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| --- | --- | --- | --- | --- | --- | --- |
| Typically Rec, Y1 & Y2 | | | Typically Y3 & Y4 | | Typically Y5 & Y6 | |
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The RAINBOW Continuum: Science Children can …

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | OBSERVATION AND CONCLUSION |  | ENQUIRY, PREDICTION, TESTING |  | DATA COLLECTION |  | RECORDING |  |
|  | Make simple observations | YR | Enjoy finding out about things | YR | Join in – e.g. leaf collections | YR | Draw what interests them | YR |
|  | Make observations  Talk simply about what they see  Answer simple questions about what they see  Describe simple features with simple vocabulary–parts of the body, a tree  Observe closely using simple equipment to help them – e.g.  magnifying glass | Y1/2  Y1/2  Y1/2  Y1/2 | Perform simple tests using simple equipment – e.g. a timer  Talk about some reasons why things might happen, or why something has happened  Understand basic safety rules when testing out their ideas | Y1/2  Y1/2    Y1/2 | Recognise that scientific ideas are more than guesses, and based on evidence  Collect data when asked – e.g. a weather station  Count data sets – trees in a field Sort data within given criteria – tall trees, wet days, blue eyes  Remember and recall information  Underline important facts | Y1/2  Y1/2  Y1/2    Y1/2 | Record what they have seen or done in different ways, including drawing and labelled diagrams  Record some information onto a pre prepared chart  Label objects according to simple criteria  Record things they have seen or done from memory | Y1/2    Y1/2  Y1/2  Y1/2 |
|  | Answer questions using evidence  Ask questions about what they see  Make relevant observations  Give simple reasons and explanations for what they have seen  Identify simple parts of what they see – e.g. petal, leg | Y2  Y2  Y2    Y2 | Find things out, with help and suggestions  Begin to make predictions about what might happen  Understand key factors that make  a fair test  Use simple apparatus effectively and safely | Y2  Y2  Y2  Y2 | Gather and record data to help in answering questions and understand why this is important  Use tallies to count in surveys  Use books to find information | Y2    Y2  Y2 | Begin to use cause and effect in their explanations, and some scientific vocabulary  Use simple tables and charts  Identify, classify and use bulleted lists  Make sketches of their observations  Use line graphs to present their findings | Y2    Y2  Y2  Y2 |
|  | Choose what observations to make  Know that questions can be answered in different ways  Compare what happened to what might have happened and give simple explanations  Make a precise series of observations and measurements  Classify simple features –flower, tree  Examine closely and question what is seen | Y3  Y3  Y3  Y3  Y3  Y3 | Identify features of a fair test and carry out a fair test with help  Think of questions to ask during testing  Decide on approaches to answer questions and suggest own ideas  Select suitable equipment  Suggest improvements in their work  Predict before testing  Begin to repeat observations and measurements | Y3  Y3  Y3  Y3  Y3  Y3  Y3 | Use books and other sources of information  Begin to suggest ways to collect data  Recognise the importance of data collection  Make suggestions about how to collect data  Use graphs to find and interpret patterns | Y3  Y3  Y3  Y3  Y3 | Record and label sketches and diagrams, sometimes with notes  Use ICT to record results  Begin to plot points for simple graphs  Record systematically  Record a series of observations in different ways | Y3  Y3  Y3  Y3  Y3 |
|  | Make systematic and careful observations and comparisons  Compare observations over time  Categorise observations  Begin to make theories  Provide explanations using scientific language  Use precise scientific language  Ask relevant questions | Y4  Y4  Y4  Y4  Y4 | Decide on the best approaches for enquiry  Make predictions based on scientific knowledge  Describe or show how to vary a factor and keep others the same  Repeat tests and explain difference  Review work and check predictions  Suggest improvements giving reasons | Y4  Y4  Y4    Y4 | Recognise the importance of the evidence collected  Compare and identify data patterns  Select from a range of sources  Question others about their work  Know the work of some scientists  Count and measure quantities accurately  Use sources of information to analyse | Y4  Y4  Y4  Y4  Y4 | Use a range of scientific conventions  Understand and begin to use both quantitative and qualitative data  Record and present data in a variety of ways – tables, bar charts, line graphs  Order results scientifically | Y4  Y4  Y4    Y4 |
|  | Begin to relate conclusions to patterns, previous knowledge and observational evidence  Make judgements and conclusions about what has been seen, and support these with known facts  Justify their own theories through observation and conclusion  Use straightforward scientific evidence to answer questions or support findings | Y5  /Y6  Y5  /Y6    Y5  /Y6  Y5  /Y6 | Offer explanations for differences  Modify tests for accuracy  Plan different types of scientific enquiries to answer questions  Recognise and control variables  Make practical suggestions about working methods and improvements  Use results to draw simple conclusions, make predictions for new values, suggest improvements  Develop further observations and experiments from results | Y5  /Y6  Y5  /Y6  Y5  /Y6  Y5  /Y6  Y5  /Y6  Y5  /Y6 | Gather and classify data in a variety of ways  Distinguish and discriminate between different elements of data | Y5  /Y6  Y5  /Y6 | Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables  Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions | Y5  /Y6    Y5  /Y6 |
|  | Evaluate the results  of observations  Combine observations to give new hypotheses  Look for and understand poor data  Identify differences, similarities or changes related to simple scientific ideas and processes | Y5  /Y6  Y5  /Y6  Y5  /Y6  Y5  /Y6 | Use a range of scientific enquiry to answer questions  Use test results to make predictions and to set up further comparative and fair tests | Y5  /Y6  Y5  /Y6 | Identify scientific evidence that has been used to support or refute ideas or arguments.  Take accurate measurements using a range of equipment, including thermometers, with increasing accuracy and precision  Repeat readings when appropriate | Y5  /Y6  Y5  /Y6    Y5  /Y6 | Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs  Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results | Y5  /Y6    Y6 |