National 5 Assignment  
Latent heat of vaporisation Guide Sheet: A

Nat

5

A close up of a toy

Description automatically generated

**To determine the specific latent heat of vaporisation of water.**

*This experiment is only suitable if a graph can be plotted.*

**Apparatus**

Scales, electric jug kettle with automatic cut-off overridden, stopclock

**Instructions:**



* Set up the apparatus as shown.
* Note the power rating of the kettle.
* Switch the kettle on and allow the water to boil; at this point note the balance reading.
* Start the stopclock as the water begins to boil.
* Take readings of the water boiled against the time from the start of boiling
* Stop the clock after 0.2 kg of water has boiled off.
* Calculate the energy required to evaporate each quantity of water.
* Use your data to determine the specific latent heat of vaporisation of water.
* The energy required to evaporate 1 kg of boiling water is the specific latent heat of vaporisation of water.

**Risk Assessment**

* Safety googles must be worn.
* Electrical wiring must be checked.
* Do not move the kettle once set up.
* Have access to the plug so that the electrical supply can be switched off
* ***Check with SSERC that this experiment is suitable. If mains is being used as the heater it might not be appropriate.***
* The kettle can be replaced with a heater plugged into a joulemeter and the energy recorded every few minutes and the mass lost recorded.

**Mrsphysics takes no responsibility for any health and safety. It is the responsibility of the teacher and student to risk assess any practical activity they complete!**

**Sept 2023**