Clarence Valley
ANGLICAN SCHOOL

Year 10 Science 2022
First Hand Investigation Assessment Task
Mrs Kennedy

Task Number	2
Assessment Type	First-hand Investigation
Unit	Chemical Reactions
Topic	*Rate of Reaction*
Task Description	This assessment task requires you to carry out a practical chemistry investigation to find out the following; ***How is the rate of a reaction is affected by the concentration of the reactants?*** **Risk assessment and planning** ● Design a suitable reaction to investigate the chemical reaction between hydrochloric acid and magnesium metal. ● A range of hydrochloric acid (HCl) concentrations, e.g., 0.5M, 1M, 1.5M, and 2M, will be supplied. ● If you use magnesium ribbon, you need to consider what length of the ribbon that you will use. ● Write a brief outline of your experiment, including the hypothesis you will test, your method, how you will control your variables, the equipment you need, and a risk assessment. ● You must have your plan approved by your teacher before the experiment can be performed. ● A complete scientific report will be submitted, including; Aim, Hypothesis, Theory, equipment, Method, Results, Discussion, Conclusion and Bibliography (Harvard Style). .
Outcomes to be assessed	SC5-4WS develops questions or hypotheses to be investigated scientifically SC5-5WS - produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively SC5-6WS - undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively SC5-7WS - processes, analyses, and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions SC5-9WS presents scientific ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations SC5-17CW - discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials
Length	Minimum of 850 words
Format	Scientific Report
Due Date	**Thursday 15 September 2022 | Week 9| Term 3**
Weighting	30 %
Marking Rubric	In your report, you will be assessed on how well you: ● Present and organise your ideas in a logical and engaging manner. ● Design and carry out a fair and reliable experiment ● Draw valid conclusions

	• Work as part of a team
Conditions	You will have some time in class to design and carry out the experiments, but the written report part of the task should be done at home.
Literacy / Numeracy Component	NGraphs

Marking Criteria

Criteria - Aim	**Possible Marks**
Clearly states the intended aim using appropriate terminology.	2
The aim is not clearly stated, or inappropriate terminology is used.	0 - 1

Criteria - Hypothesis	**Possible Marks**
Provide an accurate educated guess with plausible justifications.	2
Provides an educated guess with no justification.	0-1

Criteria - Theory	**Possible Marks**
Detailed evidence of research. A clear understanding of the scientific principles involved. Referenced as appropriate Uses at least four references	4 - 6
Research is insufficiently detailed. Some scientific understanding is expressed. No referencing Uses three or fewer references	1 - 3

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Criteria - Method	Possible Marks
Includes a detailed, numbered, step-by-step procedure of how the experiment is performed. Includes a control where appropriate. The experiment is a reliable and fair test. Describes the Dependent and Independent variables Includes a risk assessment	5 - 6
Procedure reasonably detailed using steps Includes a control where appropriate Describes the Dependent and Independent variables The experiment is not reliable or fair Includes a risk assessment	3-4
The procedure does not have a detailed outline. A description of all tasks completed is not included. The experiment is not a fair test. No variables discussed Does not include a risk assessment	1 - 2

Criteria - Results	Possible Marks
Detailed and valid results are completed for all tasks, including appropriate tables, graphs and diagrams.	5 - 6
Results are not as detailed and may not be realistic or valid; an insufficient number of tables or diagrams may have been used.	3 - 4
Results are not sufficiently detailed. Results are not realistic or valid. Tables or diagrams may not have been included.	0 - 2

Criteria – Discussion & Conclusion	Possible Marks
Comprehensive discussion of experimental results with links to scientific theory Comprehensive analysis of results data Valid conclusions are drawn from the results obtained. Detailed discussion of the validity of the results.	7 - 8

Suggestions are made for improvement of experimental technique	
Detailed discussion of experimental results with links to scientific theory Detailed analysis of results data Considerable discussion in given to the validity and reliability of data. Conclusions are valid. Suggestions are made for improvement of experimental technique	5 - 6
Some of the discussion points are addressed with some links to scientific theory Some analysis of results data Limited discussion is given to validity of data. Conclusions are mostly valid.	3 - 4
Limited discussion points are given. Little or no analysis of data Discussion and validity of conclusions are limited.	0 - 3

Total possible marks: 30 Marks

Overall Grade

A	B	C	D	E

Literacy / Numeracy Component

Developing	Competent / Satisfactory	Proficient

Feedback:

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