



# Rushbury C of E School

Curiosity, Respect, Perseverance, Friendship

## What Science Looks Like In Our School

Science lead: Kate Reeves

## Curriculum (Intent)

### What a Science lesson looks like in our school:

- A variety of activities which take place inside and outside of the classroom to engage children about the world around them.
- Investigations/practical exploration with the children being able to plan, record, carry out and conclude their learning.
- Opportunities to work individually, in pairs or groups.
- A range of scientific resources to enable the children to carry out engaging experiments.
- Subject specific vocabulary taught explicitly throughout the unit.
- Different aspects of Science are focused upon such as Biology, Chemistry or Physics and shared with the children.
- To use a range of technology where possible to help the children learn.

### This is our philosophy:

- Learning through exploration and investigation.
- Using the children's understanding as a starting point.
- Making links to the world around us.
- High quality modelling of scientific skills and techniques.
- Promoting the use of the scientific method when needed to extend learning.
- Cross-curricular links where possible.

### This is the knowledge and understanding gained at each stage:

#### By the end of EYFS pupils will:

- 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 changing states of matter.

#### By the end of Key Stage 1 pupils will:

- Experience and observe phenomena, looking more closely at the natural and humanly constructed world around them.
- Be encouraged to be curious and ask questions about what they notice.
- 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.

- 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.
- Carry out first-hand practical experiences.
- Use appropriate secondary sources, such as books, photographs and videos to support their learning.
- Work scientifically.
- Read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at Key Stage 1.

**By the end of Lower Key Stage 2 pupils will:**

- Enable pupils to broaden their scientific view of the world around them.
- Explore, talk about, test and develop 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.
- 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.
- Draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.
- Work scientifically.
- Read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

**When working scientifically Lower Key Stage 2 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, use a range of equipment, include thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help in answering questions.
- Record findings use simple scientific language, draw, label diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, include 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 Key Stage 2 pupils will:**

- Enable pupils to develop a deeper understanding of a wide range of scientific ideas.
- Explore and talk about their ideas; ask their own questions about scientific phenomena; and analyse functions, relationships and interactions more systematically.
- Encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates.
- Recognise that scientific ideas change and develop over time.
- 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.

- 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.
- Read, spell and pronounce scientific vocabulary correctly.

**When working scientifically Upper Key Stage 2 pupils will:**

- Plan different types of scientific enquiries to answer questions, include recognise and control variables where necessary.
- Take measurements, use 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.

**Teaching (Implementation)**

**This is how it works:**

- Knowledge and understanding taught in blocks of work with a new topic each term/half term.
- Where possible links made with other subjects to enrich learning.
- Opportunities each term for children to develop their investigative skills focusing on a different aspect of enquiry each term.
- Incorporate the use of technology where appropriate.
- At least one aspect of scientific enquiry taught six times a term.
- Key scientific vocabulary taught in each lesson.
- Provide a range of engaging resources to enable the children to carry out fun and exciting experiments to deepen their learning and develop their understanding of the concept that is being taught.
- Opportunities for paired, group and class discussion/debate to consolidate learning.

**Achievement (Impact)**

**This is what you might see:**

- Engaged learners
- Open and closed questioning
- Children posing their own questions and hypothesis for investigation
- Paired/group work
- Varied activities
- Practical investigations
- Children discussing, reflecting and sharing their learning.

**This is the impact of the teaching:**

- Confident children who can talk about their science lessons and discoveries made.
- Children are able to use and explain the meaning of scientific vocabulary.
- Children who can confidently explain what they have learnt.
- Children who are prepared to take risks.
- Children who enjoy science lessons.