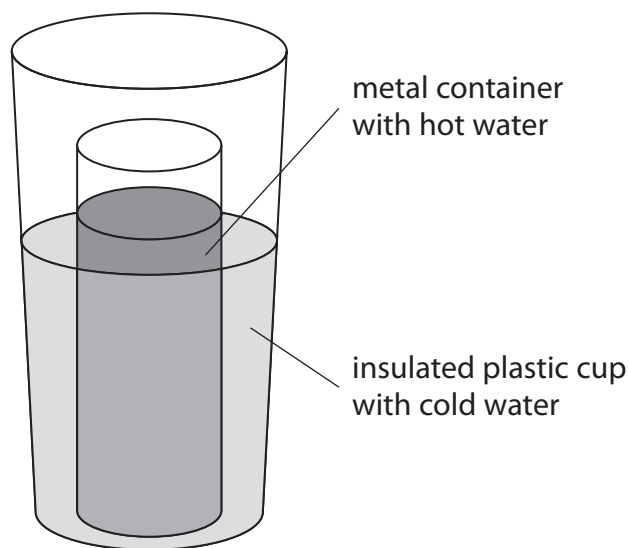


- 10** A student pours a known volume of hot water into a metal container. They place the metal container into an insulated plastic cup containing an equal volume of cold water.

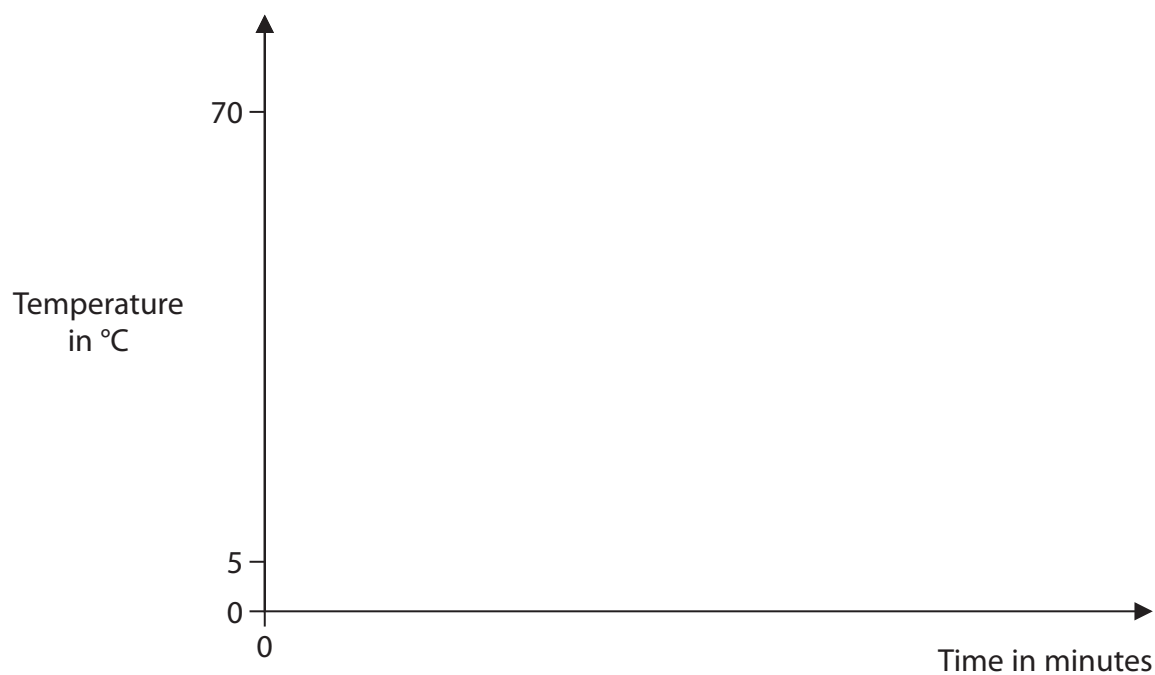


The student uses temperature probes to measure the temperatures of both the water in the metal container and the water in the plastic cup.

The hot water has an initial temperature of 70°C and the cold water has an initial temperature of 5°C .

- (a) On the axes, sketch how the temperature of the hot water and the temperature of the cold water vary with time.

(4)



(b) Explain why the temperatures of the hot water and the cold water change.

You should refer to different types of thermal energy transfer in your answer.

(4)

(c) Explain how placing a lid on the plastic cup would affect the results.

(3)

(Total for Question 10 = 11 marks)

