

Stoichiometry in Solution

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

From Lesson 6 you know how to find moles from a solution's concentration and volume. From Lesson 11 you know how to use mole ratios from balanced equations. This lesson fuses both skills — it's the most powerful calculation type in the module, and one of the most common in HSC exams.

- $n = cV$ links concentration to moles
- Why concentration \times volume gives moles (not grams)

2. Success Criteria

By the end, you should be able to:

- $n = cV$ links concentration to moles
- Solution stoichiometry combines IQ3 and IQ1 skills
- mL \rightarrow L conversion is non-negotiable first step

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: " $n = cV$ links concentration to moles". Use one specific example from the lesson.

BAND 3 **2 MARKS**

2. Apply this idea to a new example: "Solution stoichiometry combines IQ3 and IQ1 skills". Show your reasoning clearly.

BAND 4 **3 MARKS**

3. Analyse why this idea matters for understanding Stoichiometry in Solution: " $\text{mL} \rightarrow \text{L}$ conversion is non-negotiable first step".

BAND 5 **4 MARKS**

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Stoichiometry in Solution 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 Stoichiometry in Solution?

- 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 Stoichiometry in Solution?

- 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: $n = cV$ links concentration to moles

BAND 3 **2 MARKS**

SUCCESS CRITERION 2

Prove that you can: Solution stoichiometry combines IQ3 and IQ1 skills

BAND 4 **3 MARKS**

SUCCESS CRITERION 3

Prove that you can: mL \rightarrow L conversion is non-negotiable first step

BAND 5 **4 MARKS**

One thing I still need help with:
