CHEMISTRY YEAR 11 - MODULE 2 - LESSON 9

Gravimetric Analysis

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

A gold mining company needs to know how much gold is in a tonne of ore — not approximately, exactly. A water treatment plant needs to measure sulfate contamination down to 0.1 mg. Both use gravimetric analysis: the oldest quantitative technique in chemistry, and still one of the most accurate. The principle is beautifully simple — cause precipitation, filter, dry, weigh.

- Definition of gravimetric analysis
- Why the precipitate must be insoluble

2. Success Criteria

By the end, you should be able to:

- Definition of gravimetric analysis
- What a precipitate is and why it forms
- The 5-step experimental procedure

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: "Definition of gravimetric analysis". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "What a precipitate is and why it forms". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Gravimetric Analysis: "The 5-step experimental procedure".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Gravimetric Analysis 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 Gravimetric Analysis?

☐ 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 Gravimetric Analysis?

☐ 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: Definition of gravimetric analysis

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: What a precipitate is and why it forms

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The 5-step experimental procedure

BAND 5 4 MARKS

One thing I still need help with: