

Mass–Mass Stoichiometry

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

Given the mass of one substance, find the mass of another. This is the core calculation of all quantitative chemistry — the 4-step method converts mass to moles, applies the mole ratio, then converts back to mass. Apply it the same way every time.

- The 4-step stoichiometry method — steps 1 to 4 in order
- Why mass cannot be directly converted to mass without moles

2. Success Criteria

By the end, you should be able to:

- The 4-step stoichiometry method — steps 1 to 4 in order
- Mole ratio comes from coefficients of the balanced equation
- All mass calculations pass through moles — no shortcuts

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: "The 4-step stoichiometry method — steps 1 to 4 in order". Use one specific example from the lesson.

BAND 3 **2 MARKS**

2. Apply this idea to a new example: "Mole ratio comes from coefficients of the balanced equation". Show your reasoning clearly.

BAND 4 **3 MARKS**

3. Analyse why this idea matters for understanding Mass–Mass Stoichiometry: "All mass calculations pass through moles — no shortcuts".

BAND 5 **4 MARKS**

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Mass–Mass Stoichiometry 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 Mass–Mass Stoichiometry?

- 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 Mass–Mass Stoichiometry?

- 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: The 4-step stoichiometry method — steps 1 to 4 in order

BAND 3 **2 MARKS**

SUCCESS CRITERION 2

Prove that you can: Mole ratio comes from coefficients of the balanced equation

BAND 4 **3 MARKS**

SUCCESS CRITERION 3

Prove that you can: All mass calculations pass through moles — no shortcuts

BAND 5 **4 MARKS**

One thing I still need help with:
