

The Periodic Table

The first 20 elements, groups and periods, metals and non-metals, and trends in Groups 1, 7 and 0.

Name _____ Date _____ Class _____

Learning objective: I can use the periodic table to find and compare elements.

✓ I can write element symbols ✓ I can describe groups and periods ✓ I can describe trends

1 The first 20 elements Write the missing symbols in the empty boxes. Use the names in the word bank.

Word bank:

carbon

chlorine

lithium

magnesium

neon

oxygen

potassium

sodium

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 0
Period 1	1 H							2 He
Period 2	3	4 Be	5 B	6	7 N	8	9 F	10
Period 3	11	12	13 Al	14 Si	15 P	16 S	17	18 Ar
Period 4	19	20 Ca						

Shaded boxes are metals. Group 0 is sometimes called Group 8 or Group 18.

2 Read the table Circle the correct answer.

1 Elements in the same group...

(A) have similar chemical properties (B) have the same mass (C) are all gases

2 Which element is a noble gas?

(A) chlorine (B) argon (C) sulfur

3 Most elements are...

(A) metals (B) non-metals (C) liquids

4 Who arranged the first widely used periodic table, leaving gaps for undiscovered elements?

(A) Dalton (B) Mendeleev (C) Curie

3 Find the element Use the periodic table above.

1 The element with atomic number 12 is _____.

2 The metal in Group 3, Period 3 is _____.

3 The noble gas in Period 2 is _____.

4 The element in Group 7, Period 3 is _____.

The Periodic Table

4 Metal or non-metal? Tick the properties that are typical of each.

Property	Metals	Non-metals
good conductor of heat and electricity		
shiny when freshly cut		
often brittle as a solid		
high melting point (usually)		
forms acidic oxides		

5 Groups and trends

- 1 Group 1 metals (lithium, sodium, potassium) react with water. Describe the trend in reactivity down the group. [2 marks]

- 2 Name the gas produced when a Group 1 metal reacts with water. [1 mark]

- 3 Group 7 elements are called the halogens. Describe the trend in reactivity down Group 7. [2 marks]

- 4 Why are the noble gases (Group 0) so unreactive? [2 marks]

- 5 Mendeleev left gaps in his table. Why did this turn out to be a good decision? [3 marks]

Answer Key

The Periodic Table

Question	Answers
1 The first 20 elements	3 Li (lithium); 6 C (carbon); 8 O (oxygen); 10 Ne (neon); 11 Na (sodium); 12 Mg (magnesium); 17 Cl (chlorine); 19 K (potassium)
2 Read the table	1 A (have similar chemical properties); 2 B (argon); 3 A (metals); 4 B (Mendeleev)
3 Find the element	1 magnesium; 2 aluminium; 3 neon; 4 chlorine
4 Metal or non-metal?	good conductor of heat and electricity – Metals: ✓, Non-metals: ✗ shiny when freshly cut – Metals: ✓, Non-metals: ✗ often brittle as a solid – Metals: ✗, Non-metals: ✓ high melting point (usually) – Metals: ✓, Non-metals: ✗ forms acidic oxides – Metals: ✗, Non-metals: ✓
5 Groups and trends	1. Reactivity increases down the group: lithium fizzes steadily, sodium melts into a ball and whizzes around, potassium reacts violently and burns with a lilac flame. 2. hydrogen 3. Reactivity decreases down the group (fluorine is the most reactive, then chlorine, bromine, iodine). 4. Their atoms have a full outer shell of electrons, so they do not need to gain, lose or share electrons. 5. He predicted that undiscovered elements would fill them, and even predicted their properties; when elements such as gallium and germanium were discovered, they matched his predictions.

Teaching note: the table shows only the first 20 elements (main groups). Hydrogen does not fit neatly into any group. Potassium's symbol K comes from its Latin name, kalium; sodium's symbol Na comes from natrium.