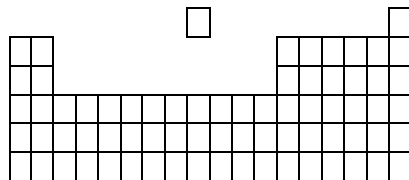




GROUP 7 – HALOGENS

INTRODUCTION & DATA

1) Shade in Group 7 on the Periodic Table shown.



2) Give the name for Group 7.

.....

3) Complete the table about the Group 7 elements.

element	fluorine	chlorine	bromine	iodine
atomic number				
symbol of atoms				
formula of molecules				
type of structure				
melting point (°C)	-220	-101	-7	114
boiling point (°C)	-188	-34	59	184
appearance at room temperature				
colour of vapour				

PHYSICAL PROPERTIES OF THE ELEMENTS

4) List some physical properties of the Group 7 elements.

.....
.....
.....
.....
.....
.....

5) The Group 7 elements are all made of diatomic molecules (F₂, Cl₂, Br₂, I₂). What are diatomic molecules?

.....

6) What is the trend in boiling points down Group 7?

CHEMICAL PROPERTIES OF THE ELEMENTS

7) a) When Group 7 halogens react with metals, what happens to the Group 7 atoms in terms of electrons?

.....

.....

b) What type of compound is formed?

8) a) When Group 7 halogens react with non-metals, what happens to the Group 7 atoms in terms of electrons?

.....

b) What type of compound is formed?

9) Complete the table about reactions of the Group 7 elements.

Group 7 element	Element it reacts with	Electrons:		Compound formed:	
		shared?	transferred?	ionic?	covalent?
chlorine	sodium				
bromine	sulfur				
fluorine	oxygen				
iodine	magnesium				

Finding the reactivity trend for the halogens

10) A more reactive halogen will displace a less reactive halogen from its compounds.

In each reaction you should place about 2 cm depth either KCl(aq), KBr(aq) or KI(aq) in a test tube and then add a few drops of either Cl₂(aq), Br₂(aq) or I₂(aq) from a test pipette. You are looking for evidence of a reaction seen as a colour change.

12) Complete the equations below to show what happens if the following aqueous solutions are mixed. If nothing happens, write *no reaction*.

- a) potassium chloride + fluorine →
- b) sodium fluoride + bromine →
- c) sodium iodide + fluorine →

	Cl ₂ (aq)	Br ₂ (aq)	I ₂ (aq)
KCl(aq)		Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation	Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation
KBr(aq)	Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation		Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation
KI(aq)	Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation	Does a reaction take place? YES / NO Observation (if a reaction takes place) Word equation Equation	

11 a) What happens to the reactivity as you go down the group?

b) Explain this trend in reactivity. Use the diagrams to help you.

.....

.....

.....

