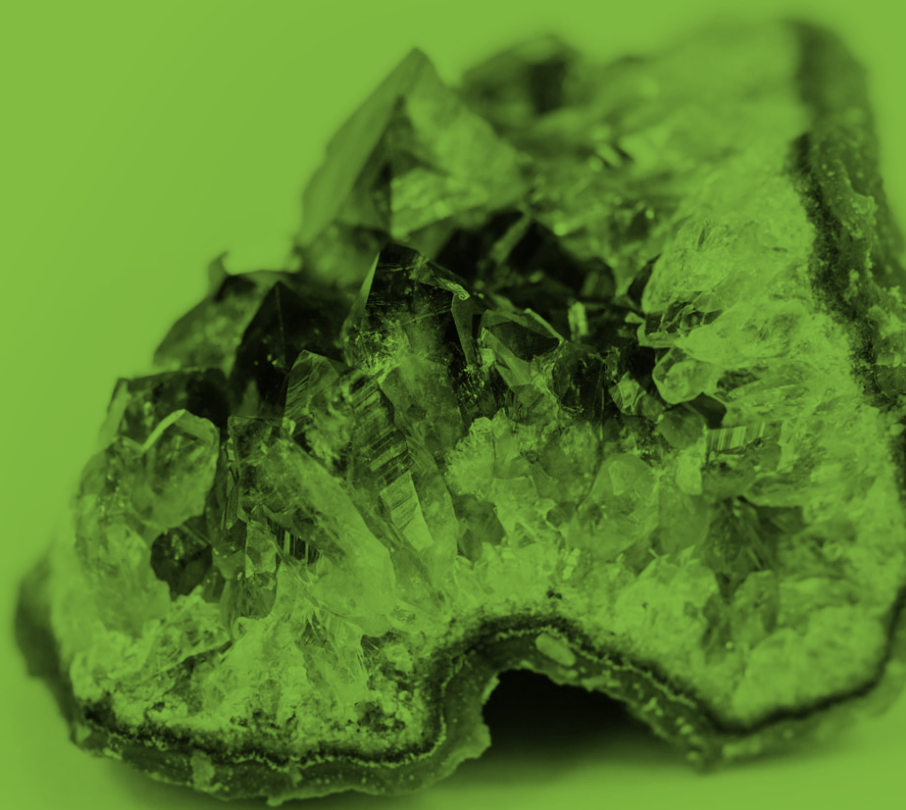


GCSE (9-1)

WJEC Eduqas GCSE (9-1) in  
**GEOLOGY**

Practical Guidance Sheet 3



## GCSE Geology Practical Guidance Sheet 3

### Title: Jelly Lava Flow Simulation Experiment

#### **Specification reference:** 1.2d

Appendix B: The requirement to use appropriate apparatus to record a range of quantitative measurements including time, temperature and length is stated in Appendix B.

The requirement for the use of information and communications technology (ICT) such as computer modelling, or data logger to collect data, or use of software to process data is stated in Appendix B and processing of data can be undertaken using ICT.

**Aim:** To investigate factors, including viscosity and slope angle, affecting the length of lava flows using the 'Jelly lava flow' simulation experiment or equivalent.

#### **Apparatus:**

120 g pack Jelly or alternative  
Heated water bath over a Bunsen burner  
250ml beaker  
Thermometer  
Ruler  
Timer  
Smooth boards capable of being fixed at a variety of angles  
Clinometer  
Sticky labels  
Dessert spoon

#### **Method:**

1. Prop up/fix a board and record its angle of slope (from the horizontal) using a clinometer.
2. Warm a beaker of jelly in a water bath over a Bunsen burner.
3. Place a thermometer in the jelly.
4. When the jelly begins to melt, record the temperature, and take out a dessert spoon of jelly.
5. Place the jelly at the top of the sloping board, start the timer and label the lava flow with a sticky label recording the temperature of the jelly when removed and the angle of slope.
6. After a set time record the length of the jelly lava flow.
7. The temperature of the water bath should be increased and a second dessert spoon of jelly removed at a known temperature.
8. Place the second sample of jelly at the top of the slope of the board, adjacent to first lava flow, start the timer and label this lava flow with a second sticky label.
9. Repeat the experiment for a number of jelly lava flows of varying temperature.
10. Repeat the experiment for jelly lava flows on boards of varying slope angle.

**Analysis/Conclusions:**

1. Present the recorded data (e.g. by using graphs).
2. Highlight any anomalies.
3. Interpret & analyse the data by recognising patterns and trends.
4. Recognise any sources of error and limitations.
5. Draw conclusions from your data.
6. Relate these conclusions to knowledge & understanding of the geological processes that have been simulated.

**Extension:**

Suggest improvements which would make to the method more reliable.

Suggest other factors that affect the length of lava flows and how these might be investigated in a jelly lava flow experiment.

**Teacher/Technician notes:**

There are many acceptable variations on the method outlined and teachers should feel free to use any variation they feel appropriate. A range of materials could be used in place of jelly. Materials could include honey, treacle, tomato sauce, mango chutney, washing up liquid and yoghurt. Materials could be tested from the fridge, at room temperature and after heating to a predetermined temperature.

This experiment provides a good opportunity for the use of ICT to process data, thereby fulfilling the requirement in Appendix B for the “Use of information and communications technology (ICT) such as computer modelling, or data logger to collect data, or use of software to process data”.

ICT could be used to tabulate data and to present the data in graphical forms.