Working Scientifically

Key Stage One
The principle focus at this stage is to enable children to experience and observe phenomena. They should be encouraged to be curious and ask questions about what they oberve and experience. They should begin to use scientific language to explain what they have found and communicate ideas. Where possible, this should be done through practical, first hand experiences. Pupils should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.
• Asking simple questions and recognising that they can be answered in different ways (WS1) • Observing closely, using simple equipment (WS2) • Performing simple tests (WS3) • Identifying and classifying (WS4) • Using their observations and ideas to suggest answers to questions (WS5) • Gathering and recording data to help in answering questions. (WS6)
Lower Key Stage Two
The principle focus at this stage in to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena. Children should be encouraged to ask their own questions and make decisions. They should be able to draw simple conclusions and use some scientific language within their explanations both verbally and developing to writing what they have found out about. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.
• Asking relevant questions and using different types of scientific enquiries to answer them (WS1) • Setting up simple practical enquiries, comparative and fair tests (WS2) • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (WS3) • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (WS4) • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables (WS5) • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (WS6) • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (WS7) • Identifying differences, similarities or changes related to simple scientific ideas and processes (WS8) • Using straightforward scientific evidence to answer questions or to support their findings. (WS9)

Upper Key Stage Two
The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. They should begin to understand how scientific ideas develop and change over time. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas. Pupils should read, spell and pronounce scientific vocabulary correctly.
• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary (WS1) • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (WS2) • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (WS3) • Using test results to make predictions to set up further comparative and fair tests (WS4) • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations (WS5) • Identifying scientific evidence that has been used to support or refute ideas or arguments. (WS6)