in groups to develop key scientific skills. See our Science Curriculum Progressions Grids and our Knowledge maps for this broken down by area and year group
- ▶ Knowledge and skills progression across year groups ensures that children know more and remember more as they progress through our school

By the end of Year R pupils will:

- ▶ Know about similarities and differences in relation to places, objects, materials and living things.
- ▶ Talk about the features of their own immediate environment and how environments might vary from one another.
- ▶ Make observations of animals and plants and explain why some things occur, and talk about changes.

By the end of KS1 pupils will:

- ▶ Observe closely, using simple equipment
- ▶ Gather and record simple data
- ▶ Use observations and ideas to suggest answers to questions
- ▶ Ask simple questions and recognise they can be answered in different ways
- ▶ Perform simple tests
- ▶ Identify and classify

By the end of lower KS2 pupils will:

- ▶ Ask relevant questions and use different types of scientific enquiries to answer them
- ▶ Set up simple practical enquiries, comparative and fair tests
- ▶ Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment
- ▶ Gather, record, classify and present data in a variety of ways to help in answering questions
- ▶ Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- ▶ Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- ▶ Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- ▶ Identify differences, similarities or changes related to simple scientific ideas and processes
- ▶ Use straightforward scientific evidence to answer questions or to support their findings.

By the end of upper KS2 pupils will:

- ▶ Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- ▶ Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;
- ▶ Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;
- ▶ Use test results to make predictions to set up further comparative and fair tests;
- ▶ Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;
- ▶ Identify scientific evidence that has been used to support or refute ideas or arguments.



Science Implementation

How Science is taught in our school:

- ▷ Science is taught in a variety of ways across our school to maximise pupil learning and cross curricular links wherever possible. We allow teachers the flexibility to block or spread lessons as they choose.
- ▷ We aim for our lessons to be as practical and engaging as possible
- ▷ Curriculum Progression Grids and Knowledge maps are used by each year group to plan lesson and series of lessons. This ensures full coverage of our curriculum over the academic year
- ▷ By the time children leave our school they will have covered a broad range of scientific concepts using all of the skills and knowledge set out by the national curriculum

Adults roles:

- ▷ Plan lessons based on the Curriculum Progression Grids and Knowledge maps for their year groups
- ▷ Create a learning environment that stimulates children's interest in the topics studied, using practical resources where possible
- ▷ Plan visits and trips, where possible, to inspire children's imaginations and connections to their learning
- ▷ Biannual review of our science curriculum by the co-ordinator to include: lesson observations, work scrutiny, staff and pupil interviews
- ▷ Opportunities for stakeholders to come into the classroom to share in the learning of science with pupils. Open door tours are a key way we do this each term

How we support pupils and ensure they can access the curriculum:

- ▷ Work maybe differentiated to allow children to meet the learning objective. This could take the form of additional adult support, the use of resources, peer support or the differentiation of the work to be completed.
- ▷ We use live teacher-assessment and self-assessment to quickly identify those who may need more help in specific areas
- ▷ For pupils with specific SEN or EAL needs a variety of approaches maybe used including: pre-teaching of specific vocabulary, seating children alongside role-models, providing visual practical prompts, adult support and adaptation of activities to ensure engagement.

How we provide challenge:

- ▷ Work maybe differentiated to allow children to go beyond the year group's objective. This could take the form of additional independent work, the use of resources, peer mentoring or the differentiation of the work to be completed
- ▷ We use live teacher-assessment and self-assessment to quickly identify those who may need more challenge in a specific areas



Science Impact



This is what you might see:

- ▷ Pupils develop knowledge and skills across the curriculum
- ▷ The development of knowledge and skills they need for the next stage in education
- ▷ Pupils work across the curriculum is of good quality
- ▷ A recap of learning from previous year groups
- ▷ A 'hook' to inspire and capture the children's imagination
- ▷ Engaged learners
- ▷ Children posing questions for research
- ▷ Children interpreting and reflecting on scientific concepts, making comparisons between different concepts
- ▷ Children experimenting with resources
- ▷ Trips or visitors coming into school to provide children with an insight into a particular event or era

This is how we know our pupils are doing well:

- ▷ Lessons are planned using our Curriculum Progressions Grids and our Knowledge maps
- ▷ Teachers assess progress using our Assessment Grids recording who has achieved each key area, those who have exceeded it and those who are working towards it. For those exceeding the objective and those (20%) working below the expected level evidence will be provided to support the teacher judgement
- ▷ Feedback from teachers and peers
- ▷ Science books will record the key learning for each child through the use of photographs, pieces of class work and explanation of lessons / learning strategies undertaken
- ▷ Subject leaders monitor the coverage and progression of pupils within their subject on a biannual basis

Impact of our teaching:

- ▷ Children who enjoy science
- ▷ Inquisitive learners
- ▷ Reflective learners
- ▷ Children who are able to weigh up evidence and form an opinion about concepts
- ▷ Children who are prepared to share what they have learned in a variety of ways

