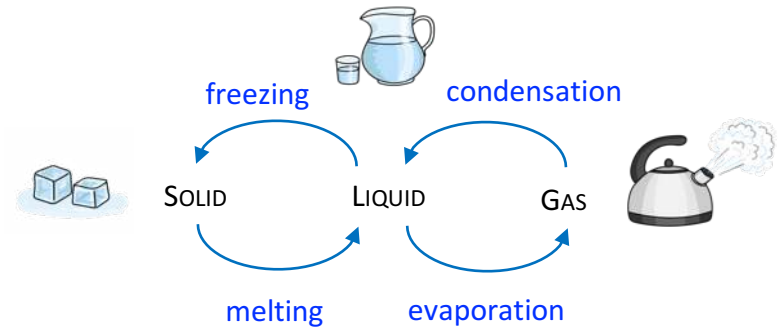
0 1 Melting, evaporation, freezing and condensation are four examples of **physical changes**.

0 1 . 1 Label each of the arrows in the below diagram with the correct physical change which occurs as a substance changes between the solid, liquid and gas states.



[4 marks]

0 1 . 2 Explain what is meant by a **physical change**.

A physical change is one in which no new substances are formed [1].
Physical changes are easily reversible [1].

[2 marks]

0 1 . 3 Under the right conditions, a substance can change directly from a solid to a gas. State the name of this process.

Sublimation.

[1 mark]

0 2 . 1

State the meaning of the term **internal energy**.

The internal energy of a system is the total kinetic and potential energy [1] of all the particles it contains [1].

[2 marks]

0 2 . 2

As the temperature of a substance increases, what happens to its internal energy? Tick **one** box.

It increases	☑
It decreases	☐
It stays the same	☐

[1 mark]

0 2 . 3

An ice cube is placed into a glass of water which is at room temperature. After 15 minutes, the ice has melted completely.

Using the **particle model**, explain fully what happens to the ice as it melts.

- The particles in a solid are packed tightly, and vibrate about fixed positions [1]
- When the ice cube (which is at a lower temperature) is placed into the water (which is at a higher temperature), there is a net flow of heat energy from the water to the ice [1]
- This increases the internal energy stored by/temperature of the ice
- As its temperature increases, the particles within the ice vibrate more rapidly (about their fixed positions) [1]
- When these particles have enough energy, the bonds holding them together will be broken, and they will be able to move freely/flow around one another [1]

[4 marks]