



# Working scientifically skills

## Year 3 & 4

### Asking relevant questions and using different types of scientific enquiries to answer them

- The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions.
- The children answer questions posed by the teacher.
- Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.

### Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

- The children make systematic and careful observations.
- They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.

### Setting up simple practical enquiries, comparative and fair tests

- The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.
- They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.

#### **Explanatory note**

A comparative test is performed by changing a variable that is qualitative e.g. the type of material, shape of the parachute. This leads to a ranked outcome.

A fair test is performed by changing a variable that is quantitative e.g. the thickness of the material or the area of the canopy. This leads to establishing a causative relationship.

### **Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions**

#### **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables**

- The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.
- Children are supported to present the same data in different ways in order to help with answering the question.

#### **Using straightforward scientific evidence to answer questions or to support their findings**

- Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.

#### **Identifying differences, similarities or changes related to simple scientific ideas and processes**

- Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.

#### **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions**

- They draw conclusions based on their evidence and current subject knowledge.
- They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.
- Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.
- Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.

#### **Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions**

- They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.