

Exercise walk-through

8.1

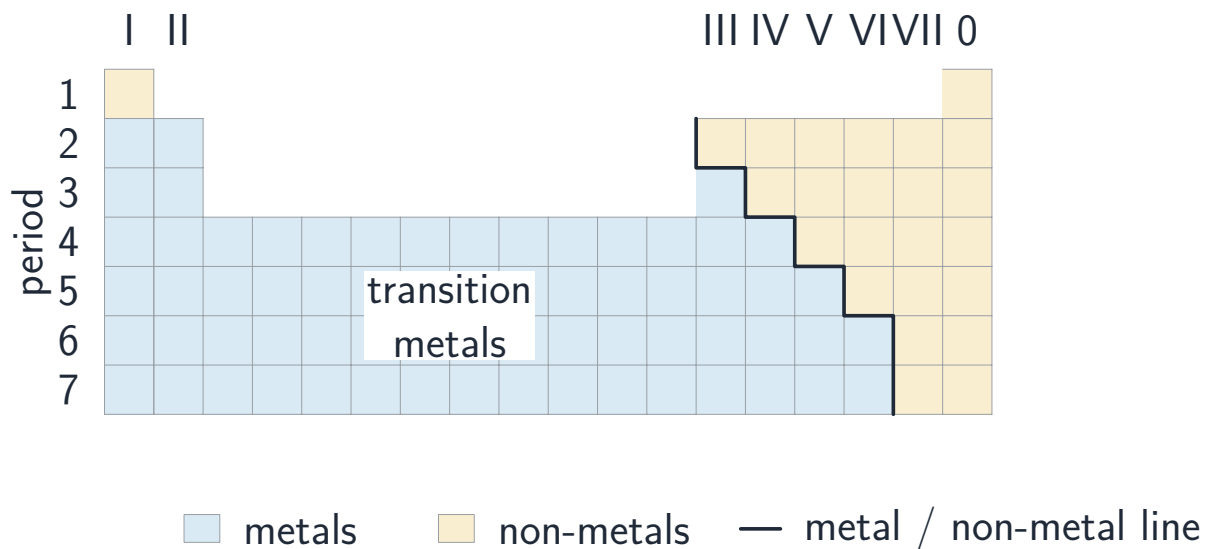
Arrangement of elements

IGCSE Chemistry

How the elements are arranged

- Across a period, the elements change from **metals** on the left to **non-metals** on the right.
- The group number tells you the charge of the **ions** that the elements form. Group I forms +1 ions, Group II forms +2 ions, and Group VII forms -1 ions.
- Elements in the same group have similar chemical properties. This is because they have the same number of outer-shell **electrons**, which is what decides how an element reacts.

How the elements are arranged, in detail



The group number tells you the charge of the **ions** that the elements form.

Exercises 2.1·2.2

2.1 State what the elements are arranged in order of. [1]

2.2 State the charge of the ion formed by a Group II element. [1]

Exercises 2.1·2.2

2.1 State what the elements are arranged in order of. [1]

2.1

- elements are arranged in order of **increasing proton number**
-

2.2 State the charge of the ion formed by a Group II element. [1]

2.2

- Group II atoms lose two electrons
- the ion has charge +2

Exercise 3.1

3.1 Elements in the same group have similar chemical properties because they have the same: [1]

☐

A number of shells

B number of outer-shell electrons

C mass number

D number of neutrons

Exercise 3.1

3.1 Elements in the same group have similar chemical properties because they have the same: [1]

☐

A number of shells

B number of outer-shell electrons

C mass number

D number of neutrons

3.1 B

- same **number of outer-shell electrons** gives similar properties
- A is period; C and D do not control chemistry

Exercise 3.2 (a)

3.2 An element is in Group VII, Period 3.

(a) State the number of outer-shell electrons it has.

[1]

Exercise 3.2 (a)

3.2 An element is in Group VII, Period 3.

(a) State the number of outer-shell electrons it has.

[1]

(a)

- Group VII means **7** outer-shell electrons

Exercise 3.2 (b)

3.2 An element is in Group VII, Period 3.

(b) State the charge of the ion it forms.

[1]

Exercise 3.2 (b)

3.2 An element is in Group VII, Period 3.

(b) State the charge of the ion it forms.

[1]

(b)

- it gains one electron, so the ion is -1

Exercise 3.3

3.3 Explain how the Periodic Table lets you predict an element's properties. [2]

Exercise 3.3

3.3 Explain how the Periodic Table lets you predict an element's properties. [2]

3.3

- elements in the same group have **similar properties**
- from its position you can **predict** how it reacts and trends in its group