



MOUNT ANNAN HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

FACULTY	Science	COURSE	Stage 5	YEAR	10
TASK NUMBER	1	TASK NAME	Data Analysis: Chemistry 101		
TASK WEIGHT	20%	MARKS AWARDED	45		
DATE OF NOTIFICATION	Term 1, Week 7				
DUE DATE	Friday 29th March, 2024 (Week 9)				

TASK DESCRIPTION / INSTRUCTIONS

Data Analysis Task:

Students will undertake a research-based analysis which focuses upon collecting, processing and analysing data to explain their knowledge and understanding of the Chemical World. Students will research, investigate, process and analyse a range of primary and secondary sources of information to show their skills in analysing a range of data sources as outlined:

Students will also receive a booklet to support the completion of this task.

Part A- Radioactive Half-Life investigation (Quantitative Analysis) (18 Marks)

- Students will be required to perform a first-hand investigation based on radioactive half-life to present primary data in a **table** of results and a **drawn graph**.

Part B- Data processing: Radioactive decay (12 marks).

- Students are to analyse data and process information from different sources about radioactive decay and its applications for radiocarbon dating of Aboriginal and Torres Strait Islander history.

Part C - Evaluative response (15 Marks)

- Students will write a written response addressing the following statement in relation to the future of nuclear energy in Australia. (Maximum 500 Words).

‘What is the future of the nuclear industry in Australia: do the benefits outweigh the risks when using radioisotopes?’

TASK SUBMISSION INSTRUCTIONS

- Task is to be submitted by **Friday 29th March, 2024**. The completed booklet is to be submitted as a hard copy to your teacher **who will be in EO1 till 8:45am**

SUPPORT MATERIAL / EXAMPLES OF SUCCESS CRITERIA

Copies of the booklet are available to students from their classroom teacher, websites for Part B can be accessed through Google classrooms.

HOW DOES THIS TASK LINK TO MY LEARNING

Students will develop their skills in analysis of primary and secondary data, reflecting on the validity and reliability of the sources. Additionally, students will explore how aspects of chemistry applies to their lives through exposure to real world examples.

The task will draw on students' ability to present scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations for specific audiences



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OUTCOMES

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| SC5 – 7WS | Processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions |
| SC5– 9WS | Presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations . |
| SC5 – 16CW | Explains how models, theories and laws about matter have been refined as new scientific evidence becomes available. |

FAILURE TO COMPLETE OR SUBMIT AN ASSESSMENT TASK

If you do not attend school on the Due Date of an Assessment Task to submit or complete the task in person you will be given a zero mark unless you comply with the following Assessment Guidelines:

- For Assessment Task completed at home – you must submit the assessment task before school on the next day you attend.
- For Assessment Tasks completed at school – you must report to the relevant Head Teacher before school the next day you attend and discuss when you will complete task missed or a substitute task.
- Complete a ‘Misadventure Form’ and provide relevant information and evidence to appeal the **zero mark** awarded. Other circumstances are outlined in the MAHS Assessment Booklet for the particular year. Evidence may include an in person medical certificate for illness or a letter outlining extenuating circumstances or other deemed reasonable reasons. An outcome of your ‘Misadventure Form’ will be provided by the Deputy Principal.

Students found guilty of **malpractice** which includes plagiarism will be awarded a **zero mark**. If a piece of work is incomplete at the time of submission, it should be submitted as is, and you will be given a mark on what has been completed.

As per our school Assessment Procedures outlined in the MAHS Assessment Booklet for the particular year, you must see your teacher and Head Teacher on the **first day you return** back to school. Please access our school website to access our assessment procedures for each year group and a ‘misadventure form’ - <https://mountannan-h.schools.nsw.gov.au/community/assessment-schedules.html>

MARKING CRITERIA - Part A: Investigation, Results and Graph

Performance Descriptors: Outcome SC5-7WS	Marks/Grade
<ul style="list-style-type: none"> ● Student comprehensively undertakes a first-hand investigation to collect valid and reliable data. ● Student comprehensively gathers, selects, organises and processes quantitative secondary sourced data and information. ● Students comprehensively produces <ul style="list-style-type: none"> ○ a labelled table of data ○ a plotted graph of data and indicates a ‘curve’ of best fit. 	A 11 - 12
<ul style="list-style-type: none"> ● Student effectively undertakes a first-hand investigation to collect valid and reliable data. ● Student effectively gathers, selects, organises and processes quantitative secondary sourced data and information. ● Students effectively produces <ul style="list-style-type: none"> ○ a labelled table of data ○ a plotted graph of data and indicates a ‘curve’ of best fit. 	B 8 - 10
<ul style="list-style-type: none"> ● Student correctly undertakes a first-hand investigation to collect data. ● Student gathers and presents relevant sourced data and information. ● Students correctly produces <ul style="list-style-type: none"> ○ a labelled table of data ○ a plotted graph of data and indicates a ‘curve’ of best fit. 	C 5 - 7



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<ul style="list-style-type: none"> ● Student undertakes a first-hand investigation to collect data with inconsistencies. ● Student presents data OR relevant information with minor error. ● Students basically produces <ul style="list-style-type: none"> ○ a labelled table of data ○ a plotted graph of data and indicates a 'curve' of best fit. 	D 3 - 4
<ul style="list-style-type: none"> ● Student undertakes a first-hand investigation incorrectly collecting minimal data. ● Student presents unreliable data OR consistent errors presented. ● Students fails to produce <ul style="list-style-type: none"> ○ a labelled table of data ○ a plotted graph of data and indicates a 'curve' of best fit. 	E 1 - 2
Non Attempt – Non Submission – Non Serious Attempt	0

MARKING CRITERIA - Part B: Analysis

Performance Descriptors: Outcome SC5-7WS, SC5-9WS	Marks/Grade
<ul style="list-style-type: none"> ● Student applies extensive knowledge and understanding of scientific models, theories and laws, about the <i>nature of radioactive decay</i>. ● Student comprehensively processes, analyses and evaluates data from a range of secondary sources. ● Student competently selects, organises and processes quantitative secondary sourced data and information to evaluate issues and inform creative solutions. ● Comprehensively solves problems using related evidence for a particular purpose and audience using scientific terminology. 	A 22-26
<ul style="list-style-type: none"> ● Student can apply thorough knowledge and understanding of how biological understanding has advanced through scientific discoveries, technological developments and the needs of society ● processes, analyses and evaluates data from a range of secondary sources. ● competently selects, organises and processes quantitative secondary sourced data to construct an appropriate table, type of diagram, table or graph (<i>histogram or sector, column or line graph</i>) to present information. ● Effectively solves problems using related evidence for a particular purpose and audience using scientific terminology. 	B 16-21
<ul style="list-style-type: none"> ● Student demonstrates sound knowledge and understanding of scientific models, theories OR laws, about the nature of radioactive decay. ● Student identifies, describes and discusses data from a range of secondary sources. ● Student identifies and processes sourced data and information to explain issues and inform. ● Solves problems with minor inconsistencies using related evidence for a audience using scientific terminology. 	C 10-15
<ul style="list-style-type: none"> ● Student demonstrates basic knowledge AND understanding of about the use and influence of science. ● Student describes data with inconsistencies. ● Student identifies data without linking of issues OR incorrectly informs. ● Solves problems with error. 	D 5-9
<ul style="list-style-type: none"> ● Student demonstrates elementary knowledge and understanding of some scientific principles, OR about states a uses of science. ● Student states data ● Student data incorrectly informs. ● Solves problems with major errors 	E 0 - 4
Non Attempt – Non Submission – Non Serious Attempt	0



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MARKING CRITERIA - Part C: Quantitative analysis.

Performance Descriptors: Outcome SC5-9WS, SC5-16CW	Marks/Grade
<ul style="list-style-type: none"> ● Comprehensively presents discussion, using data examples, how the values and needs of contemporary society can influence the focus of scientific research, eg assess the future of the nuclear industry in Australia. ● Correctly using extensive scientific language and representations ● Focus is placed upon the properties of radiation for industry and medical purposes, linking how these affects the written opinion. ● Relationship between benefit and risk comprehensively addressed. ● Evident analysis of valid data is included to support response. 	A 13 - 15
<ul style="list-style-type: none"> ● Effectively discusses, using data examples, how the values and needs of contemporary society can influence the focus of scientific research, , eg assess the future of the nuclear industry in Australia. ● Correctly using scientific language and representations ● Focus is placed upon the properties of radiation for industry and medical purpose, linking how these affects the written opinion. ● Relationship between benefit and risk effectively addressed. ● Evident analysis of data is included to support response. 	B 10 - 12
<ul style="list-style-type: none"> ● Displays, using data examples, how the values and needs of society can influence research, , eg explains the nuclear industry in Australia. ● Incorporates scientific language or representations ● Properties of radiation for industry or medical purposes described with affects on the written opinion. ● Relationship between benefit and risk described. ● Evidence of data included to support response. 	C 7 - 9
<ul style="list-style-type: none"> ● Describes, society can influence research, eg describes how nuclear energy relates to uses ● Attempt made for scientific language or representation ● Properties of radiation stated in the written opinion. ● Relationship between benefit or risk poorly linked ● Some data is included in response. 	D 4 - 6
<ul style="list-style-type: none"> ● Identifies, society can influence research eg identifies a use for nuclear energy ● States impact of benefit OR risk. ● Incorrect properties of radiation stated ● Poor use of scientific language or limited representations 	E 1 - 3
Non Attempt – Non Submission – Non Serious Attempt	0