

6 A dog sits on a water-filled bag to keep cool.



water-filled bag

(a) The table shows some data about the dog and the water in the bag.

mass of water in kg	8.7
power output of dog by heating in W	75
specific heat capacity of water in J/kg °C	4200
initial temperature of water in °C	16

The dog sits on the bag for 22 minutes.

(i) Calculate the energy transferred from the dog to the water by heating in 22 minutes.

(3)

energy = J

(ii) State an assumption you have made when calculating the energy transferred.

(1)



(iii) Calculate the temperature of the water after 22 minutes.

(4)

temperature = °C

(b) Discuss why conduction is the main way that thermal energy is transferred from the dog to the water.

(3)

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(Total for Question 6 = 11 marks)

