

1. Some information about Group 7 of the periodic table, the halogens, is given below:

Name	Formula	State at room temperature	Colour
fluorine	F ₂	Gas	Pale yellow
chlorine	Cl ₂	Gas	Yellow -green
bromine	Br ₂	Liquid	Orange-brown
iodine	I ₂	Solid	Dark Grey
astatine			

- Complete the table by making predictions for the element astatine (At)
- In terms of electronic structure, in what way are all halogen atoms similar?
- Give one reason why hydrogen could be classed as a halogen.
- Give one reason why hydrogen is not classed as a halogen

2. The following clear colourless liquids have been left in identical unlabelled containers:

Water

Ethanol

Brine (an aqueous solution of sodium chloride)

Lemonade

Describe how you would distinguish between these liquids in the laboratory. You may assume that you have standard school laboratory equipment at your disposal and that normal laboratory safety rules apply.