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 |
| Planninginvestigations | Pupils can askquestions | Ask simple questionswhen prompted | Ask simple questions | Ask relevant questionswhen prompted | Ask relevant questions |  |  |
| Pupils can planan enquiry | Suggest ways ofanswering a question | Recognise thatquestions can beanswered in differentways | Set up simple andpractical enquiries,comparative and fairtests | Plan different types ofscientific enquiries toanswer questions | With prompting, plandifferent types ofscientific enquiries toanswer questions | Plan different typesof scientific enquiriesto answer questions |
| Pupils canidentify andmanagevariables |  |  | Set up comparativetests | Set up simple andpractical enquiries,comparative and fairtests | With prompting,recognise and controlvariables wherenecessary | Recognise andcontrol variableswhere necessary |
| Conducting Experiments | Pupils can useequipment totakemeasurements | Make relevantobservations | Observe closely, usingsimple equipmentPerform simple tests | Make systematicobservations, usingsimple equipment | Make systematic andcareful observationsusing a range ofequipment, includingthermometers anddata loggers | Select, with prompting,and use appropriateequipment to takereadings | Take measurementsusing a range ofscientific equipment |
| Pupils explorehow to improvethe quality ofdata |  | Conduct simple testswith support | Use standard unitswhen takingmeasurements | Take accuratemeasurements usingstandard units, whereappropriate | Take precisemeasurements usingstandard units | Take measurementswith increasingaccuracy andprecision |
| 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. |