



# The Periodic Table **Answers**

1. What is an element?

**An element is a substance made of only one type of atom.**

2. Lithium is an element whose name comes from the Greek word *lithios*, meaning 'stone'. The symbol for lithium is written using the first two letters of its name.

Write down the symbol for lithium.

**Li**

3. Explain why scientists initially found it difficult to organise the elements.

**Not all of the elements had been discovered yet.**

4. Scientists continued to make discoveries about elements long after Mendeleev first produced his table. Explain how later discoveries provided evidence to support Mendeleev's organisation of the elements.

**When new elements were discovered they filled in the gaps that Mendeleev had left in his table. They also had the same properties that Mendeleev had predicted they would have. This evidence supported Mendeleev's methods for organising the elements.**

5. Describe two trends as you move from left to right across a **period**.

**1. The atomic number increases.**

**2. The atomic radius decreases.**

6. Explain why this organisation of the elements is known as the periodic table.

**Groups of elements with similar properties occur at regular intervals (periodically).**



7. An element is a gas at room temperature. It has a low density and is a poor conductor of heat and electricity. The element reacts with virtually all other elements.

Give the name of the group that this element is most likely to be found in.

**Group 7/halogens**

8. Compare the properties of metals and non-metals.

**Metals are typically shiny, whereas non-metals are typically dull.**

**Metals are usually good conductors of heat and electricity. However, non-metals are usually poor conductors of heat and electricity.**

**Metals are typically sonorous while non-metals are not.**

**Metals usually have a high density while non-metals have a low density.**

**Metal oxides form alkaline solutions. However, non-metal oxides form acidic solutions.**

**Metals are malleable and ductile, whereas non-metals are brittle.**

9. A shiny, grey solid can conduct electricity, is very brittle and has a low density. Explain where this element is likely to be found on the periodic table.

**The element is likely to be found near to the stepped line/found with the metalloids because it has properties of both metals and non-metals.**

10. Compare the melting and boiling points of the elements found in Group 1, Group 7 and Group 0.

**Group 1 elements have the highest melting and boiling points because they are all solids at room temperature.**

**Group 0 elements have the lowest melting and boiling points because they are all gases at room temperature.**

**The melting and boiling points of the Group 7 elements are likely to be lower than those of the Group 1 elements and higher than those of the Group 0 elements because Group 7 contains elements that are solids, liquid and gases.**