Working Scientifically – Skills Progression Pre Key Stage 1

Section 5

Plan	Do	Review
Identifying, Classifying and grouping		
I am curious about similarities and differences. With help I ask questions about similarities and differences. I talk about my ideas for sorting or matching things.	I use my senses to sort and match things. I match things that are the same. I find things that are similar or different. I sort or group things in my own way. I use simple equipment to help me sort things (e.g. boxes, hoops, baskets)	I talk about how I sorted or matched things.
Observing over time		
I am curious about things that change. With help I ask questions about things changing. I talk about my ideas for finding out how things change.	I use all my senses to observe changes. I look closely at how things change. I make simple records of how things change (with help where necessary). I use simple equipment to observe and record changes.	I talk about the change I observed.
Pattern seeking		
I am curious about patterns. With help, I ask questions about patterns. I talk about my ideas for finding out about patterns.	I use my senses to look closely for patterns. I observe more than one thing at a time. I make simple records of what I notice (with help where necessary). I use simple equipment to observe and record patterns.	I talk about what I have done and the patterns I noticed.
Research using secondary sources		
I am curious about things in my surroundings. With help, I ask questions that I can answer using secondary sources.	I listen carefully. I know that information in books and electronic media can be used to answer questions. I find pictures of things that I am curious about. I talk to people about what they do and how things work.	I talk about things I found out.
Comparative and fair testing		
I am curious about how things behave. With help, I ask questions about things I can test. I talk about my ideas for testing how things behave.	I use my senses to look closely at how things behave. I carry out simple tests (with help where necessary). I make simple records of what I notice (with help where necessary). I use simple equipment to observe and record.	I talk about what I have done and what I have noticed.

Working Scientifically – Skills Progression Key Stage 1

Plan	Do	Review
Identifying, Classifying and grouping		
I ask questions about how and why things are similar or different. I decide what to observe to identify or sort things.	I make comparisons between simple features of objects, materials or living things. I sort objects by observable and behavioural features. I record my observations, using words or pictures, in sorting circles or tables.	I identify similarities and differences and talk about them using simple scientific language. I use my observations to suggest how and why things are similar or different. I try to use my records to help sort or identify other things.
Observing over time		
I ask questions about how and why things change. With help, I identify changes to observe and measure and suggest how to do it.	I use non-standard units and simple equipment to observe or measure change. I record in words or pictures, or in simple prepared formats such as tables and charts.	I identify simple changes and talk about them using simple scientific language. I sequence the changes. I use my observations to suggest how and why things change.
Pattern seeking		
I ask questions about why and how things are linked. With help, I decide what patterns to observe and measure and suggest how to do it.	I use non-standard units and simple equipment to observe or measure events that might be related. I record in words or pictures, or in simple prepared formats such as tables, tally charts and maps.	I identify simple patterns and talk about them using simple scientific language. I make links between two sets of observations. I use my observations to suggest why and how things are linked.
Research using secondary sources		
I ask questions about the way things are and the way they work. With help, I make suggestions about how to find things out.	I use books and simple electronic media to find things out. I ask questions to find out what people do and to find out how things work. I record in words or pictures what I found out.	I begin to use simple scientific language to talk about what I have found out. I talk about whether the information source was useful and whether or not it answered my questions. I give an opinion about some of the things I found out.
Comparative and fair testing		
I ask questions about why and how and what if. With help, I notice links between cause and effect. With help, I plan simple comparative tests.	I use non-standard units and simple equipment to observe or measure data. I record in words or pictures, or in simple prepared formats such as tables and tally charts.	I interpret and talk about my data using simple scientific language. I use my observations to suggest why there are links between cause and effect.

Working Scientifically – Skills Progression Lower Key Stage 2

Plan	Do	Review
Identifying, classifying and grouping		
I talk about things that can be grouped and decide when questions can be answered by sorting and classifying. I talk about what criteria I will use to sort and classify things. I decide what equipment to use to identify and classify things.	I carry out simple tests to sort and classify according to properties or behaviour. I use Carroll diagrams, Venn diagrams and more complex tables to sort things. I use simple keys and branching databases to identify things. I make simple branching databases (keys) for things that have clear differences.	I draw simple conclusions and answer questions about the things I have sorted and classified. I communicate the similarities and differences I identified using scientific ideas. I suggest improvements to the way I sort and identify things.
Observing over time		
I talk about things changing and decide when questions can be answered by observing over time. I decide what observations to make, how often and what equipment to use.	I select and use a range of equipment accurately to collect data using standard units. I make records using tables, bar charts or labelled diagrams. I begin to use and interpret graphs produced by e.g. dataloggers	I draw simple conclusions and answer questions using the changes I observed, make predictions for new values, and raise further questions. I communicate the changes using scientific ideas. I suggest improvements to the way I observe.
Pattern seeking		
I talk about where patterns might be found and decide when questions can be investigated by pattern seeking. I decide on which sets of data to collect, what observations to make and what equipment to use.	I select and use a range of equipment accurately to collect data using standard units. I make records using tables, bar charts or simple scatter graphs. I begin to use and interpret data collected through e.g. dataloggers.	I draw simple conclusions and answer questions about simple patterns between two sets of data, and raise further questions. I communicate the patterns using scientific ideas. I suggest improvements to the way I looked for patterns.
Research using secondary sources		
I talk about how things are and the way they work and decide when questions can be answered by research using secondary sources.	I use information sources to find the information I need. I record what I found out in my own words. I present information in different ways.	I draw simple conclusions and answer questions from what I found out, and raise further questions. I communicate what the information and data means using scientific ideas. I suggest ways to improve how I find out things.
Comparative and fair testing		
I talk about links between cause and effect and (with help) pose a relevant fair test question. I plan a fair test and decide what data to collect. I decide what equipment to use to make observations.	I select and use a range of equipment accurately to collect data using standard units. I make records using tables and bar charts. I begin to use and interpret data collected though e.g. dataloggers.	I draw simple conclusions and answer questions from my fair tests, make predictions for new values and raise further questions. I communicate and explain simple causal relationships using scientific ideas. I suggest ways that I can improve my fair tests.

Working Scientifically – Skills Progression Upper Key Stage 2

Plan	Do	Review
Identifying, classifying and grouping		
I recognise when identifying and classifying will be the best way to answer my question. I decide what equipment, tests and secondary sources of information to use to identify and classify things.	I use a series of tests to sort and classify materials. I use secondary sources to identify and classify things. I make my own classification keys and branching databases with four or more items. I use more than one piece of scientific evidence to identify and classify things.	I draw valid conclusions when sorting and classifying. I report and explain what I have done using scientific ideas. I evaluate how well my key/branching database worked.
Observing over time		
I recognise when observing changes over time will be the best way to answer my question. I decide how detailed my observations need to be and what equipment to use, to make my observations/measurements as accurate as possible.	I select scientific equipment and use it with increasing accuracy. I take repeat readings when appropriate. I record data and results of increasing complexity. I present data in line graphs. I recognise the effect of changing the time and number of observations.	I draw valid conclusions from data about changes. I interpret changes in the data. I report and explain changes using scientific ideas. I evaluate how well I observed over time. I use my results to predict and set up further observations.
Pattern seeking		
I recognise when variables cannot be controlled and pattern seeking will be the best way to answer my question. I decide how detailed my data needs to be and which equipment to use, to make my measurements/observations as accurate as possible.	I select scientific equipment and use it with increasing accuracy. I take repeat readings when appropriate. I record data and results of increasing complexity. I present data in scatter graphs and frequency charts. I recognise patterns in results. I recognise the effect of sample size on reliability.	I draw valid conclusions from data about patterns and recognise their limitations. I report and explain cause and effect patterns using scientific ideas. I evaluate how well I looked for patterns. I use my results to predict and set up further pattern seeking.
Research using secondary sources		
I recognise when research using secondary sources will be the best way to answer my question. I decide which sources of information might answer my question.	I use relevant information and data from a range of secondary sources. I recognise how data has been obtained. I present my findings in a variety of suitable formats.	I draw valid conclusions from my research. I am beginning to notice when information and data is biased or based on opinion rather than facts. I evaluate how well my research has answered my questions and recognise that some scientific questions may not have been answered definitively.
Comparative and fair testing		
I recognise when variables need to be controlled and a fair test is the best way to answer my question. I plan a fair test, recognising the most suitable variables to measure, change and keep the same and what equipment to use to make my measurements as accurate as possible.	I select scientific equipment and use it with increasing accuracy, I take repeat readings when appropriate. I record data and results of increasing complexity. I present data in line, bar and scatter graphs.	I draw valid conclusions based on the data. I report and explain causal relationships using scientific ideas, I evaluate the effectiveness of my fair testing, recognising variables that were difficult to control and where my results were trustworthy. I use my results to predict and set up further comparative or fair tests. I identify scientific evidence that supports or refute ideas or arguments.