SCIENCE YEAR 9 - UNIT 2 - LESSON 7

Valency and Ion Formation

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

Once students understand outer-shell electrons and stability, valency stops looking like a random number rule. This lesson turns the stability idea into the logic of electron gain and loss, and introduces cations and anions as the next step toward bonding.

- valency is linked to the drive toward a more stable outer shell
- ion formation is not random; it is connected to stability

2. Success Criteria

By the end, you should be able to:

- valency is linked to the drive toward a more stable outer shell
- losing electrons forms cations and gaining electrons forms anions
- ion charge depends on the balance of protons and electrons

3. Key Terms

Valency
The combining capacity used at Stage 5 to describe how atoms can gain, lose or share electrons to reach a stable arrangement.

Ion
A charged particle formed when an atom gains or loses electrons.

Cation
A positively charged ion formed when electrons are lost.

Anion
A negatively charged ion formed when electrons are gained.

Positive charge
Results when there are more protons than electrons.

Negative charge
Results when there are more electrons than protons.

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: "valency is linked to the drive toward a more stable outer shell". Use one specific example from the lesson.

CORE

2. Apply this idea to a new example: "losing electrons forms cations and gaining electrons forms anions". Show your reasoning clearly.

CORE

3. Analyse why this idea matters for understanding Valency and Ion Formation: "ion charge depends on the balance of protons and electrons".

REASONING

6. Extend: Apply the Idea

A student says, "I understand Valency and Ion Formation because I memorised the definition."

Explain why memorising a definition is not enough. Use an example from the lesson to show deeper understanding.

7. Multiple Choice

1. What is the best first step when answering a question about Valency and Ion Formation?

☐ 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 Valency and Ion Formation?

☐ 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: valency is linked to the drive toward a more stable outer shell

SUCCESS CRITERION 2

Prove that you can: losing electrons forms cations and gaining electrons forms anions

SUCCESS CRITERION 3

Prove that you can: ion charge depends on the balance of protons and electrons

One thing I still need help with: