CHEMISTRY YEAR 11 - MODULE 1 - LESSON 2

Properties of Elements, Compounds and Mixtures

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

When a chef adds salt to boiling water, the water boils at a slightly higher temperature than before. That single observation reveals something fundamental about how mixtures and pure substances behave differently — and why chemists measure properties so carefully.

- The key physical properties used to characterise substances
- Why pure substances have sharp, fixed physical properties

2. Success Criteria

By the end, you should be able to:

- The key physical properties used to characterise substances
- How properties differ between elements, compounds and mixtures
- Why mixtures have variable melting and boiling points

3. Key Terms

Key idea
The central concept from Properties of Elements, Compounds and Mixtures.

Evidence
Information, observations or calculations used to support an answer.

Explain
Give a reasoned answer that links cause and effect.

Apply
Use a learned idea in a new example, problem or scenario.

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. 6. Explain how melting point data distinguishes a pure substance from a mixture. Refer to the shape of a heating curve for each.

BAND 3 3 MARKS

2. 7. Iron (Fe) is a grey reactive metal. Sulfur (S) is a yellow non-metal that burns in air. Iron sulfide (FeS) is a dark grey solid that does not react with dilute acids or oxygen under normal conditions. Using these observations, explain why a compound's properties cannot be predicted from its elements.

BAND 4 4 MARKS

3. 8. A chemist has two clear liquids: Liquid A boils at exactly 100°C regardless of sample size. Liquid B boils between 100°C and 108°C depending on the sample. The chemist claims both are pure water. Evaluate this claim.

BAND 5 5 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Properties of Elements, Compounds and Mixtures 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 Properties of Elements, Compounds and Mixtures?

- [ ] 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 Properties of Elements, Compounds and Mixtures?

- [ ] 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 key physical properties used to characterise substances

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How properties differ between elements, compounds and mixtures

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: Why mixtures have variable melting and boiling points

BAND 5 4 MARKS

One thing I still need help with: