



Fireworks contain mixtures of chemicals. Different colours and explosions are obtained by using different combinations of chemicals and different shaped containers. A firework is just like any other fire: it still needs heat, fuel and oxygen, and it still produces products which are oxides.

- 1 Where does the heat come from when a firework is set off?
- 2 The sparks from a sparkler are tiny pieces of burning iron.
  - a Where does the oxygen come from that is reacting with the iron?
  - b Write a word equation for the reaction.
- 3 Very bright fireworks are often made using magnesium. Write a word equation to show what happens when magnesium burns.

Once a firework is lit the chemical reaction starts. Like all chemical reactions, once a firework has started it can be very difficult to stop. The firework contains the oxygen it needs to burn, as part of the chemicals inside the tube. Once the flame has gone into the tube of chemicals, they start to release this oxygen. When enough oxygen has been released the firework will 'go off'. This reaction is happening inside the tube of the firework, so there is no way to know when the firework will go off. Once a firework has started to react it is very difficult to stop it – it will keep burning until all the chemicals have reacted.

- 4 Where does the oxygen come from for the firework to burn?
- 5 Why is it dangerous to return to a firework if you think the flame might have gone out?
- 6 Why should fireworks be stored in a closed tin box until they are taken out to be lit?
- 7 Why is it difficult to put out a firework once it has started to react?
- 8 Fireworks cause hundreds of severe injuries and even deaths every year. Produce a poster, explaining why fireworks are dangerous. Remember to use the fire triangle to explain how they can be kept and used safely.

### **S** literacy, knowledge