

Heat Conduction Through Metals

Name: _____

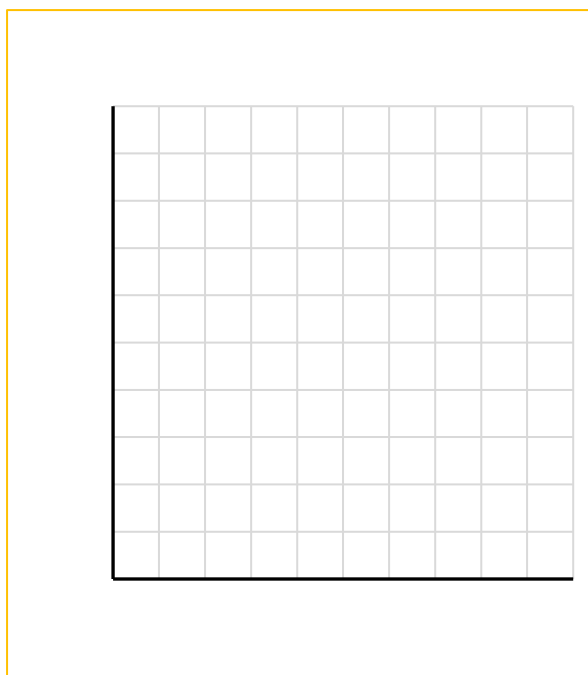
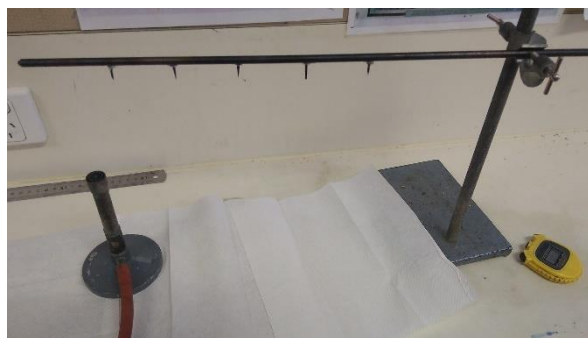
Conduction is the transfer of heat through a substance or the transfer of heat from one substance to another when they are in direct contact. Everything conducts heat, but some things conduct heat better than others. Things that don't conduct heat well are called insulators, while things that conduct heat well are called heat conductors. In this practical activity, you will observe how quickly heat energy conducts through two metal rods.

Aim: To study the conduction of heat energy through metals.

Equipment: Stopwatch, retort stand, boss head, ruler, Bunsen burner, 2 metal rods (eg. copper, steel, or brass), Vaseline, 5 small nails, heat-proof mat, paper towel.

Method:

1. Attach one end of a metal rod to a retort stand so that it sits horizontally.
2. Using small, equally-sized blobs of Vaseline, attach the 5 nails onto the metal rod at a distance of 7 cm, 12cm, 17 cm, 22 cm and 27 cm from the free end of the metal rod. (The nails should therefore be 5 cm apart.)
3. Place the Bunsen burner underneath the metal rod 2 cm from the end (so that when the flame is lit, the first nail will be 5 cm from the point on the metal that is being heated directly by the flame).
4. Place some paper towel under the metal rod so that when the Vaseline melts and the nail falls, they fall onto the paper (rather than all over the bench).
5. Light the Bunsen burner and start the timer.
6. Take note of the time that each nail falls.
7. Repeat the procedure above but use a different metal.
8. Fill in the table and draw up a graph (and don't forget to label the axes and to give the graph a heading).



Results:

Distance of Nail from Flame (cm)	Time Taken for Nail to Fall	
	Metal	
5		
10		
15		
20		
25		

Questions:

1. Which of the two metals is a better conductor? _____
2. Explain, using the Kinetic Theory, how conduction occurs. _____

