

<b>Subject: CHEMISTRY</b>	<b>Task Number: 4</b>
<b>Type of Task:</b> Examination	<b>Coordinating Teacher:</b> K Aveling-Rowe <b>Cooperating Teacher:</b>
<b>Date Issued:</b> Term 3, Week 4 Monday, 11 <sup>th</sup> August 2025	<b>Date Due:</b> Term 3, Week 6 Monday, 25 <sup>th</sup> August 2025 9:00am
<b>Total Marks:</b> 100	<b>Overall Weighting:</b> 30%
	<b>Component Weightings:</b> <ul style="list-style-type: none"> <li>• Knowledge and Understanding — 10%</li> <li>• Working Scientifically Skills — 20%</li> </ul>

### Submission Instructions:

- Students are to complete the task at school beginning 9:00am, Monday, 25<sup>th</sup> August 2025

### Task Context:

*In the HSC Chemistry course you have learnt about the composition of matter, including elements, compounds, and mixtures, and their properties. You have explored various types of chemical reactions, including synthesis, decomposition, combustion, precipitation, acid-base, and redox reactions. You have learnt how to quantify chemical reactions, including calculations involving moles, molar ratios, and balanced equations. Reversible reactions have been studied and factors affecting their equilibria, along with acids, bases, and their reactions, including titrations and pH calculations. The chemistry of carbon-containing compounds and their reactions, the different functional groups and how these influence properties and reactivity of compounds have been explored. Chemical knowledge has been applied to solve real-world problems, including environmental monitoring, industrial processes, and sustainability.*

*In this task you will be required to demonstrate your understanding of all outcomes in the HSC Chemistry Course by completing an examination on Module 5: Equilibrium and Acid Reactions, Module 6: Acid/Base Reactions, Module 7: Organic Chemistry, and Module 8: Applying Chemical Ideas*

### Syllabus Outcomes:

CH12-2	designs and evaluates investigations in order to obtain primary and secondary data and information
CH12-3	conducts investigations to collect valid and reliable primary and secondary data and information
CH12-4	selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media
CH12-5	analyses and evaluates primary and secondary data and information
CH12-6	solves scientific problems using primary and secondary data, critical thinking skills and scientific processes
CH12-7	communicates scientific understanding using suitable language and terminology for a specific audience or purpose
CH12-12	explains the characteristics of equilibrium systems, and the factors that affect these systems
CH12-13	describes, explains and quantitatively analyses acids and bases using contemporary models
CH12-14	analyses the structure of, and predicts reactions involving, carbon compounds
CH12-15	describes and evaluates chemical systems used to design and analyse chemical processes

## Task Description:

*This task is an examination in which you will be assessed on all content and skills from the HSC Chemistry course. This consists of two sections:*

### **Section I — 20 Multiple Choice Questions — 20 marks**

Clearly mark with an X in the correct box (A, B, C or D) on the answer sheet provided

### **Section II — Short and Extended Response Questions — 80 marks**

Write clear written responses to each question on the lines provided. Extra space is provided at the end of the booklet if required — clearly mark these answers with the question number

**Time Allowed:** 3 hours + 5 minutes reading time

## Criteria for Assessing Learning

*Students will be assessed on their ability to:*

- Demonstrate knowledge and understanding of scientific concepts, including complex and abstract ideas.
- Communicate scientific understanding succinctly and consistently using correct and precise scientific terms in a variety of formats and contexts.
- Select, process, interpret and represent qualitative and quantitative data to derive trends, show patterns and relationships, explain phenomena and make predictions.
- Design solutions to scientific problems or hypotheses using primary and secondary data and scientific evidence.
- Apply knowledge and information to unfamiliar situations to propose comprehensive solutions or explanations for scientific issues or scenarios.
- Perform scientific calculations related to chemical reactions in terms of mass, concentration, number of moles, volume and temperature, and balanced chemical equations.

## NESA “All My Own Work”

*By signing for this assessment task and having completed the NESA course “All My Own Work” I confirm that this assessment task will be free from plagiarism and reflective of my own work. I understand that if I am found to have plagiarised or engaged in malpractice, I will be referred to the HT Access to engage the LAP Malpractice process.*

HSC Key Words	
WORDS	MEANING
<b>Account</b>	Account for: state reasons for, report on. Give an account of: narrate a series of events or transactions
<b>Analyse</b>	Identify components and the relationship between them; draw out and relate implications
<b>Apply</b>	Use, utilise, employ in a particular situation
<b>Appreciate</b>	Make a judgement about the value of
<b>Assess</b>	Make a judgement of value, quality, outcomes, results or size
<b>Calculate</b>	Ascertain/determine from given facts, figures or information
<b>Clarify</b>	Make clear or plain
<b>Classify</b>	Arrange or include in classes/categories
<b>Compare</b>	Show how things are similar or different
<b>Construct</b>	Make, build, put together items or arguments
<b>Contrast</b>	Show how things are different or opposite
<b>Critically analyse/evaluate</b>	Add a degree or level of accuracy, depth, knowledge and understanding, logic, questioning, reflection and quality to (analyse/evaluate)
<b>Deduce</b>	Draw conclusions
<b>Define</b>	State meaning and identify essential qualities
<b>Demonstrate</b>	Show by example
<b>Describe</b>	Provide characteristics and features
<b>Design</b>	Do or plan (something) with a specific purpose or intention in mind
<b>Discuss</b>	Identify issues and provide points for and/or against
<b>Distinguish</b>	Recognise or note/indicate as being distinct or different from; to note differences between
<b>Evaluate</b>	Make a judgement based on criteria, determine the value of
<b>Examine</b>	Inquire into
<b>Explain</b>	Relate cause and effect; make the relationships between things evident; provide why and/or how
<b>Extract</b>	Choose relevant and/or appropriate details
<b>Extrapolate</b>	Infer from what is known
<b>Give an example</b>	<i>Do exactly that and no more, but make sure it is specific to the rest of the question</i>
<b>How</b>	In what way or manner; by what means
<b>Identify</b>	Recognise and name
<b>Interpret</b>	Draw meaning from
<b>Investigate</b>	Plan, inquire into and draw conclusions about
<b>Justify</b>	Support an argument or conclusion
<b>List</b>	Make a set of items considered as being in the same category, or having a particular order of priority
<b>Outline</b>	Sketch in general terms; indicate the main features of
<b>Predict</b>	Suggest what may happen based on available information
<b>Propose</b>	Put forward (a point of view, idea, argument, suggestion) for consideration or action
<b>Recall</b>	Present remembered ideas, facts or experiences
<b>Recommend</b>	Provide reasons in favour
<b>Recount</b>	Retell a series of events
<b>Summarise</b>	Express concisely the relevant details
<b>Synthesise</b>	Put together various elements to make a whole
<b>To what extent</b>	How much, to what degree or how many
<b>Translate</b>	Move from one place or condition to another

<b>What</b>	Asking for information specifying something (Mark allocation will indicate the extent of information required)
<b>Why</b>	For what reason or purpose