

Investigation of the thermal conductivity of metals

Introduction

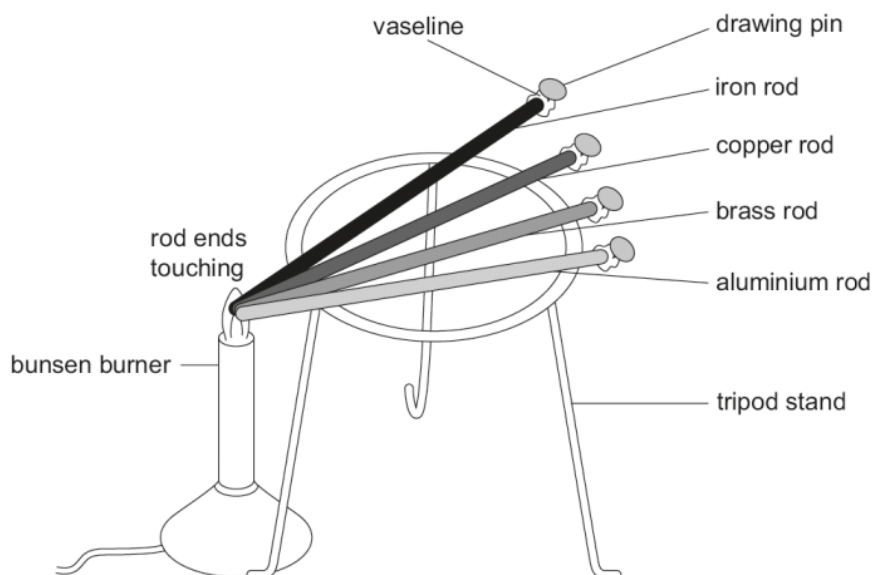
Metals are better conductors of heat than non-metals. However, some metals are much better conductors than others. In this investigation the thermal conductivity of 4 metals is compared and the metals can then be placed in order from the best conductor of heat to the poorest.

Apparatus

4 × metal rods (aluminium, brass, copper and iron)
 4 × drawing pins
 Vaseline
 tripod
 heat proof mat
 stopwatch

Diagram of Apparatus

Metal Rods Experiment



Method

1. Set up the apparatus as shown in the diagram.
2. Attach a drawing pin to the end of each rod with a small blob of Vaseline.
3. The ends of the rods (without the drawing pins) should be brought together so that they can be heated equally (see diagram).
4. Heat the ends of the rods equally with a blue Bunsen flame.
5. Record the time taken for each rod to lose its drawing pin.

Analysis

1. Determine the order of conductivity of the metals.