

SCIENCE – WORKING SCIENTIFICALLY PROVISION MAP



Understanding the World – The world - Science overview

ELG -

- Explore the natural world around them, making observations and drawing pictures of animals and plants
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in- the natural world around them, including the seasons

Focus	Living things and their habitats	Plants	Animals, including humans
Reception	• Describe what they see, hear & feel whilst outside • Observational drawings of the natural world • Discuss how to care for the living things & their habitats • observe how flora & fauna behave differently as the seasons change • Examine change over time including seasonal/weather/months of the year vocabulary • Use correct terms e.g. chrysalis, pupa when observing life cycle of butterfly & ladybirds • Express opinions on natural & built environments & opportunities to hear different points of view on the quality of the environment. Use words such as busy, quiet, pollution	• All plants need water, light and warmth to grow and survive • A seed produces roots to allow water to get into the plant and shoots to produce leaves to collect the sunlight • Extend vocabulary: blossom, buds, bulb, evergreen, deciduous • Describe what they see, hear & feel whilst outside • Name & describe some plants • Draw pictures of plants • Understand the effect of changing seasons on the natural world around them	• Shows some understanding that good practices with regard to exercise, eating, drinking water, sleeping & hygiene can contribute to good health • Describe what they see, hear & feel - Vocabulary linked to senses • Identify different parts of their body & animals • Be able to show care and concern for living things • Know the effects exercise has on their bodies • Have some understanding of growth and change • Talk about things they have observed including animals • Observational drawings of animals - Dinosaurs and fossils
Focus	Everyday Materials	States of Matter	Light and Dark
Reception	• Vocabulary used around materials used in art and DT Vocabulary of materials used around the environment	• Vocabulary used around materials used in cooking and changes eg: solids, liquids, melting etc	• Shadows, day and night, hibernation • Investigations with torches • Noticing sound echoes, loud, quiet, sense walk Sun safety

SCIENCE – WORKING SCIENTIFICALLY PROVISION MAP



Focus	Forces	Electricity	Earth and Space
	Pushes and pulls language Magnetism – games Air resistance using balloons	Electrical safety, plugged in and batteries	Knowledge of sun, moon, earth, planets vocabulary Animal adaptations for their environment

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways;
- observing closely, using simple equipment;
- performing simple tests;
- identifying and classifying;
- using their observations and ideas to suggest answers to questions;
- gathering and recording data to help in answering questions.

Lower Key Stage 2 National Curriculum Working Scientifically

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:

- asking relevant questions and using different types of scientific enquiries to answer them;
- setting up simple practical enquiries, comparative and fair tests;
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers;
- 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;
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;
- identifying differences, similarities or changes related to simple scientific ideas and processes;

Upper Key Stage 2 National Curriculum Working Scientifically

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:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;
- using test results to make predictions to set up further comparative and fair tests;
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;
- identifying scientific evidence that has been used to support or refute ideas or arguments.

In line with the national curriculum aims for science, this progression map includes fair testing in the 'Asking Questions and Carrying Out Fair and Comparative Tests' section. When we talk about making tests fair, we are referring to any investigation when efforts are made to achieve more reliable data by changing the variable being tested and keeping all control variables the same. This interpretation of fair testing at primary level is consistent with the example given in the Standards and Testing Agency Science Teacher Assessment Exemplification for KS2.

	Kingfishers	Hérons	Kestrels
Plan	KS1 Science National Curriculum Asking simple questions and recognising that they can be answered in different ways. Children can: - a explore the world around them, leading them to ask some simple scientific questions about how and why things happen; - b begin to recognise ways in which they might answer scientific questions; - c ask people questions and use simple secondary sources to find answers.	Lower KS2 Science National Curriculum Asking relevant questions and using different types of scientific enquiries to answer them. Children can: - a start to raise their own relevant questions about the world around them in response to a range of scientific experiences; - b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; - c recognise when a fair test is necessary; - d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.	Upper KS2 Science National Curriculum Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Children can: - a with growing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences; - b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; - c explore and talk about their ideas, raising different kinds of scientific questions; - d ask their own questions about scientific phenomena; - e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; - f 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; - g plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary.

	Kingfishers	Hérons	Kestrels
Do	KS1 Science National Curriculum Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Children can: a observe the natural and humanly-constructed world around them; b observe changes over time; c use simple measurements and equipment; d make careful observations, sometimes using equipment to help them observe carefully; e carry out simple practical tests, using simple equipment; f experience different types of scientific enquiries, including practical activities; g talk about the aim of scientific tests they are working on; h use simple features to compare objects, materials and living things; i decide how to sort and classify objects into simple groups with some help.	Lower KS2 Science National Curriculum Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Setting up simple practical enquiries, comparative and fair tests. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Children can: a make systematic and careful observations; b observe changes over time; c use a range of equipment, including thermometers and data loggers; d ask their own questions about what they observe; e where appropriate, take accurate measurements using standard units using a range of equipment; f set up and carry out simple comparative and fair tests; g talk about criteria for grouping, sorting and classifying; h group and classify things.	Upper KS2 Science National Curriculum Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Children can: a choose the most appropriate equipment to make measurements and explain how to use it accurately; b take measurements using a range of scientific equipment with increasing accuracy and precision; c make careful and focused observations; d know the importance of taking repeat readings and take repeat readings where appropriate; e independently group, classify and describe living things and materials; f use and develop keys and other information records to identify, classify and describe living things and materials.

	Kingfishers	Hérons	Kestrels
Record	KS1 Science National Curriculum Gathering and recording data to help in answering questions. Children can: a record and communicate findings in a range of ways with support; b sort, group, gather and record data in a variety of ways to help in answering questions, such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.	Lower KS2 Science National Curriculum 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. Children can: a collect data from their own observations and measurements; b present data in a variety of ways to help in answering questions; c use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge; d record findings using scientific language, drawings, labelled diagrams, keys, bar charts and tables.	Upper KS2 Science National Curriculum Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Children can: a decide how to record data from a choice of familiar approaches; b record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs and line graphs.

Review	Kingfishers	Hérons	Kestrels
	KS1 Science National Curriculum Using their observations and ideas to suggest answers to questions. Children can: - notice links between cause and effect with support; - begin to notice patterns and relationships with support; - begin to draw simple conclusions; - identify and discuss differences between their results; - use simple and scientific language; - read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1; - talk about their findings to a variety of audiences in a variety of ways.	Lower KS2 Science National Curriculum Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Identifying differences, similarities or changes related to simple scientific ideas and processes. Using straightforward scientific evidence to answer questions or to support their findings. Children can: - a draw simple conclusions from their results; - b make predictions; - c suggest improvements to investigations; - d raise further questions which could be investigated; - e first talk about, and then go on to write about, what they have found out; - f report and present their results and conclusions to others in written and oral forms with increasing confidence; - g make links between their own science results and other scientific evidence; - h identify similarities, differences, patterns and changes relating to simple scientific ideas and processes; - i use straightforward scientific evidence to answer questions or support their findings; - j recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	Upper KS2 Science National Curriculum Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. Using test results to make predictions to set up further comparative and fair tests. Identifying scientific evidence that has been used to support or refute ideas or arguments. Children can: - a notice patterns; - b draw conclusions based in their data and observations; - c use their scientific knowledge and understanding to explain their findings; - d read, spell and pronounce scientific vocabulary correctly; - e identify patterns that might be found in the natural environment; - f look for different causal relationships in their data; - g discuss the degree of trust they can have in a set of results; - h independently report and present their conclusions to others in oral and written forms; - i use their test results to identify when further tests and observations may be needed; - j use test results to make predictions for further tests; - k use primary and secondary sources evidence to justify ideas; - l identify evidence that refutes or supports their ideas; - m recognise where secondary sources will be most useful to research ideas and begin to separate opinion from fact; - n use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas; - o talk about how scientific ideas have developed over time.

Progression of Vocabulary - Working Scientifically

Robins/Kingfishers	Hérons	Kestrels
aim answers block diagrams changes compare describe difference different enquiry equipment experience explore findings gather group identify (name) investigate measure notice observe patterns pictograms questions record same similarity simple tables sort sorting diagrams tally charts test What will we do? (plan) What do you think will happen? (prediction) What happened? (results) What have we found out? (conclusion)	accurate bar chart chart classify comparative test conclusion (What have we found out?) criteria data develop diagram evaluate evidence explanation key making a test fair method observations plan (What will we do?) practical enquiry prediction (What do you think will happen?) primary sources questioning reasoning relationships results (What happened?) secondary sources standard units table What do we change, what do we keep the same, what are we measuring?	accuracy and precision bar graphs causal relationship degree of trust dependent variable independent variable justify line graphs refute repeat results scatter graphs support variables (what do we change, what do we keep the same, how and what are we measuring?)