

8 Groups and trends – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)
Group VII	_____
transition elements	_____
noble gases	_____
halogens	_____
diatomic	_____
coloured compounds	_____
catalysts	_____
monatomic	_____

Recall

From Part 1 you know Group I gets more reactive down the group. Here we look at **Group VII** (the opposite trend), the **transition elements**, and the **noble gases**.

- Group VII = the **halogens**.
- The transition metals sit in the middle of the table.

Nothing here is hard – it just compares groups.

New ideas

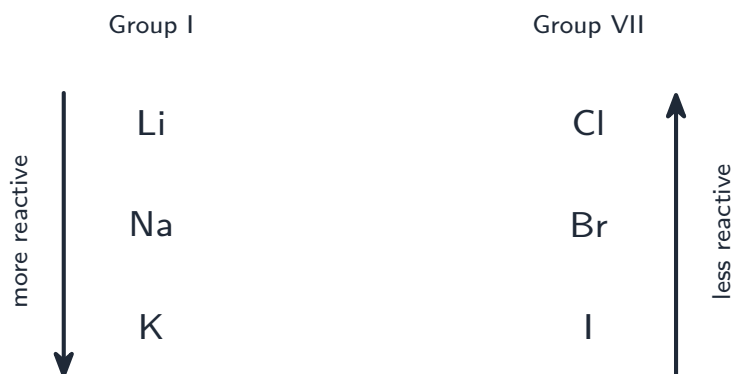
Read these first, then do the Practice.

■ 1 Group VII – the halogens

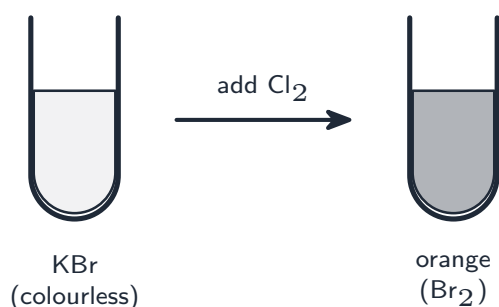
The **halogens** (chlorine, bromine, iodine) are **diatomic** non-metals:

Halogen	At room temperature
chlorine	pale yellow-green gas
bromine	red-brown liquid
iodine	grey-black solid

Going **down** Group VII, **reactivity decreases** – the **opposite** of Group I.



A more reactive halogen **displaces** a less reactive one from its salt:



■ 2 Transition elements and noble gases

- **transition elements** (middle of the table) have **high melting points**, form **coloured compounds**, are good **catalysts**, and have **variable oxidation numbers** (e.g. iron(II) and iron(III)).
- **noble gases** (Group VIII) are **unreactive**, **monatomic** gases – they already have a **full outer shell**.

Watch out: Group VII (halogens) gets **less** reactive *down* the group – the opposite of Group I. A more reactive halogen **displaces** a less reactive one from its salt. Noble gases are unreactive because their outer shell is already **full**.

Practice

Try these in order.

8.1 Give the colour and state of (a) chlorine, (b) iodine. [2]

8.2 State the trend in reactivity going down Group VII. [1]

8.3 Write the equation for chlorine reacting with potassium bromide, and state the colour change. [2]

8.4 State two properties of the transition elements. [2]

8.5 Why are the noble gases unreactive? [1]

8.6 Challenge. Will bromine displace chlorine from potassium chloride solution? Explain your answer. [2]