

## Chemistry Practical Investigation Rubric

	A	B	C	D
<b>Aim and hypothesis</b>	Very specific, including support from concepts.	Specific, vaguely supported by concepts	No support from concepts	Vague hypothesis given
<b>Equipment list</b>	Complete, dot point list, no irrelevant equipment	One or two details missing or irrelevant	More than two items missing or irrelevant	Few relevant items listed
<b>Procedure (method)</b>	Detailed, numbered steps, clearly labelled diagram(s). Instructions included about how to maintain constants	Steps not clear to follow, one step missing, or diagram(s) not clearly labelled.	Steps missing, not numbered or out of order. No diagram given.	Only a basic or unclear summary of procedure given
<b>Selection of information</b>	Information chosen from at least three different types of source . Information provides a variety of relevant information.	Relevant information chosen from only two different types of source, or information is not all relevant.	Relevant and irrelevant information or chosen from two different sources of the same type	Partly relevant Information or chosen from one source
<b>Acknowledgement of information</b>	Information referenced in-text and with a reference list, with formatting that matches the referencing guide	Information referenced in-text and in reference list, but not all consistent with referencing guide	Reference list only, some formatting matches reference guide	Reference list provided but no references correctly formatted
<b>Manipulation of apparatus</b>	Careful not to damage equipment, safe handling of equipment, sensible social behaviour, effective measurement of results	Equipment mostly handled carefully but some damage or incorrect measurement	Some lack of care shown either socially or in handling equipment	General lack of care for equipment or others
<b>Organisation</b>	Procedure read and equipment gathered before starting	Procedure read or equipment gathered before starting	Procedure followed correctly	Procedure not followed correctly
<b>Tables of results</b>	Left column is independent variable, right column is dependent. Units given only in column headings Appropriate and consistent use of significant figures	One or two mistakes in values or formatting	More than two mistakes in values or formatting	Incorrect formatting and more values incorrect than correct
<b>Graphs</b>	Horizontal axis is independent variable, vertical axis is dependent. Title, axis labels, units, and scale all given appropriately. Data points equally spread above and below line of best fit (outliers ignored). Graph uses all the space available (fills the page).	Up to two features missing from graph and possibly one point incorrect	More than two features missing from graph, or two or more incorrect points	Data plotted and formatted incorrectly
<b>Evaluation of procedure</b>	Independent/dependent variables and constants discussed. At least three possible sources of error and their effect explained in-depth. Both random and systematic error are discussed	At least three possible sources of error described. Both random and systematic error	At least three possible sources of error stated	One or two possible sources of error stated
<b>Suggestion for improvements</b>	At least four improvements suggested and their effect explained (or three in-depth). Improvements are specific and could be physically done if the experiment was repeated.	At least three improvements suggested, but not possible or their effect not explained. Or, two explained in depth.	Two or three improvements described	One or two improvements stated
<b>Analysis of data</b>	Evidence of random and systematic error from graph and/or data Relationship between variables specifically related to concepts.	The effect of error mentioned but not related to the data. Some relationship discussed between data and concepts.	Pattern or relationship vaguely described	No reference made to graph or data
<b>Conclusion</b>	Hypothesis restated and related to results in terms of support. Any relevant limitations of the experiment are discussed.	Hypothesis related to result and support described	Conclusion appropriate but simple and support only stated	Conclusion vague or lacking support
<b>Problem solving</b>	Complex and unfamiliar problems are solved correctly	All but the complex or unfamiliar problems solved correctly	Simple problems solved correctly	Some correct answers or working
<b>Use of terms, conventions, formulae and equations</b>	All working clearly shown. Chemistry terminology used correctly and commonly in explanations and discussion	Some working missing. Chemistry terminology used correctly in explanations and discussion.	Some working shown. Some chemistry terminology used correctly.	Little or no working shown. Chemistry terminology used incorrectly.
<b>Work skills</b>	Laboratory environment treated seriously. Interaction with others is positive and focused on the investigation. Report handed in on time or early.	Generally positive and focussed attitude but with one or two distractions. Report handed in on time.	Mostly constructive contribution to practical work but often distracting. Report handed in late.	Some constructive contribution but mostly distracting. Report handed in late.
<b>Knowledge and understanding of concepts</b>	Various concepts related to the investigation correctly explained. Sources of error and improvements to procedure are correctly explained in terms of chemistry concepts.	At least two relevant concepts or issues are explained clearly.	Some concepts are described or referred to, or explanations are unclear.	Concepts either not explained or explained poorly.
<b>Explaining social or environmental issues</b>	Social or environmental issues are explained correctly, either two clearly or one in depth.	One social or environmental issue is explained clearly but not in much depth.	One social or environmental issue is described and partly explained.	Explanations of social or environmental issues missing or unclear.
<b>Communication</b>	Report is written in neutral, scientific language. Layout is neat and includes clear headings and paragraphing. Spelling and grammar are thoroughly checked.	Report includes some personal language, not all layout is clear, or there are a number of spelling mistakes.	Report is organised in a layout but without clear headings. Spelling and grammar is not well checked.	Report poorly organised with few or no headings. Many spelling and grammar mistakes.