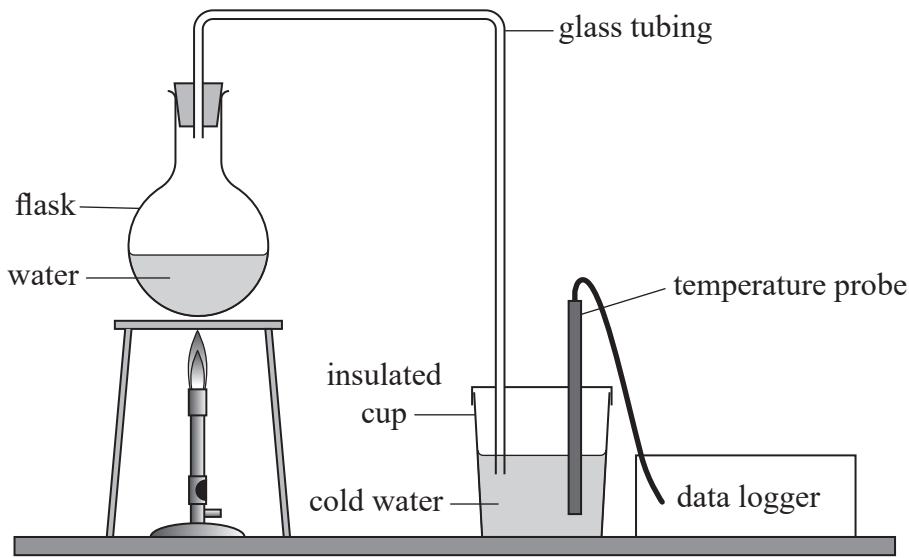


A student carried out an experiment to determine the specific latent heat of vaporisation of water using the apparatus shown.



The water in the flask was heated and steam was forced out of the flask and through the glass tubing into the cold water in the insulated cup. The steam condensed as it passed into the cold water.

- (a) The initial temperature of the cold water was 18.5°C and the mass of water in the cup was 255.0 g . After steam had been passed through the water for some time the temperature had risen to 26.0°C and the mass of the water in the cup was 258.3 g .
- Calculate the specific latent heat of vaporisation of water.

(3)

specific heat capacity of water = $4190\text{ J kg}^{-1}\text{ K}^{-1}$

Specific latent heat of vaporisation of water =

- (b) (i) Explain why the water was heated to boiling point and left boiling for a few minutes before the insulated cup of cold water was put in place.

(2)

- (ii) Identify a significant source of error in this experiment and the steps that should be taken to minimise its effect on the calculated value of the specific latent heat of vaporisation of water.

(2)