

# 11 The halogens – Part 1 —Answers

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## Answers

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Work through these after trying the questions yourself.

**11.1** (a) pale green gas \ (b) grey-black solid.

**11.2** Volatility decreases (boiling point rises) down the group; the molecules get larger with more electrons, so the van der Waals' forces between them are stronger and harder to break.

**11.3** It gains an electron (from another species), so the other species is oxidised.

**11.4** It decreases down the group.

**11.5**  $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$ ; the colourless solution turns orange (bromine is displaced).

**11.6** Yes. Bromine is a stronger oxidising agent than iodine, so it displaces iodine:  
 $\text{Br}_2 + 2\text{KI} \rightarrow 2\text{KBr} + \text{I}_2$ . The solution turns brown as iodine forms.