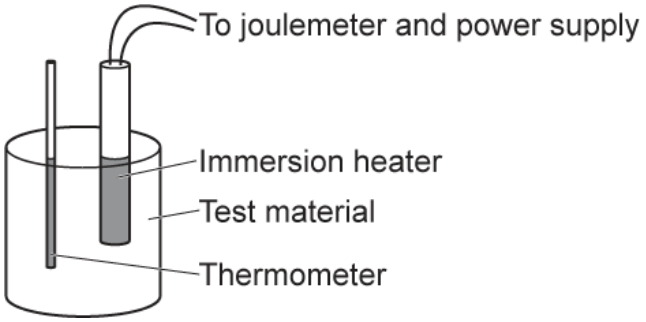
1(a). A scientist investigates the specific heat capacity of different solid materials.

The diagram shows the equipment the scientist uses.



The scientist wants to get more accurate values for the specific heat capacities of the different materials.

Suggest **one** thing the scientist can do to improve the set-up of their equipment.

Give a reason for your answer.

Suggestion _____

_____

Reason _____

_____ **[2]**

(b). The table shows the results for the materials.

Material	**Specific heat capacity (J / kg °C)**
aluminium	900
concrete	1000
copper	385
iron	450

A chef buys a saucepan made from the material in the table which will increase in temperature the most quickly when it is heated.

State and explain which material the saucepan is made from.

Material _____

Explanation _____

_____ **[2]**

(c). Complete the sentence to explain the meaning of **specific latent heat of vaporisation.**

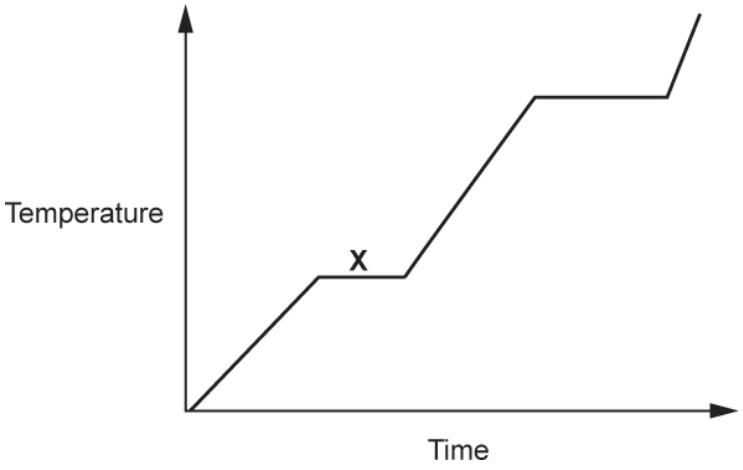
Specific latent heat of vaporisation is the energy transferred when _____

_____

_____ **[2]**

2. Energy is steadily supplied to a solid substance.

The graph shows the change in temperature with time.



Which term describes what is happening to the substance at point **X**?

A Boiling
B Condensing
C Freezing
D Melting

Your answer ☐ **[1]**

3. Specific latent heat is the energy transferred when 1 kg of a substance changes state.

Which row lists the correct change of state for specific latent heat of fusion and specific latent heat of vaporisation?

	Specific latent heat of fusion	Specific latent heat of vaporisation
A	boiling	melting
B	condensing	boiling
C	freezing	condensing
D	melting	freezing

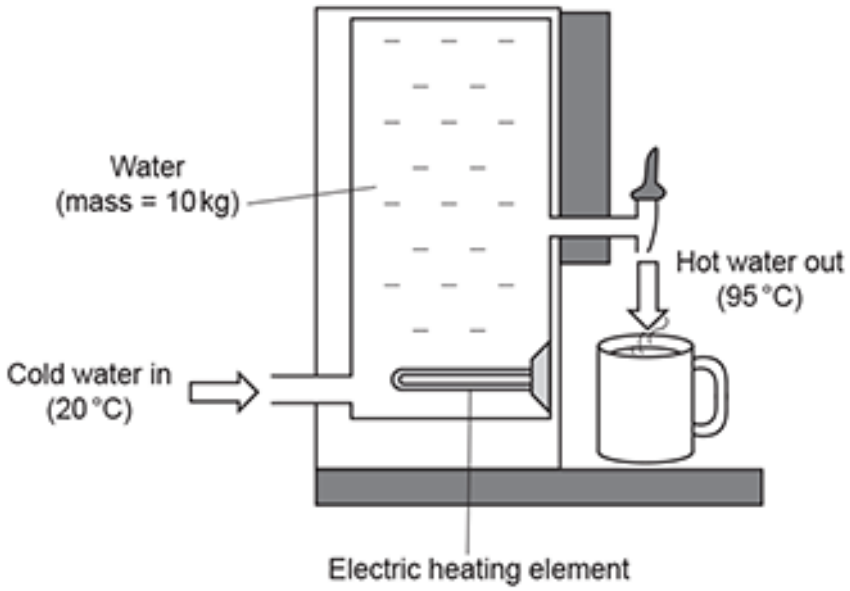
Your answer ☐ **[1]**

4. Which statement is an example of a chemical change?

A Boiling milk
B Freezing water
C Frying an egg
D Melting ice cream

Your answer ☐ **[1]**

5. An electric water heater is used to make hot water for drinks.



The heater increases the temperature of the water from 20 °C to 95 °C.
The mass of water is 10 kg.
The specific heat capacity of water is 4200 J / kg °C.

Calculate the energy required to increase the temperature of the water.

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

Energy = ... J **[3]**

6. A student is studying examples of physical and chemical changes.

	Chemical change	**Physical change**
A	boiling water	frying an egg
B	boiling water	melting ice
C	burning wood	frying an egg
D	burning wood	melting ice

Which row in the table shows a correct example of a chemical change and a physical change?

Your answer ☐ **[1]**

7. Mercury has a melting point of −40°C and a boiling point of 357°C.

	State at −20°C	**State at 300°C**
A	solid	gas
B	solid	liquid
C	liquid	liquid
D	liquid	gas

Which row in the table is correct?

Your answer ☐ **[1]**

8. 10 g of ice melts and then evaporates.
What is the mass of the **gas** produced?

A 0 g
B 1 g
C 10 g
D 11 g

Your answer ☐ **[1]**

END OF QUESTION PAPER