Objective	1 Development of scientific thinking	2 Experimental skills and strategies	3 Analysis and evaluation	4 Scientific vocabulary, quantities, units, symbols and nomenclature
B-	WS1.B- State some questions that can be investigated and some that cannot. State what is meant by a risk assessment	WS1.B- State what should be included in the plan for an investigation. Name things that can vary in an investigation. State an example of how data can be recorded.	WS1.B- Identify data as accurate or precise. Calculate a mean of two values. Add data to a graph or chart. State what is meant by a line of best fit. List what should be included in a conclusion. Suggest one improvement to an investigation.	WS1.B- Understand and use the symbols =, <, >, ~.. Carry out calculations involving +, − , x, ÷, either singly or in combination. Understand number size and scale and the quantitative relationship between units
B	WS1.B Describe how scientists develop an idea into a question that can be investigated. Describe a risk assessment	WS1.B Describe how to write a plan for an investigation. Identify independent, dependent, and control variables. Describe how to make and record observations and measurements	WS1.B Recognise what makes data accurate or precise. Calculate a mean from three repeat measurements. Present data appropriately as table and graphs. Find a pattern in data using a graph or chart. Interpret data to draw conclusions. Suggest improvements to an investigation.	WS1.B Calculate area, perimeters and volumes of simple shapes. Plot and draw graphs (line graphs, bar charts, pie charts, scatter graphs, histograms) selecting appropriate scales for the axes. Carry out calculations involving +, − , x, ÷, either singly or in combination
B+	WS1.B+ Explain why some questions cannot be investigated. Identify risks in an experiment and write an appropriate risk assessment.	WS1.B+ Write a detailed plan for a hypothetical investigation. Suggest examples of independent, dependent and control variables in an unfamiliar situation. Explain how to collect precise and accurate data.	WS1.B+ Explain the difference between accurate and precise data. Calculate a mean for repeat readings in a range of situations. Design an appropriate table or graph. Plot data on a graph and draw line of best fit. Analyse data from an investigation to draw up a detailed conclusion, giving quantitative examples. Explain ways of improving data.	WS1.B+ Calculate area, perimeters and volumes of simple shapes. Substitute numerical values into simple formulae and equations using appropriate units. Calculate arithmetic means. Understand and use direct proportion and simple ratios.
1	WS 1.1 Understand how scientific methods and theories develop over time.	WS 2.1 Use scientific theories and explanations to develop hypotheses.	WS 3.1 Presenting observations and other data using appropriate methods.	WS 4.1 Use scientific vocabulary, terminology and definitions.
2	WS 1.2 Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts.	WS 2.2 Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena.	WS 3.2 Translating data from one form to another.	WS 4.2 Recognise the importance of scientific quantities and understand how they are determined.
3	WS 1.3 Appreciate the power and limitations of science and consider any ethical issues which may arise.	WS 2.3 Apply knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment.	WS 3.3 Carrying out and represent mathematical and statistical analysis.	WS 4.3 Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate.
4	WS 1.4 Explain every day and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.	WS 2.4 Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations.	WS 3.4 Representing distributions of results and make estimations of uncertainty.	WS 4.4 Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano).
5	WS 1.5 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.	WS 2.5 Recognise when to apply a knowledge of sampling techniques to ensure any samples collected are representative.	WS 3.5 Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions.	WS 4.5 Interconvert units.
6	WS 1.6 Recognise the importance of peer review of results and of communicating results to a range of audiences.	WS 2.6 Make and record observations and measurements using a range of apparatus and methods.	WS 3.6 Presenting reasoned explanations including relating data to hypotheses.	WS 4.6 Use an appropriate number of significant figures in calculation.
7		WS 2.7 Evaluate methods and suggest possible improvements and further investigations.	WS 3.7 Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error.	
8			WS 3.8 Communicating the scientific rationale for investigations, methods used, findings and reasoned conclusions through paper-based and electronic reports and presentations using verbal, diagrammatic, graphical, numerical and symbolic forms.	
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