

The Periodic Table: Organisation

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

Mendeleev had a problem: 63 known elements, no organising principle, and chemistry was a confused mess. His insight was to arrange them by atomic mass and look for repeating patterns in properties. He was so confident in the pattern that he left blank spaces for undiscovered elements — and predicted their properties before anyone had seen them. When those elements were discovered (gallium in 1875, germanium in 1886), they matched his predictions almost exactly. The periodic table isn't just a chart — it's one of the greatest predictive tools in science.

- How the periodic table is organised (periods and groups)
- Why elements in the same group have similar properties

2. Success Criteria

By the end, you should be able to:

- How the periodic table is organised (periods and groups)
- Names and properties of key groups (alkali metals, halogens, noble gases, transition metals)
- How Mendeleev organised the original periodic table and why it worked

3. Key Terms

Key idea

The central concept from The Periodic Table: Organisation.

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. Evaluate Mendeleev's contribution to chemistry, including: (a) the organising principle he used, (b) an example of a successful prediction he made about an undiscovered element, and (c) one limitation of his approach that the modern periodic table resolved.

BAND 3 **4 MARKS**

2. 7. An unknown element W has $Z = 20$. (a) Determine its group, period, and block. (b) State the number of valence electrons and predict its ion charge. (c) Compare the reactivity of W to magnesium ($Z=12$) and explain using electron shell theory.

BAND 4 **5 MARKS**

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about The Periodic Table: Organisation 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 The Periodic Table: Organisation?

- 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 The Periodic Table: Organisation?

- 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: How the periodic table is organised (periods and groups)

BAND 3 **2 MARKS**

SUCCESS CRITERION 2

Prove that you can: Names and properties of key groups (alkali metals, halogens, noble gases, transition metals)

BAND 4 **3 MARKS**

SUCCESS CRITERION 3

Prove that you can: How Mendeleev organised the original periodic table and why it worked

BAND 5 **4 MARKS**

One thing I still need help with:
