

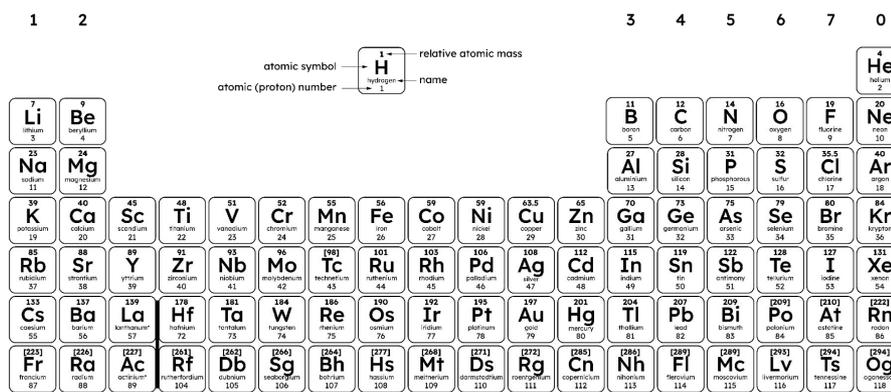
Group 7



Task 1: What is Group 7?

a) Why are elements in Group 7 known as the halogens?

b) Colour the correct column to show the location of the halogens in the periodic table.



Task 2: What is Group 7?

a) Cross out one of the words in the brackets to make this sentence correct.

The halogens have (high/low) boiling points.

b) Describe the trend in melting points as you move down the Group 7 elements.

c) There is a trend for colour and state in the halogens at room temperature. Predict the colour and state astatine would be at room temperature.

Task 3: Chemical properties and trends

a) Describe the trend in reactivity of the halogens as you go down the group.

b) Why are the halogens poisonous?



c) **Complete** the word equations.

hydrogen + fluorine → _____

sodium + bromine → _____

aluminium + _____ → aluminium iodide

_____ + chlorine → iron chloride

_____ + iodine → hydrogen iodide

copper + _____ → copper fluoride

Task 4: Displacement reactions

a) For each pair of reactants, **tick** to show whether a displacement reaction would occur or not.

Reactants	Displacement reaction	No reaction
potassium iodide + chlorine		
magnesium bromide + fluorine		
lead chloride + iodine		
sodium fluoride + bromine		
zinc astatide + chlorine		
rubidium bromide + iodine		

b) For each of the displacement reactions in your table, **write** the full equation for the reaction with expected products.

c) **Describe** an experiment you could perform and the reaction you would observe to show that chlorine is more reactive than bromine.

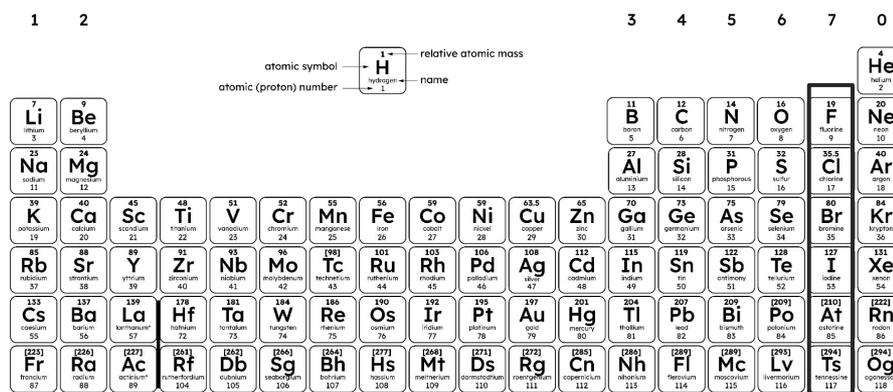


Task 1: What is Group 7?

a) Why are elements in Group 7 known as the halogens?

The elements in Group 7 are called the halogens, which means salt formers. This is because they react with other elements to form salts.

b) Colour the correct column to show the location of the halogens in the periodic table.



*Lanthanides and Actinides have been omitted.

Task 2: What is Group 7?

a) Cross out one of the words in the brackets to make this sentence correct.

The halogens have (high/low) boiling points.

b) Describe the trend in melting points as you move down the Group 7 elements.

As you go down the Group 7 elements, the melting points increase.

c) There is a trend for colour and state in the halogens at room temperature. Predict the colour and state astatine would be at room temperature.

Based on the trend and the properties of iodine before it, astatine would likely be a black solid.

Task 3: Chemical properties and trends

a) Describe the trend in reactivity of the halogens as you go down the group.

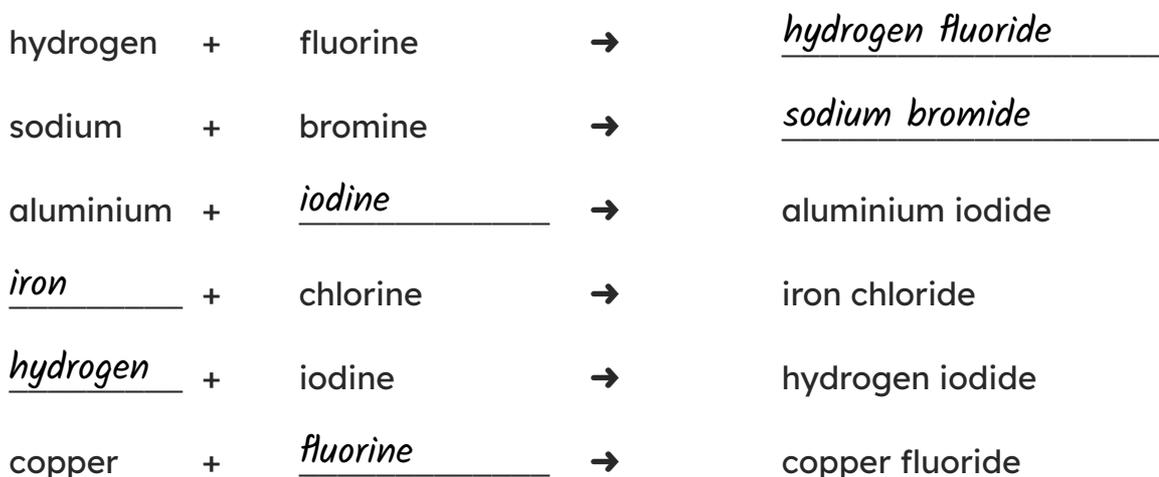
The reactivity of the halogens decreases as you go down the group.

b) Why are the halogens poisonous?

The halogens are poisonous to living things because they are so reactive.



c) **Complete** the word equations.



Task 4: Displacement reactions

a) For each pair of reactants, **tick** to show whether a displacement reaction would occur or not.

Reactants	Displacement reaction	No reaction
potassium iodide + chlorine	✓	
magnesium bromide + fluorine	✓	
lead chloride + iodine		✓
sodium fluoride + bromine		✓
zinc astatide + chlorine	✓	
rubidium bromide + iodine		✓

b) For each of the displacement reactions in your table, **write** the full equation for the reaction with expected products.



c) **Describe** an experiment you could perform and the reaction you would observe to show that chlorine is more reactive than bromine.

Take a solution of any metal bromide (e.g. sodium bromide) and add chlorine. A chemical reaction will take place as chlorine displaces the bromine from solution. A colour change shows a reaction occurred.