CHEMISTRY YEAR 11 - MODULE 2 - LESSON 6

Concentration

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 cup of coffee and an espresso both contain caffeine — but one hits harder. That difference is concentration. Every time a nurse measures an IV drip rate, a pool technician tests chlorine levels, or a chemist prepares a reagent, they're working with this concept. It is the single most used calculation in Year 11 and 12 Chemistry.

- Definition: concentration = moles of solute ÷ volume of solution
- Why concentration depends on both amount AND volume

2. Success Criteria

By the end, you should be able to:

- Definition: concentration = moles of solute ÷ volume of solution
- Units: mol L^{-1} (also written M or mol/L)
- Solute, solvent, solution — key terms

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: concentration = moles of solute ÷ volume of solution". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "Units: mol L^{-1} (also written M or mol/L)". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Concentration: "Solute, solvent, solution — key terms".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Concentration 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 Concentration?

☐ 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 Concentration?

☐ 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: concentration = moles of solute ÷ volume of solution

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: Units: mol L^{-1} (also written M or mol/L)

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Solute, solvent, solution — key terms

BAND 5 4 MARKS

One thing I still need help with: