Working Scientifically Skills Progression

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| Process | Sub-process | KS1 | | KS2 | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Planning  investigations | Pupils can ask  questions | Ask simple questions  when prompted | Ask simple questions | Ask relevant questions  when prompted | Ask relevant questions |  |  |
| Pupils can plan  an enquiry | Suggest ways of  answering a question | Recognise that  questions can be  answered in different  ways | Set up simple and  practical enquiries,  comparative and fair  tests | Plan different types of  scientific enquiries to  answer questions | With prompting, plan  different types of  scientific enquiries to  answer questions | Plan different types  of scientific enquiries  to answer questions |
| Pupils can  identify and  manage  variables |  |  | Set up comparative  tests | Set up simple and  practical enquiries,  comparative and fair  tests | With prompting,  recognise and control  variables where  necessary | Recognise and  control variables  where necessary |
| Conducting Experiments | Pupils can use  equipment to  take  measurements | Make relevant  observations | Observe closely, using  simple equipment  Perform simple tests | Make systematic  observations, using  simple equipment | Make systematic and  careful observations  using a range of  equipment, including  thermometers and  data loggers | Select, with prompting,  and use appropriate  equipment to take  readings | Take measurements  using a range of  scientific equipment |
| Pupils explore  how to improve  the quality of  data |  | Conduct simple tests  with support | Use standard units  when taking  measurements | Take accurate  measurements using  standard units, where  appropriate | Take precise  measurements using  standard units | Take measurements  with increasing  accuracy and  precision |
| Pupils understand the role of repeat readings |  |  |  |  | Take and process repeat readings | Take repeated readings when appropriate |
| Recording evidence | Pupils record work with diagrams and label them | With prompting, suggest how findings could be recorded | Record and communicate their findings in a range of ways and begin to use simple scientific language | Record findings in various ways | Record findings using simple scientific language, drawings and labelled diagrams | Record data and results | Record data and results of increasing complexity using scientific diagrams and labels |
| Pupils can display data using labelled diagrams, keys, tables and bar charts |  |  | With prompting, suggest how findings may be tabulated | Record findings using keys, bar charts, and tables | Record data using labelled diagrams, keys, tables and charts | Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar charts |
| Pupils can display data using line graphs |  |  | With prompting, use various ways of recording, grouping and displaying evidence | Gather, record, classify and present data in a variety of ways to help answer questions | Use line graphs to record data | Record data and results of increasing complexity using line graphs |
| Reporting findings | Pupils process findings to develop conclusions and identify causal relationships | Recognise findings | Identify and classify | With prompting, suggest conclusions from enquiries | Report on findings from enquiries, including oral and written explanations, of results and conclusions | Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships | Report and present findings from enquiries, including conclusions and causal relationships |
| Pupils use displays and presentations to report findings |  |  | Suggest how findings could be reported | Report on findings from enquiries using displays or presentations | With support, present findings from enquiries orally and in writing | Report and present findings from enquiries in oral and written forms such as displays and other presentation |
| Pupils explain confidence in findings |  |  |  |  | With prompting, identify that not all results may be trustworthy | Report and present findings from enquiries, including explanations of, and degree of, trust in results |
| Conclusions and predictions | Pupils can analyse data | Gather and record data | Gather and record data to help answer questions | Gather and record data about similarities, differences and changes | Identify differences, similarities or changes related to simple scientific ideas and processes |  |  |
| Pupils can draw conclusions | Use observations to suggest answers to questions | Use their observations and ideas to suggest answers to questions | With prompting, suggest conclusions that can be drawn from data | Use straightforward scientific evidence to answer questions or to support findings | Suggest how evidence can support conclusions | Identify scientific evidence that has been used to support or refute ideas or arguments |
| Pupils can develop investigation further |  |  | Suggest possible improvements or further questions to investigate | Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions | Suggest further comparative tests | Use test results to make predictions to set up further comparative and fair tests |
| Working Scientifically Skills Progression | | | | | | | |
| **key vocabulary** | | **New vocab**  Properties, observe, describe, test, question, object, equipment, question, answer, record, identify, classify, sort, group, compare, magnifying glass, biology, chemistry, physics, data. | | **Revision**  Properties, observe, describe, test, question, object, equipment, question, answer, record, identify, classify, sort, group, compare, magnifying glass, biology, chemistry, physics, data.    **New vocab**  Plan, prediction, conclusion, research, measurement, gather, record, present, oral and written explanations, evidence, scientific enquiry, comparative and fair test, differences, similarities, changes, improve, accurate, secondary sources, guides, construct, interpret, theory, hypothesis, systematic, labelled diagrams, keys, bar charts, tables, thermometer, data logger. | | **Revision Plan**  Prediction, conclusion, research, measurement, gather, record, present, oral and written explanations, evidence, scientific enquiry, comparative and fair test, differences, similarities, changes, improve, accurate, secondary sources, guides, construct, interpret, theory, hypothesis, systematic, labelled diagrams, keys, bar charts, tables, thermometer, data logger.  **New vocab**  Line graph, relationship, outlier, variables, repeat readings, scientific diagrams, classification keys, scatter graphs, line graphs, causal relationships, degree of trust, oral and written display and presentation, support, refute ideas or arguments, patterns, systematic, quantitative measures. | |