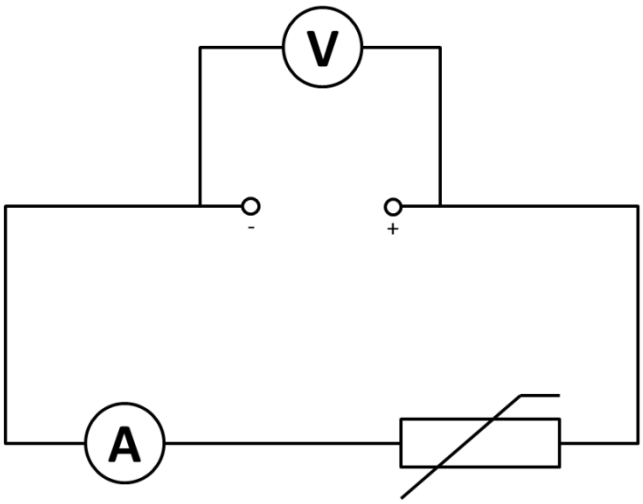
National 5 Assignment
Thermistors: Experiment Guide Sheet A

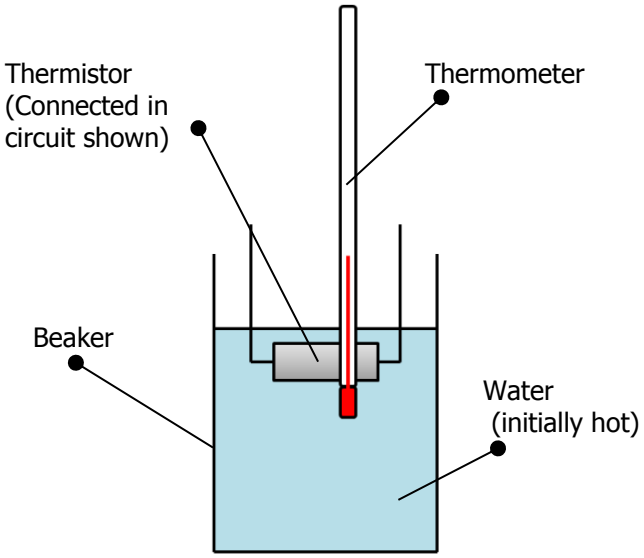
Nat 5

Investigating current in the circuit while changing temperatures.

Instructions:

Set up a circuit according to the circuit diagram below using a multimeter set up as an ammeter in the milliamp range (DC A 200m). Use a voltmeter set to the 20V range (DC V 20) to monitor the supply voltage which should remain constant throughout the experiment. Arrange the equipment before adding hot water from the kettle so that it fully covers the thermistor and thermometer bulb





Using a clamp stand, position the thermistor so it will be fully imersed in the water. Position a thermometer so the bulb of the thermometer is close to the thermistor and will also be immersed in the water.

Boil a kettle and pour water from the kettle into the apparatus you have set up until the level of water is appropraite. Leave the experiment for a few minutes to allow the temperature of the thermometer to rise to the temperature of the water.

As the experiment cools, record values of current from the ammeter at various temperatures.

Risk Assessment

- Take care to ensure that, if the beaker of water fell, it would not spill water onto any electrical wires or devices connected to mains electricity.
- The water will initially be very hot and could therefor burn skin. Do not handle the beaker until it has cooled to a safe temperature.
- Take care when moving around the lab with hot water to avoid burning yourself or others.

National 5 Assignment
Thermistors: Experiment Guide Sheet B

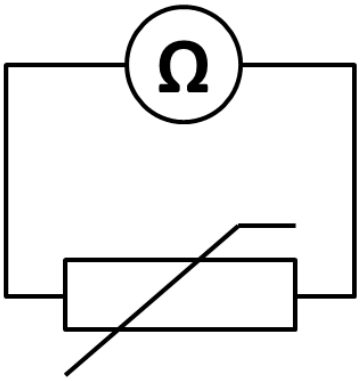
Nat 5

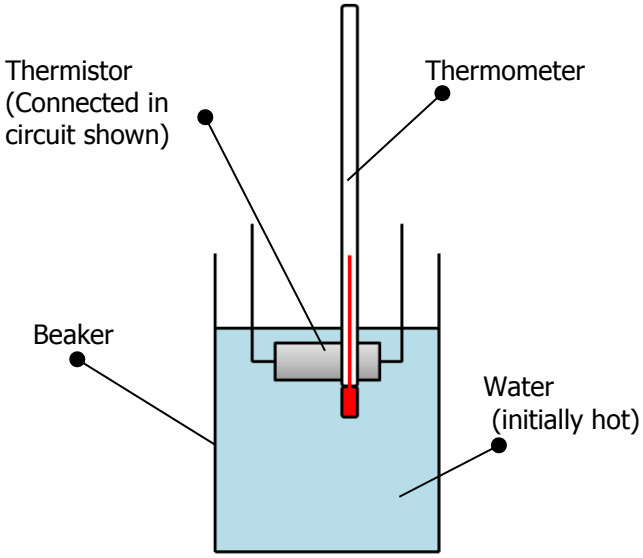
COUNCIL

Investigating resistance of a thermistor while changing temperatures.

Instructions:

Set up a circuit according to the circuit diagram below using a multimeter set up as an ohmmeter in the kilo-ohm range (Ω 20k). Arrange the equipment before adding hot water from the kettle so that it fully covers the thermistor and thermometer bulb.





Using a clamp stand, position the thermistor so it will be fully imersed in the water. Position a thermometer so the bulb of the thermometer is close to the thermistor and will also be immersed in the water.

Boil a kettle and pour water from the kettle into the apparatus you have set up until the level of water is appropraite. Leave the experiment for a few minutes to allow the temperature of the thermometer to rise to the temperature of the water.

As the experiment cools, record values of resistance from the ohmmeter at various temperatures.

Risk Assessment

- Take care to ensure that, if the beaker of water fell, it would not spill water onto any electrical wires or devices connected to mains electricity.
- The water will initially be very hot and could therefor burn skin. Do not handle the beaker until it has cooled to a safe temperature.
- Take care when moving around the lab with hot water to avoid burning yourself or others.