



# **HANDS-ON EXPERIMENTS**

HOT ROCKS



Lava is instantly recognisable as a glowing red rock but have you ever wondered why it gives off light? And why red?

All materials will emit visible light when heated as the molecules move around and give off energy. However, if you keep heating it, the glow will change colour. In this experiment, you'll investigate this colour change and explain why lava glows red.

## Procedure

*What you'll need: Electrical tape, A power pack rated to 12 volts OR eight 'D' batteries, a glass jam jar or similar sized beaker, a cardboard tube (toilet roll is great), a pair of wires with alligator clip ends, pencil lead refills for a mechanical pencil.*

- If using batteries, connected them together in a long line, positive end to negative end to make a battery with eight times the voltage as before. You'll need to hold them together with electrical tape.
- Cut off a section of cardboard tube about 10cm high and stick the two wires so that the crocodile clips point up vertically on opposite sides - they will hold the pencil lead.
- Put the apparatus on a heat-proof mat or a aluminium foil pie plate, then cover it with the jam jar or beaker.
- Connect up the power pack or batteries. If you're using a power pack, slowly increase the voltage from zero and see what voltage you need to reach to make the pencil lead begin to glow. This will happen more quickly if you are using batteries.

## Investigation

- What colour does the pencil lead glow to begin with.
- What happens to the colour of the pencil lead as you increase the voltage? Why do you think this happens. What does this tell us about the relative temperature of red hot lava?
- What colour do you think the pencil lead might glow if you decreased the voltage a little below the red glowing point? Do some research into colours that are 'colder' than red and find out!

### *Safety Considerations:*

- Be certain to wear safety goggles when you connect up the power.

# VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:



Clickable Link:

<https://youtu.be/fX2Pkl-ogFk>

CONCLUSION:



Clickable Link:

<https://youtu.be/oRNHmE6hpj4>

