Name:

Crystallisation – making an igneous rock

Crystallisation can take many years to happen in nature. You are going to do it in a few minutes!

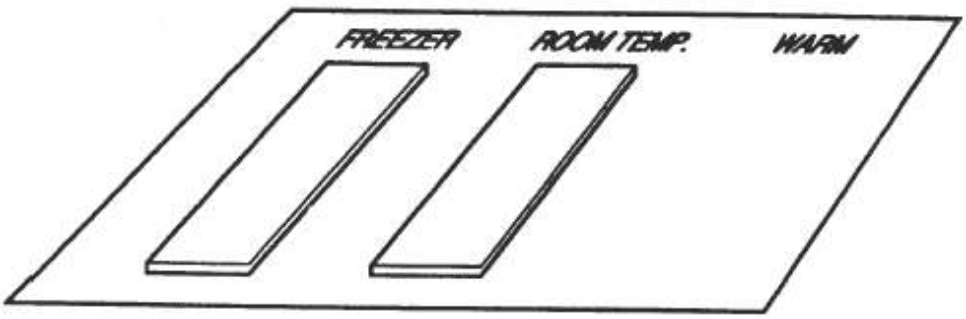
You will need:

Safety goggles
250 cm^3 beaker
Boiling tube with about 5 g of Salol in it
Six microscope slides
Piece of paper
Some hot water from a kettle
A cold surface (ice)
Hand lens

Procedure

Put on the goggles.

Label a piece of paper as below.



Chill two of your microscope slides with ice and leave two on the paper.

Pour about 100 cm^3 of hot water into a beaker. Put the boiling tube with solid Salol into the hot water and wait for it to melt.

Use a pipette to put a few drops of melted Salol on a cooled slide and a room temperature slide. Put slides of the same temperature on top.

You may need a hand lens to look more closely at the crystals which form.

Results and questions

1. On which slide did the crystals form first?

2. On which slide did the crystals grow faster?

3. On which slide did the larger crystals form?

Predictions

If you had warm slides would you expect the crystals

4. to form straight away, or after some time?

5. to grow quickly or slowly?

6. to be large or small?

Warm a pair of slides, either very carefully in your hands or by putting them in warm water. Test your predictions. Were you right?

Questions

Some igneous rocks are made of large crystals. Did they cool slowly or quickly?

At what rate did fine-grained igneous rocks cool?

Some igneous rocks melt and crystallise deep within the crust, whereas others come to the surface in volcanoes. Which type of igneous rock will have the larger crystals?