SCIENCE YEAR 8 - UNIT 2 - LESSON 8

Isotopes - Same Element, Different Number of Neutrons

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

This lesson uses the atomic-number rule to explain isotopes: same element, same protons, but different numbers of neutrons.

- isotopes have the same proton number
- same element means same atomic number

2. Success Criteria

By the end, you should be able to:

- isotopes have the same proton number
- isotopes differ in neutron number
- different isotopes can have different mass numbers

3. Key Terms

Key idea
The central concept from Isotopes - Same Element, Different Number of Neutrons.

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. Explain this lesson goal in your own words: "isotopes have the same proton number". Use one specific example from the lesson.

CORE

2. Apply this idea to a new example: "isotopes differ in neutron number". Show your reasoning clearly.

CORE

3. Analyse why this idea matters for understanding Isotopes - Same Element, Different Number of Neutrons: "different isotopes can have different mass numbers".

REASONING

6. Extend: Apply the Idea

A student says, "I understand Isotopes - Same Element, Different Number of Neutrons 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 Isotopes - Same Element, Different Number of Neutrons?

☐ 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 Isotopes - Same Element, Different Number of Neutrons?

☐ 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: isotopes have the same proton number

SUCCESS CRITERION 2

Prove that you can: isotopes differ in neutron number

SUCCESS CRITERION 3

Prove that you can: different isotopes can have different mass numbers

One thing I still need help with: