2014 Science Programme of Study: Key Stage 2

Working Scientifically L
Pupils will also learn about famous scientists from our past and whose contributions have helped shape the world we live in, as well as learning to read, spell and pronounce scientific vocabulary correctly.

'Working scientifically' in Year 5 and Year 6, builds on earlier content and also includes aspects of:

- ✓ Planning investigations, including controlling variables.
- ✓ Taking measurements with increasing accuracy and precision.
- ✓ Recording data and results of increasing complexity using various formats.
- ✓ Reporting on findings from investigations, including written explanations, causal explanations and conclusions.
- ✓ Presenting reports of findings in written form, displays and presentations.
- ✓ Continuing to develop the ability to use test results to make predictions to set up further comparative and fair tests.

2014 Science Programme of Study: Key Stage 3

Working Scientifically:
Working scientifically, in Year 7 and Year 8, further develops pupil's practical skills across the content of all three disciplines; Biology, Chemistry and Physics.

Pupils will be taught:

Scientific attitudes, where pupils should:

- ✓ Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility.
- ✓ Understand that scientific methods and theories develop as scientists modify earlier explanations to take account of new evidence and ideas, together with the importance of publishing results and peer review.
- ✓ Evaluate risks.

Experimental skills and investigations, so that pupils can:

- ✓ Ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience.
- ✓ Make predictions using scientific knowledge and understanding.
- ✓ Plan and design investigations and experiments to make observations and test predictions, including identifying independent, dependent and control variables and their intrinsic nature and take into account other factors to be considered when collecting evidence and data.
- ✓ Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying special attention to health and safety.

- ✓ Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.
- ✓ Apply sampling techniques.

Analysis and evaluation, so that pupils can:

- ✓ Apply mathematical concepts and calculate results.
- ✓ Present observations and data using appropriate methods, including tables and graphs.
- ✓ Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions.
- ✓ Present reasoned explanations, including explaining data in relation to predictions and hypotheses.
- ✓ Evaluate data, showing awareness of potential sources of random and systematic error.
- ✓ Identify further questions arising from their results

Measurement, where pupils should:

- ✓ Understand and use SI units and IUPAC (International Union of Pure and Applied Chemistry) chemical nomenclature.
- ✓ Use and derive simple equations and carry out appropriate calculations.
- ✓ Undertake basic data analysis, including simple statistical techniques.