SCIENCE YEAR 9 - UNIT 2 - LESSON 6

Electron Arrangement and Stability

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

The Materials unit now moves below the visible level of materials into the atomic ideas that help explain why substances behave differently. This lesson introduces outer-shell electrons and the idea of stability, which are the foundation for valency, ions and bonding.

- electrons are arranged in shells around the nucleus
- atoms do not all have the same outer-shell arrangement

2. Success Criteria

By the end, you should be able to:

- electrons are arranged in shells around the nucleus
- outer-shell electrons are especially important in chemical behaviour
- Stage 5 uses noble gas configuration as the model of stability

3. Key Terms

Electron arrangement
The way electrons are organised around the nucleus in shells or energy levels.

Outer shell
The outermost occupied shell of electrons in an atom.

Valence electron
An electron in the outer shell that is important in bonding and reactivity.

Stable
Less likely to react or change because the outer-shell arrangement is already favourable.

Noble gas configuration
A particularly stable outer-shell arrangement used as the Stage 5 model of stability.

Shell model
A simplified model showing electrons arranged in shells around the nucleus.

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: "electrons are arranged in shells around the nucleus". Use one specific example from the lesson.

CORE

2. Apply this idea to a new example: "outer-shell electrons are especially important in chemical behaviour". Show your reasoning clearly.

CORE

3. Analyse why this idea matters for understanding Electron Arrangement and Stability: "Stage 5 uses noble gas configuration as the model of stability".

REASONING

6. Extend: Apply the Idea

A student says, "I understand Electron Arrangement and Stability 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 Electron Arrangement and Stability?

☐ 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 Electron Arrangement and Stability?

☐ 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: electrons are arranged in shells around the nucleus

SUCCESS CRITERION 2

Prove that you can: outer-shell electrons are especially important in chemical behaviour

SUCCESS CRITERION 3

Prove that you can: Stage 5 uses noble gas configuration as the model of stability

One thing I still need help with: