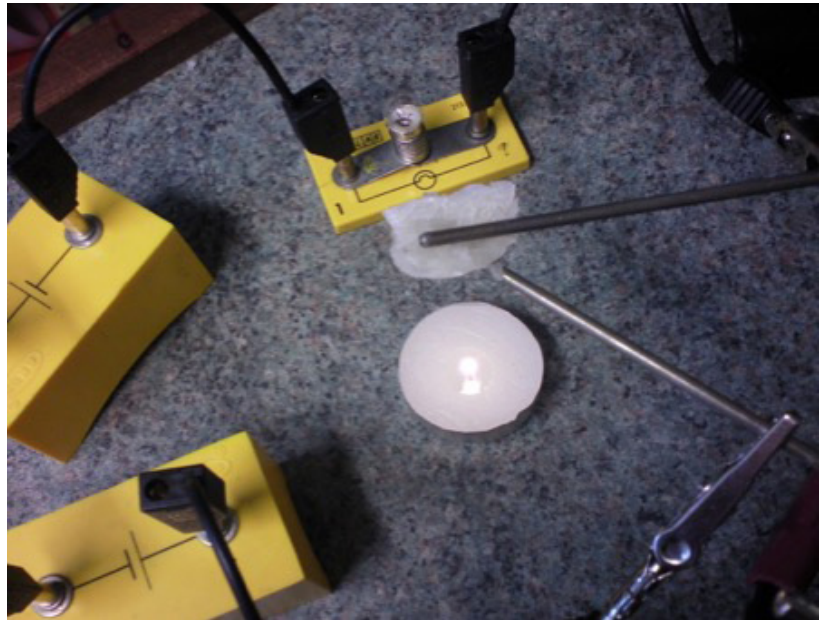




INVESTIGATION 5

Melting wax instructions

- Using two stands and clamps, clamp two nails so that the end of the top nail is pressing down onto the bottom nail.
- Connect the other end of each nail into a series circuit with a battery and lamp.
- The lamp should light.
- Without changing the setup or the circuit, push a thin piece of wax between the ends of the nails to prevent them from touching each other.
- The wax, being an insulator will create a break in the circuit – the lamp will go out.
- Using pair of tongs, hold a candle flame just under the point where the two nails were touching.
- Record your observations.



Q. Explain why the lamp came on when the ends of the nails were heated?

Research questions

- Q. What is the melting point of paraffin wax?
- Q. Is paraffin wax a conductor or an insulator?
- Q. Suggest another substance that might be placed between the ends of the nails?
- Q. How might this fire detection method be adapted to make it sensitive to a smaller temperature rise?
- Q. How might this fire detection method be adapted to be less sensitive – so that a large temperature change is needed to trigger it?

