

Dr. Walker's Science Curriculum

Lower and Upper Key Stage 2

Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

3S1 asking relevant questions and using different types of scientific enquiries to answer them

3S2 setting up simple practical enquiries, comparative and fair tests

3S3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

3S4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

3S5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

3S6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

3S7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

3S8 identifying differences, similarities or changes related to simple scientific ideas and processes

3S9 using straightforward scientific evidence to answer questions or to support their findings.

Non-statutory Guidance

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.

They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data. With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.

These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4. Pupils are not expected to cover each aspect for every area of study.

By the end of Year 4 (lower KS2) children will learn about the following topics:

- Plants
- Rocks
- Living things and their habitats
- Electricity
- Animals including humans
- Light
- Sound
- Forces and magnets

Statutory Requirements

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

6S1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

6S2 making measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

6S3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

6S4 using test results to make predictions to set up further comparative and fair tests

6S5 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

6S6 identifying scientific evidence that has been used to support or refute ideas or arguments.

Non-statutory Guidance

Pupils in years 5 and 6 should use their science experiences to: explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should use and develop 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. They should make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; look for different causal relationships in their data and identify evidence that refutes or supports their ideas. They should use their results to identify when further tests and observations might be needed; recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time. These opportunities for working scientifically should be provided across years 5 and 6 so that the expectations in the programme of study can be met by the end of year 6. Pupils are not expected to cover each aspect for every area of study.

By the end of Year 6 (Upper KS2) children will have learnt the following topics in greater depth than in Lower KS2:

- Animals including humans
- Living things and their habitats
- Earth and space
- Forces and magnets
- Properties and changes
- States of matter
- Light
- Electricity