CHEMISTRY YEAR 11 - MODULE 2 - LESSON 10

Volumetric Analysis & Titration

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

Every antacid tablet you've ever taken was tested by titration before it left the factory. Every blood pH reading, every wine acidity measurement, every batch of pharmaceutical drugs — titration is the technique that underpins quantitative chemistry in the real world. It's also the most commonly examined calculation type in NSW HSC Chemistry.

- Definitions: analyte, titrant, equivalence point, end point
- Why a standard solution is needed as the titrant

2. Success Criteria

By the end, you should be able to:

- Definitions: analyte, titrant, equivalence point, end point
- Equipment: burette, pipette, volumetric flask, conical flask
- Common indicators and their colour changes

3. Key Terms

Mole
The SI unit for amount of substance; contains exactly 6.022×10^{23} particles.

Avogadro's Number
6.022×10^{23} — the number of particles in one mole of a substance.

Molar Mass
The mass of one mole of a substance, measured in g/mol.

Limiting Reagent
The reactant that is completely consumed first, limiting the amount of product formed.

Empirical Formula
The simplest whole-number ratio of atoms in a compound.

Molecular Formula
The actual number of atoms of each element in a molecule of a compound.

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "Definitions: analyte, titrant, equivalence point, end point". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Equipment: burette, pipette, volumetric flask, conical flask". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Volumetric Analysis & Titration: "Common indicators and their colour changes".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Volumetric Analysis & Titration but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Volumetric Analysis & Titration?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Volumetric Analysis & Titration?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: Definitions: analyte, titrant, equivalence point, end point

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Equipment: burette, pipette, volumetric flask, conical flask

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Common indicators and their colour changes

BAND 5 4 MARKS

One thing I still need help with: