

2.3	The methodology of the investigation addresses the research question and takes into consideration factors that influence the relevance, reliability and sufficiency of the data collected	None	Limited	Mainly Appropriate	Highly Appropriate
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4	The report shows evidence of awareness of the significant safety, ethical or environmental issues relevant to the method	None	Limited	Some	Full
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most Consistent Grade					

3. Analysis @ total / 6																																																									
<input type="checkbox"/>	An 3.1. Relevant raw data collected (quantitative and qualitative) and presented without going beyond 12 pages.																																																								
<input type="checkbox"/>	An 3.1. Relevant qualitative data																																																								
<input type="checkbox"/>	An 3.1. Raw data is displayed in a clear table.																																																								
<input type="checkbox"/>	An 3.1. Raw data table has correct units and uncertainties in headers.																																																								
<input type="checkbox"/>	An 3.2. There is sufficient raw data to support conclusion (at least 5 values of independent variable for a linear relationship more for non linear).																																																								
<input type="checkbox"/>	An 3.2. Measurement of dependent variable has been repeated (about 3 times) and mean value calculated.																																																								
<input type="checkbox"/>	An 3.3. Uncertainties have been propagated in an acceptable manner.																																																								
<input type="checkbox"/>	An 3.3. Some processing of data (at least finding mean).																																																								
<input type="checkbox"/>	An 3.3. Reference to precision of results (random error).																																																								
<input type="checkbox"/>	An 3.4. Data used to find relationship or value.																																																								
<input type="checkbox"/>	An 3.4. Processed data/graph trend line is referred to and explained.																																																								
<input type="checkbox"/>	An 3.4. Processed data in correct number of significant figures.																																																								
<input type="checkbox"/>	An 3.4. Appropriate and correct graphing																																																								
<input type="checkbox"/>	An 3.4. Raw data has been processed correctly/secondary data has been interpreted correctly so that a valid conclusion can be formulated in the next criteria of evaluation.																																																								
<table border="1"> <thead> <tr> <th colspan="2">Criterion</th> <th>0</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>3.1</td> <td>Qualitative and quantitative raw data are included to support a valid conclusion to the research question</td> <td>None</td> <td>Insufficient</td> <td></td> <td>Relevant/Incomplete</td> <td></td> <td>Relevant/Complete</td> <td></td> </tr> <tr> <td>3.2</td> <td>Enough data processing is carried out to enable a conclusion to the research question, consistent with the experimental data</td> <td>None</td> <td>Basic/Insufficient</td> <td></td> <td>Appropriate</td> <td></td> <td>Appropriate/Accurate</td> <td></td> </tr> <tr> <td>3.3</td> <td>The report shows evidence of consideration of the impact measurement uncertainty on the analysis</td> <td>None</td> <td>Little</td> <td></td> <td>Some</td> <td></td> <td>Full</td> <td></td> </tr> <tr> <td>3.4</td> <td>Processed data is interpreted so that a conclusion to the research question can be deduced</td> <td>None</td> <td>Incorrect/Insufficient</td> <td></td> <td>Valid/incomplete</td> <td></td> <td>Valid/Detailed</td> <td></td> </tr> <tr> <td colspan="2">Most Consistent Grade</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Criterion		0	1	2	3	4	5	6	3.1	Qualitative and quantitative raw data are included to support a valid conclusion to the research question	None	Insufficient		Relevant/Incomplete		Relevant/Complete		3.2	Enough data processing is carried out to enable a conclusion to the research question, consistent with the experimental data	None	Basic/Insufficient		Appropriate		Appropriate/Accurate		3.3	The report shows evidence of consideration of the impact measurement uncertainty on the analysis	None	Little		Some		Full		3.4	Processed data is interpreted so that a conclusion to the research question can be deduced	None	Incorrect/Insufficient		Valid/incomplete		Valid/Detailed		Most Consistent Grade										
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Most Consistent Grade																																																									

4. Evaluation @ total / 6			
<input type="checkbox"/>	Ev 4.1. Conclusion answers research question which is stated (again).		
<input type="checkbox"/>	Ev 4.1. Conclusion supported by the raw data and/or processed data/graph trend line.		
<input type="checkbox"/>	Ev 4.2. Where relevant, using an expected value, a percentage error is calculated and referred to.		
<input type="checkbox"/>	Ev 4.2. Conclusion compared with existing chemistry knowledge.		
<input type="checkbox"/>	Ev 4.3. Shows an understanding of how the results support the theory and where it deviates from it.		
<input type="checkbox"/>	Ev 4.3. Understands how uncertainties affect the result (with evidence).		
<input type="checkbox"/>	Ev 4.3. Identifies strengths and weaknesses of method of data collection and analysis.		

<input type="checkbox"/>	Ev 4.3. Tries to adapt the method to reduce uncertainties or test their impact.							
<input type="checkbox"/>	Ev 4.3. Discusses how to address weaknesses (weaknesses addressed should be those mentioned) i.e. suggests improvements/reduce systematic error.							
<input type="checkbox"/>	Ev 4.4. Discusses what the next step would be given more time.							
Criterion		0	1	2	3	4	5	6
4.1	A conclusion is included which is relevant to the research and supported by the data presented.	None	Irrelevant/ Unsupported		Relevant/ Supported		Justified/ Supported	
4.2	A conclusion is described through relevant comparison to the accepted scientific content	None	Superficial		Some relevance		Relevant/Justified	
4.3	Strengths and weaknesses of the investigation are presented, and provide evidence of understanding of methodological issues .	None	Outlined/ Superficial		Described/ Some		Discussed/ Clear	
4.4	Realistic and practical suggestions for the improvement and extension of the investigation are discussed.	None	Outlined few		Described some		Discussed all	
Most Consistent Grade								

5.Communication @ total / 4								
<input type="checkbox"/>	Co 5.1. Easy to read and understand the approach, method, processing and analysis of the data							
<input type="checkbox"/>	Co 5.1. Correct use of chemistry terminology							
<input type="checkbox"/>	Co 5.1. Organised into short sections with relevant sub titles.							
<input type="checkbox"/>	Co 5.1. Any illustrations are relevant to the research question and have a subtitle and are referred to in the text.							
<input type="checkbox"/>	Co 5.1. Clear logical structure.							
<input type="checkbox"/>	Co 5.1. Tables and charts/graphs have titles.							
<input type="checkbox"/>	Co 5.1. Tables have a heading, unit, uncertainties, consistency between uncertainty and precision of raw data.							
<input type="checkbox"/>	Co 5.2. Not more than 12 pages.							
<input type="checkbox"/>	Co 5.2. Does not contain irrelevant information.							
<input type="checkbox"/>	Co 5.3. Correct SI units used throughout.							
<input type="checkbox"/>	Co 5.3. Correct use of significant figures							
<input type="checkbox"/>	Co 5.3. Uses IUPAC rules to name chemicals							
<input type="checkbox"/>	Co 5.3. Calculations are easy to follow; if repeats of calculations, there is a sample calculation and the rest is summarized.							
<input type="checkbox"/>	Co 5.3. No large spaces left.							
<input type="checkbox"/>	Co 5.3. A consistent linguistic style (preferably passive voice/third person) maintained throughout the essay.							
<input type="checkbox"/>	Co 5.3. Citations given for all support material taken from sources.							
<input type="checkbox"/>	Co 5.3. Citations use a clear consistent style and inline citations are used to support the use of citations within text.							
Criterion		0	1	2	3	4		
5.1	The structure of the report is clear, and the information on focus, process and outcomes are coherent.	None	Unclear/ Incoherent		Clear/ Coherent			
5.2	The report is relevant and concise , is easily readable, and contains no inappropriate or irrelevant information.	None	Not Concise/ Irrelevant		Concise and Relevant			
5.3	Subject specific terminology and conventions are appropriately used and are correct.	None	Many/Few Errors		Appropriate/ Correct			
Most Consistent Grade								

Comment:

Personal engagement	Exploration	Analysis	Evaluation	Communication	Total