Composite Learning Skills

National Curriculum Requirements

Working Scientifically KS1

General	Observing changes over time	Comparative and fair tests	Identifying and classifying	Looking for naturally occurring patterns and relationships	Researching using secondary sources
Demonstrate curiosity, e.g. ask why?' or 'how?' about the world around them.	Understand that we can gather information about the world through our senses.	When prompted, say what is happening/has happened to things or events.	Sort and match objects and living things in their own way.	Notice what has changed when observing things or events.	Use simple secondary sources, e.g. books, film, internet, to find information.
Understand the concept of 'a question'.	Understand that observation involves all of the senses.	With help, make changes and say what has changed.	Sort and group objects and living things in different ways.	Talk about what they have found out or what they think may happen.	Use information from secondary sources to help answer a question.
Be able to ask a question.	Use simple equipment provided, e.g. hand lenses, to make more accurate observations.	Be able to compare features of two objects.	Recognise similarities and differences.	Begin to recognise links between observations and answers to questions.	Be able to record their findings in charts.
Be able to suggest one way of finding an answer to a question.	Recognise that some observable features may change over time, e.g. the size of a plant.	Be able to identify two variables in an investigation, e.g. water and light when investigating plant growth.	Use simple observable features to compare objects or living things.	With help, begin to notice patterns and relationships.	**Gathering and recording data to help in answering questions.**
Understand that some questions can be answered by testing.	**Observing closely, using simple equipment.**	Suggest a practical way to find something out.	Be able to describe how they sorted objects.	Begin to use simple scientific language to talk about what they have found out.	Make some independent choices about appropriate ways to record data.
With help, identify evidence that can be used to answer questions.	Use a range of equipment correctly to observe and measure.	Be able to identify things to measure and things to observe.	Use observable features of objects to identify them.	Be able to communicate their ideas to a range of audiences in a variety of ways.	Select the best way of presenting information from a range of options.
Present evidence they have collected in simple tables, charts or diagrams.	Be able to select appropriate equipment to observe.	Be able to set up a comparative test.	**Identifying and classifying.**	**Using their observations and ideas to suggest answers to questions.**	

Asking simple questions and recognising that they can be answered in different ways.		**Performing simple tests.**	Begin to classify and identify by linking observable features to already known objects or things.	Use evidence to suggest answers to questions and make predictions.	
Be able to suggest more than one way of finding an answer to a question, e.g. by research, by testing.		Start to recognise when a test is not fair and suggest improvements.	Explain which observable features have led them to classify in a particular way.	Say whether what happened was what they expected.	
Suggest 'testable questions' that can be answered in classroom investigations.					

Composite Learning Skills

National Curriculum Requirements

Working Scientifically LKS2

General/asking questions	Observing changes over time	Comparative and fair tests	Identifying and classifying	Looking for naturally occurring patterns and relationships	Recording and reporting findings	Researching and using secondary sources
Be able to raise their own questions about the world around them.	Make observations about everyday phenomena.	Suggest a practical way to find something out.	Use simple observable features to compare objects or living things.	Recognise links between observations and answers to questions.	Use notes, simple tables and standard units.	Use information from secondary sources to help answer a question.
Be able to suggest one way of finding an answer to a question.	Decide what is important or relevant to observe.	Make decisions about which practical method is best to find something out.	Be able to group objects and living things in different ways.	Notice patterns and relationships.	Help to make decisions about how to record and analyse data.	Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations.
Understand that some questions may not be relevant to enquiries.	Make increasingly careful observations.	Be able to identify two variables in an investigation, e.g. water and light when investigating plant growth.	Talk about criteria for grouping, sorting and classifying.	Look for naturally occurring patterns and relationships and decide what data to collect to identify them.	Make independent choices about appropriate ways to record data.	
Be able to suggest more than one way of finding an answer to a question, e.g. by research, by testing.	Make systematic observations.	Be able to set up a comparative test.	Use observable features of objects to identify them.	Be able to collect data from their own observations and measurements.	**Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.**	
Suggest 'testable questions' that can be answered in classroom investigations.	Decide for how long to make observations.	Recognise when a simple fair test is necessary to answer a scientific question.	Use simple keys.	With help, look for changes, patterns, similarities and differences in their data.	Use relevant scientific language to discuss their ideas.	
Recognise alternative methods of scientific enquiry used to find answers to questions.	Use a range of equipment correctly to observe and measure.	Be able to identify variables to measure and variables to observe.	Begin to classify and identify by linking observable features to already known objects or things.	Use patterns in their data to draw simple conclusions and answer questions.	Communicate findings in ways that are appropriate to different audiences.	
Make own decisions about which method of enquiry is best to answer a question.	Be able to select appropriate equipment to observe and measure.	With others, help to set up a fair test.	Begin to classify by behavioural features, e.g. conducts electricity, is magnetic.	Use evidence to answer questions and make predictions.	Identify relevant evidence used to draw conclusions.	

Asking relevant questions and using different types of scientific enquiries to answer them.	Use new equipment such as dataloggers appropriately.	Start to recognise when a test is not fair and suggest improvements.	Explain which observable or behavioural features have led them to classify in a particular way.	Say whether what happened was what they expected.	**Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.**	
Be able to refine a question.	Accurately use standard measures.	**Setting up simple practical enquiries, comparative and fair tests.**	**Identifying differences, similarities or changes related to simple scientific ideas or processes.**	With support, identify new questions arising from the data.	**Using straightforward scientific evidence to answer questions or to support their findings.**	
Draw simple conclusions and talk about what they have found out using some scientific language.	**Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.**	Be able to develop features of a test to give a better outcome.	Be able, independently, to use simple databases or keys to identify or classify living things, objects or events.	Make predictions for new values within or beyond the data they have collected.	Use scientific language and facts to describe processes and what they have observed.	
Draw simple conclusions and write about what they have found out using some scientific language.	Use an increasing range of standard measures accurately.			Find ways of improving what they have already done.	Explain findings reported and recorded using more complex scientific language.	
Use relevant scientific language to discuss their ideas.	Explain why particular equipment chosen is appropriate to the task.			Link results to their own experiences.		
Use relevant scientific language to communicate their findings.				**Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.**		
Communicate their ideas in ways that are appropriate for different audiences.				Recognise when a result seems unusual when compared with other values.		
Use a variety of written communication methods, e.g. guides, keys, drawings and other pictorial representations which are suggested to them.				Identify when repeated results are necessary.		

Choose their own way of communicating ideas to different audiences.						
Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.						

Composite Learning Skills
National Curriculum Requirements

Working Scientifically UKS2

General	Observing and measuring (and observing over time)	Comparative and fair tests	Identifying and classifying	Looking for naturally occurring patterns and relationships	Recording and reporting findings	Researching using secondary sources
Explore and talk about their own ideas.	Make their own decisions about what observations to make, what measurements to use and for how long to make them, and whether to repeat them.	Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.	Be able, independently, to use simple databases or keys to identify or classify living things, objects or events.	Identify patterns that might be found in the natural environment.	Decide how to record data from a choice of familiar approaches.	Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact.
Ask pertinent questions.	Choose the most appropriate equipment to make measurements and explain how to use it accurately.	Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why.	Be able to discuss reasons why living things are placed in one group and not another.	Systematically investigate the relationship between phenomena, e.g. light and shadows.	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time.	Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. planetary movements, animals from around the world.
Explore ideas and raise different kinds of questions about scientific phenomena.	Recognise that some measurements or observations may need to be repeated.	Be able to state clearly which is the change variable and which is the measurement variable in a fair test.	Suggest reasons for similarities and differences.	Look for different causal relationships in their data and identify evidence that refutes or supports their ideas.	Decide on the most appropriate method to present findings graphically, e.g. using a line graph or bar chart for different types of data.	Gather and record data to help in answering questions.
Refine a scientific question so that it can be tested.	Repeat observations or measurements appropriately.	Systematically identify the effect of changing one variable at a time.	Begin to understand that broad groupings, such as micro-organisms, plants and animals can be subdivided.	Analyse functions, relationships and interactions more systematically.	Justify what type of presentation is appropriate to use.	

Understand that some scientific questions cannot be answered by a particular investigation.	Be able to select appropriate ranges or intervals of measurements.	Recognise that some variables may be more significant than others in investigations.	Identify the positive aspects and limitations of some forms of classification.	Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system.	Explain findings using data to identify causal relationships.	
Be able to suggest changes to questions following collection/analysis of data.	Explain how repeating measurements impacts on data collection.	Be able to justify their choice of method as being appropriate to answer their investigative question.	Use and develop keys and other information records to identify, classify and describe living things and materials.	Recognise when evidence supports an idea or not.	**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.**	
Understand a range of enquiries can be used together to explore an answer to a question.	Recognise when measurements or data are unreliable and be able to take steps to improve this.	Be able to use their results to identify when further tests and observations might be needed.	Create more complex forms of classification tools, e.g. databases, branching keys.	Be able to identify and offer explanations for anomalous results.	**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.**	
Recognise key aspects of a scientific question.	**Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.**	Compare their own results with others' and suggest reasons why there may be differences.	Create and use a variety of sources to identify and classify living things, objects and phenomena.	**Identifying scientific evidence that has been used to support or refute ideas or arguments.**		
		Recognise the limitations of tests.				
		Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.				

		Using test results to make predictions to set up further comparative and fair tests.				