UKS2 Cycle A

Working Scientifically

Scientific enquiry	Practical investigation	Communicating	Interpreting evidence
Explores ideas and raises different kinds of relevant questions. Recognises which secondary sources are most useful to research their ideas and begins to recognise that there are differences between facts and opinions. Explores ideas and raises different kinds of relevant questions arising from correct scientific principles. Recognises which secondary sources will be most useful to research their ideas and begins separate opinions from fact.	With increasing confidence selects and plans the most appropriate type of scientific enquiry for answering a scientific question. Recognises when and how to set up comparative and fair tests and is beginning to explain which variables need to be controlled and why. Makes their own decisions about what observations to make, what measurements to use and how long to make them for. Chooses appropriate equipment to make measurements. Selects and plans accurately the most appropriate type of scientific enquiry for answering a scientific question. Recognises when and how to set up comparative and fair tests and explains which variables need to be controlled and why. Makes independent, well founded decisions about what observations to make, what measurements to use and how long to make them for. Chooses the most appropriate equipment to make measurements and explains how to use it accurately.	Decides how to record data from a choice of familiar approaches. Uses relevant scientific language and illustrations to discuss and communicate their ideas. Is sometimes able to justify their scientific ideas. Talks about how scientific ideas have developed over time. Uses and develops keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. Records data and results using scientific diagrams and labels, classification keys, tables and bar and line graphs. Uses simple models to describe scientific ideas. Reports and presents findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. Decides how to record data from a choice of familiar approaches. Uses relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas. Talks about how scientific ideas have developed over time. Uses and develops keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. Records data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Uses simple models to describe scientific ideas. With increasing accuracy reports and presents findings from conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations.	Looks for different causal relationships in their data and begins to identify evidence that refutes or supports their ideas. Uses their results to identify when further tests and observations might be needed. Looks for different causal relationships in their data and identifies evidence that refutes or supports their ideas. Uses test results to make predictions to set up further comparative and fair tests.

UKS2 Cycle A

Knowledge and Understanding

Framed (Autumn 1 & 2)	The Victorians	Where art thou? (Summer 1 & 2)
Properties and changes of materials	**Classification, Evolution and Inheritance**	**Electricity**
Compares and groups together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. *Could work scientifically by: carrying out tests to answer questions, e.g. 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?'* Knows that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Uses knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Gives reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrates that dissolving, mixing and changes of state are reversible changes. Explains that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	Recognises that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identifies how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Gives reasons for classifying plants and animals based on specific characteristics. Describes how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. *Could work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment.*	Associates the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compares and gives reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Uses recognised symbols when representing a simple circuit in a diagram. *Could work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.*