

theme: **leisure & lifestyle**

job: Nina Gronw-Lewis,
Glass artist and
Jewellery designer

Nina uses all sorts of different coloured, hand-made glass.
You're going to make your own coloured glass.

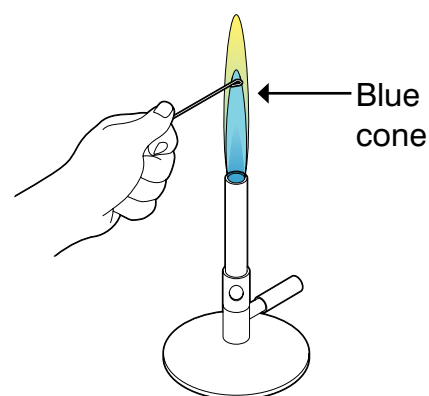
You will make glass beads from borax (sodium borate), which melts in a Bunsen flame. Adding metal salts gives a range of colours.

Procedure: Making borax glass beads

Note: You must wear eye protection.

- 1** Make a small loop, about 2 mm across, at the end of a nichrome wire. Make four of these looped wires.
- 2** Place one spatula of borax on a watch glass. Stand it in one corner of a heat-resistant mat.
- 3** Place the wire loop in the hottest part of a roaring Bunsen flame (at the tip of the blue cone – see fig. 1). Hold it there until it is red hot, and the flame is no longer yellow. This cleans the wire.
- 4** Dip the hot wire into the borax to pick up some of the powder. Put it back into the flame. The borax will bubble, and then melt into a bead of molten glass on the wire.
- 5** While it's still hot, pick up more borax and melt it, until your glass bead is 2-3 mm in diameter. Be careful not to shake the molten glass off the wire. Keep it over the mat.
- 6** Allow it to cool and solidify. Place it on a clean area of the mat. The bead should be colourless. If not, the wire wasn't clean – heat it for longer next time.
- 7** Repeat steps 3 to 6 with the other three wires. You should have four borax glass beads.

Fig 1



Comparing results

- Share your results with classmates who used different metal compounds. Add their results to your table.
- Compare the colours produced by:
 - 1 different compounds of the same metal, such as copper oxide and copper sulfate
 - 2 the same compound in the inner and outer parts of the flame.
- What is the connection, if any, between the colour of the metal compound and the colour of the glass?