

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.

*Lanthanides and Actinides have been omitted

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

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.

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.

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.

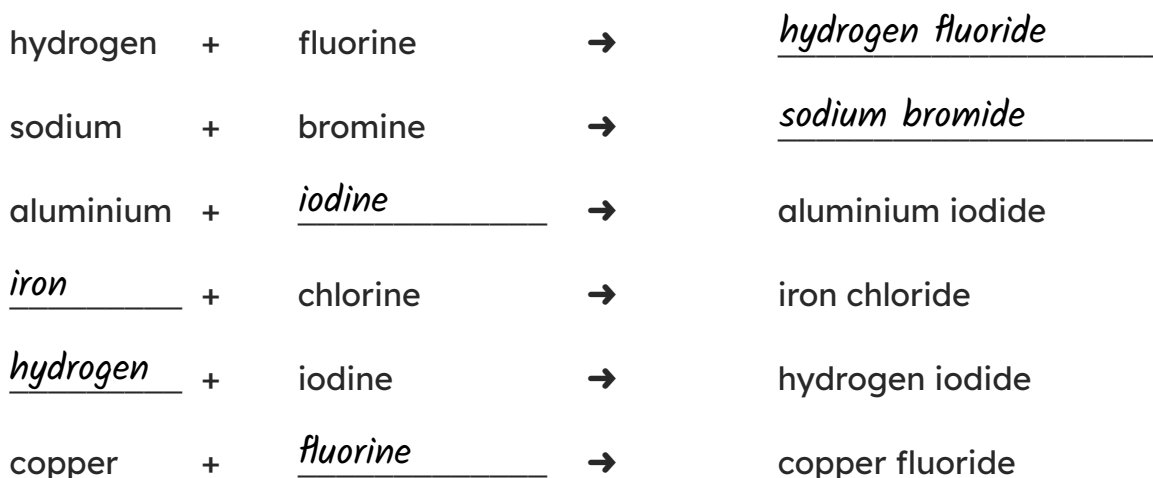
The reactivity of the halogens decreases as you go down the group.

b) **Why** are the halogens poisonous?

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



c) **Complete** the word equations.

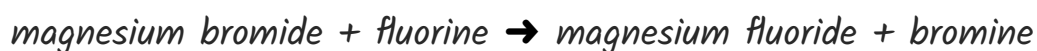


Task 4: Displacement reactions

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.