

# AQA Physics GCSE

## RP02 - Thermal Insulation

### Flashcards

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Outline the basic steps of the practical.



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1. Wrap glass beakers with different insulating materials
2. Boil water in a kettle and pour into the beakers
3. Record the initial temperature of the water in each beaker
4. Record how the temperature changes every few minutes



What piece of apparatus is used to measure temperature?



What piece of apparatus is used to measure temperature?

A thermometer.



Give examples of materials which you could test the insulation properties for using this method.



Give examples of materials with insulation properties that can be tested using this method.

- Newspaper
- Corrugated cardboard
  - Bubble wrap
  - Polystyrene
  - Cotton wool
  - Tin foil



How can you secure the materials once wrapped around the beaker?





How can you secure the materials once wrapped around the beaker?

Using rubber bands.



Why do you leave one beaker with no insulation wrapped around it?



Why do you leave one beaker with no insulation wrapped around it?

To act as a control beaker. It can be used to compare the temperature drop of the water with and without insulation.



As well as wrapping the beaker with the insulation, what else should you do to insulate it?



As well as wrapping the beaker with the insulation, what else should you do to insulate it?

Cut out a circle for the lid of the beaker to reduce heat loss from the top. The lid should have a small hole for the thermometer to fit into.



What readings do you take and how frequently?



What readings do you take and how frequently?

You record the temperature of the water in fixed intervals of around 3 minutes.



How can you compare the effectiveness of the different insulators?





How can you compare the effectiveness of the different insulators?

Compare the temperature change that has occurred over a fixed interval of time. The smaller the temperature change, the more effective the insulator is.



As well as the effectiveness of different types of insulators, what else can you test using this method?



As well as the effectiveness of different types of insulators, what else can you test using this method?

The effectiveness of different thicknesses of the same insulator.



What safety precautions should be taken when carrying out this experiment?



## What safety precautions should be taken when carrying out this experiment?

- Avoid touching the beaker after heating
  - Place on a heatproof mat when hot
- Take care when pouring boiling water to avoid scolding
- If a beaker cracks, avoid using it and inform a technician

