Oxford Cambridge and RSA

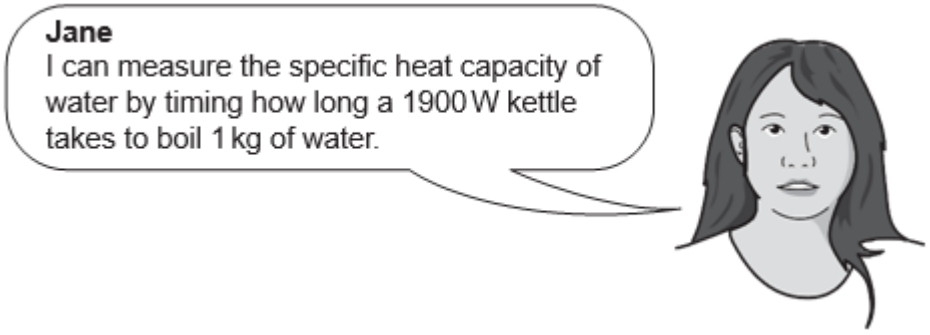
GCSE Physics B (Twenty First Century Science)

J259/04 Depth in physics (Higher Tier)

Question Set 27

1 Water can be used as a coolant to stop over-heating in systems such as car engines.

Jane does an experiment to find the specific heat capacity of water.



(a) **(i)** Give **one** reason why Jane's result for the specific heat capacity of water will be inaccurate. **[1]**

(ii) Suggest **one** improvement to Jane's experiment, to get a more accurate value for the specific heat capacity of water. **[1]**

(b) It takes the kettle 3 minutes to heat 1 kg of water to 100 °C from a starting temperature of 20 °C.

Calculate the specific heat capacity of water.

Use the equation:
change in internal energy = mass × specific heat capacity × temperature change

Use the equation:
energy transferred = power × time

Specific heat capacity = ... J/kg °C **[4]**

(c) When water is heated in a kettle, the energy stored within the water changes.

Describe how heating water in the kettle to boiling point changes the energy stored within the water. **[3]**

Total Marks for Question Set 27: 9