



Subject Overview - Science

Aim high & be a Star

Our curriculum

The curriculum is built on the foundation that knowledge will build on knowledge so that children know and remember more over their school journey. To achieve this, the curriculum must be grounded in educational research to ensure that it is a driver to success. The overview below states how our history curriculum achieves this.



Teaching and Learning Cycle

The sunshine model outlines the effective delivery of information over the course of a lesson. It allows for recapping of prior knowledge; the sharing of information; the use of assessment to check understanding; the opportunity to practise whilst being supported through scaffolding and the review of learning which will inform the next steps in learning. This cycle of learning should be viewed alongside the Aspire values and Aspire learning skills.



Purpose

At Greenways, we believe that science is taught through deliberately planned opportunities to engage with working scientifically. Through a range of practical investigations and through a range of scientific enquiries, we allow our children to explore, learn and develop their subject knowledge, building upon their prior learning.



Aims

The science curriculum at Greenways 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

Dashboards

- To support teachers in planning Science, we use dashboards to show clear progression within content, skill and knowledge.
- All teachers access and utilise the dashboards to identify what their year group expectations are, where learning has come from and also what we teach which is beyond the NC year group expectations.

Planning

Science is taught on a weekly basis as a distinct subject. The curriculum is organised into half-term or termly units, contingent upon the depth of knowledge required.

Staff use the knowledge that is broken down into core components to allow them to plan activities that showcase knowledge so that accurate adaptation can be made based on assessment of the lesson outcomes.



National Curriculum

The requirements and content of the National Curriculum provides the foundation of our Science learning, ensuring scientific enquiry is taught:

- Observing over time
- Pattern seeking
- Identifying, classifying and grouping
- Comparative and fair testing (controlled testing)
- Researching using secondary sources

Through these enquiries, pupils should seek answers to questions through collecting, analysing and presenting data.

Practical scientific methods, processes and skills (working scientifically) are also carefully planned for.

Key Stage One:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Lower Key Stage Two:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions



National Curriculum

- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Upper Key Stage Two

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting 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
- identifying scientific evidence that has been used to support or refute ideas or arguments

Through a carefully sequenced and progressive subject dashboard, we cover the aims of the national curriculum: [National curriculum in England: science programmes of study - GOV.UK](#)



Assessment

Effective assessment is critical to teaching because it provides teachers with information about pupils' understanding and needs. Teachers will plan formative assessment tasks linked to lesson objectives and will draw conclusions about what pupils have learned by looking at patterns of performance over time. At the end of each unit, children will complete an 'End of Unit Assessment' which alongside formative assessment, teachers will use to make a judgement, which will begin to build a picture of a pupil's competency in the subject content.

The academy will present to parent, for discussion, an annual written report on each pupil involved in Key Stage 1 and Key Stage 2.

Assessment of the children's work and their acquisition of knowledge will be made using:

- End of unit assessments
- Written work
- Low stakes quizzing
- Engagement with disciplinary content
- Evaluating patterns of performance over time
- Discussion between individual children and teacher observation