Poulton Lancelyn Science Progression Map

Working Scientifically

2020-21

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observing and Measuring Changes Over Time	1. Understand that observation involves using our sense 2. Use simple equipment (hand lenses) to make close and careful observations 3. Select appropriate equipment to make observations	1. Recognise that some observable features can change over time (e.g. plant growth) 2. Choose appropriate equipment to make observations 3. Use equipment to correctly observe and measure	1. Make increasingly careful observations (focusing on accuracy) 2. Accurately use standard measures 3. Explain why particular equipment is an appropriate choice for a task 4. Decide for how long to make observations for	1. Decide what is important and relevant to measure and observe 2. Make systematic observations 3. Use new equipment, such as data loggers, appropriately 4. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment	1. Choose the most appropriate equipment to make measurements and explain how to use it accurately 2. Recognise that some measurements or observations may need to be repeated 3. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	1. Recognise when measurements or data are unreliable and be able to take steps to improve this 2. Explain how repeating measurements impacts on data collection 3. Be able to select appropriate ranges or intervals of measurements 4. 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

Comparative and Fair Tests	1. Be able to compare features of two objects 2. Suggest a practical way to find something out 3. Be able to identify things to observe and things to measure 4. Understand what we mean by comparing 5. Perform simple tests	1. With help, make changes and say what and why has changed in their test 2. Be able to identify two variables in an investigation e.g. water and light in a plant investigation 3. Be able to set up a comparative test 4. Start to recognise when a test isn't fair and suggest improvements	1. Make decisions about which practical method is best to find something out 2. Recognise when a simple fair test is necessary to answer a scientific question 3. Set up a fair test – identifying and understanding the variables involved	1. Identify variables to measure and variables to observe 2. Understand how to make a test fair 3. Set up simple practical enquiries, comparative and fair tests 4. Be able to develop features of a test to give a better outcome	1. Select and plan the most appropriate type of scientific enquiry to answer a scientific question 2. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why 3. Be able to use their results to identify when further tests and observations might be needed 4. Recognise the limitations of tests	1. Be able to state clearly which is the change variable and which is the measurement variable in a fair test 2. Systematically identify the effect of changing one variable at a time 3. Recognise that some variables may be more significant than others in investigations 4. Using test results to make predictions to set up further comparative and fair tests 5. Compare their own results with others' and suggest reasons why there may be differences

Identifying and Classifying	1. Sort and match objects and living things in their own way 2. Recognise similarities and differences 3. Use observable features of objects to sort them 4. Explain which observable features have led them to classify in a particular way	1. Sort and group living things and objects in their own way 2. Use simple observable features to compare objects and living things 3. Be able to explain why they have sorted objects in that way 4. Begin to classify and identify by linking observable features to already known objects or things 5. Explain which observable features have led them to classify in a particular way	1. Be able to group objects and living things in different ways 2. Use observable features of objects to identify them 3. Begin to classify by behavioural features, e.g. is magnetic 4. Talk about criteria for grouping, sorting and classifying	1. Use simple keys 2. Begin to classify and identify by linking observable features to already known objects or things 3. Explain which observable or behavioural features have led them to classify in a particular way 4. Identifying differences, similarities or changes related to simple scientific ideas or processes 5. Be able, independently, to use simple databases or keys to identify or classify living things, objects or events	1. Suggest reasons for similarities and differences 2. Create and use a variety of sources to identify and classify living things, objects and phenomena 3. Use and develop keys and other information records to identify, classify and describe living things and materials	1. Create more complex forms of classification tools, e.g. databases, branching keys 2. Begin to understand that broad groupings, such as micro-organisms, plants and animals can be subdivided 3. Be able to discuss reasons why living things are placed in one group and not another

Looking for naturally occurring patterns and relationships	1. Notice what has changed when observing things or events 2. Talk about what they have found out or what they think may happen 3. With help, begin to notice patterns and relationships 4. Using their observations and ideas to suggest answers to questions 5. Say whether what happened was what they expected	1. Begin to recognise links between observations and answers to questions 2. Begin to use simple scientific language to talk about what they have found out 3. Be able to communicate their ideas to a range of audiences in a variety of ways 4. Use evidence to suggest answers to questions and make predictions	1. Notice patterns and relationships 2. With help, look for changes, patterns, similarities and differences in their data 3. Use evidence to answer questions and make predictions 4. With support, identify new questions arising from the data 5. Find ways of improving what they have already done 6. Link results to their own experiences	1. Look for naturally occurring patterns and relationships and decide what data to collect to identify them 2. Be able to collect data from their own observations and measurements 3. Use patterns in their data to draw simple conclusions and answer questions 4. Make predictions for new values within or beyond the data they have collected 5. Recognise when a result seems unusual when compared with other values 6. Identify when repeated results are necessary	1. Identify patterns that might be found in the natural environment 2. Look for different causal relationships in their data and identify evidence that refutes or supports their ideas 3. Find out about how scientific ideas have changed and developed over time as new evidence is discovered, e.g. ideas about the solar system	1. Systematically investigate the relationship between phenomena, e.g. light and shadows 2. Be able to identify and offer explanations for anomalous results 3. Analyse functions, relationships and interactions more systematically

Recording and Reporting Findings	1. Be able to record their findings in charts 2. Gathering and recording data to help in answering questions	1. Make some independent choices about appropriate ways to record data 2. Select the best way of presenting information from a range of options	1. Identify relevant evidence to draw conclusions 2. Using straightforward scientific evidence to answer questions or to support their findings 3. Use scientific language and facts to describe processes and what they have observed	1. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 2. Explain findings reported and recorded using more complex scientific language	1. Decide how to record data from a choice of familiar approaches 2. Justify what type of presentation is appropriate to use 3. Explain findings using data to identify causal relationships 4. Decide on the most appropriate method to present findings graphically, e.g. using a line graph or bar chart for different types of data -	1. Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time 2. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 3. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms
Researching Using Secondary Sources	Use information from secondary sources to help answer a question	Use simple secondary sources, e.g. books, film, internet, to find information	Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations	Recognise when and how secondary sources might help answer questions that cannot be answered through practical investigations	Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact	Use secondary sources, e.g. internet links to research objects, events and phenomena that cannot be experienced in the classroom, e.g. animals from around the world