Kempshott Junior School – Science: Progression of Skills

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| Year Group |  | Types of enquiry | Recording and teaching that supports key learning |  | Asking Questions | Measuring and Recording |  | Concluding |  | Evaluating |
| R/1 |    | Comparing differences and changes  Describing the effect of changing things | * Pictograms * Bar chart |  | Ask simple questions about what they have seen |  Observe carefully and tell someone else what they have noticed |  |  |  |  |
| 1/2 |        | Describing in order to classify Surveys to identify patterns and support classification Using secondary sources, including the internet and  experts  Begin to look for relationships  (patterns) between variables | * Venn diagrams * Bar charts * Timelines and tables showing how one and more than one thing changes over time * Tally charts * Results tables with the independent variable increasing in one column and the dependent variable in the other |  | (WS1)Ask simple questions and recognise that they can be answered in different ways | * (WS2)Observe closely, using simple equipment * (WS3)Perform simple tests * (WS6)Gather and record data to help in answering questions |    | (WS4)Identify and classify (WS5)Use their observations and ideas to suggest answers to questions |  |  |
| 3/4 |  | Become confident in identifying relationships  between variables (patterns) | * Results tables with the independent variable increasing in one column and the dependent variable in the other * Increasing use of equipment that allows for standard measure (thermometers, data loggers, measuring cylinders, force meters, digital balances) |      | Ask relevant questions and use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests  (WS1)Recognise that factors other than that we are changing may have an effect and seek to control these factors (what change and what measure and what keep same). | * (WS2)Gather evidence to describe and classify patterns of behaviour, characteristics and properties of materials, and make generalisations from data samples. * Make systematic and careful observations and, where appropriate, take accurate measurements using standard   units, using a range of equipment, including thermometers and data loggers |      | Identify differences, similarities or changes related to simple scientific ideas and  processes  Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  Use straightforward scientific evidence to answer questions or to support their findings |  | Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions |
| 5/6 |    | Explore more complex relationships or questions requiring greater precision Identification of important  values (e.g. biggest, smallest,  optimum) | * Results tables with the independent variable increasing in one column and the dependent variable in the other * Results tables that show pupils choosing to repeat experiments as appropriate * Averaging of repeated measurements * Scatter graphs to identify precise relationships and important values |  | Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | * Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat   readings when appropriate   * (WS2)Understand that repeating experiments helps to identify what the true value is and that data points far from the mean are likely to be inaccurate and should be discounted when averaging. |      | Identify scientific evidence that has been used to support or refute ideas or arguments Report and present findings from enquiries, including conclusions, causal  relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations (WS1)Recognise that conclusions may be uncertain due to difficulties controlling and measuring variables accurately and that measurement always introduces some error |    | Use test results to make predictions to set up further comparative and fair tests (WS3)Adapting experiments to produce more precise conclusions when the question requires it, especially when seeking to find maximum, minimum or specific values. |