CHEMISTRY YEAR 11 - MODULE 1 - LESSON 7

Ionic Compounds: Structure and Properties

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

Imagine stacking a billion tiny magnets in a perfectly alternating grid — positive, negative, positive, negative — in all three dimensions. The electrostatic attraction holds everything together with enormous force. Now imagine nudging one row sideways. Suddenly like charges align. The whole thing shatters. This is why your table salt is hard, brittle, and melts at 801°C.

- The structure of an ionic lattice and how ions are arranged
- Why ionic compounds have high MPs linked to lattice energy

2. Success Criteria

By the end, you should be able to:

- The structure of an ionic lattice and how ions are arranged
- How ionic compounds form from metal + non-metal reactions
- The physical properties of ionic compounds and their causes

3. Key Terms

Key idea
The central concept from Ionic Compounds: Structure and Properties.

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. Describe the structure of an ionic lattice using sodium chloride (NaCl) as an example. In your answer, explain what holds the lattice together and why no discrete molecules exist in NaCl.

BAND 3 3 MARKS

2. 7. Compare the electrical conductivity of solid aluminium oxide (Al_2O_3, an ionic compound) and liquid aluminium (Al, a metal). Explain why both conduct as liquids but only one conducts as a solid, referring to the charge carriers in each case.

BAND 4 4 MARKS

3. 8. Magnesium oxide (MgO) is used as a refractory material — a substance that withstands very high temperatures without melting. Using your knowledge of ionic structure and lattice energy, explain why MgO is well-suited to this application. In your answer, compare MgO to NaCl.

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Ionic Compounds: Structure and Properties 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 Ionic Compounds: Structure and Properties?

☐ 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 Ionic Compounds: Structure and Properties?

☐ 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 structure of an ionic lattice and how ions are arranged

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: How ionic compounds form from metal + non-metal reactions

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The physical properties of ionic compounds and their causes

BAND 5 4 MARKS

One thing I still need help with: