

# AQA Physics GCSE

## 4.3.2 - Internal Energy and Energy Transfers

### Flashcards

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What is the internal energy of a substance?



# What is the internal energy of a substance?

- The energy stored by the particles
  - The sum of the total kinetic and potential energies that make up the system



How does heating affect the energy of a substance?



# How does heating affect the energy of a substance?

- Heating transfers energy to the substance
- It increases the energy of the particles that make up the substance



What two things can heating a substance do?



What two things can heating a substance do?

1. Raise its temperature
2. Change the state of the substance



What three factors determine the temperature change of a system?





What three factors determine the temperature change of a system?

1. Mass of substance being heated
2. Type of material (Specific heat capacity)
3. Energy inputted into the system



State the equation used to calculate the temperature change when a substance is heated. Give appropriate units.



State the equation used to calculate the temperature change when a substance is heated. Give appropriate units.

- $\Delta E = m c \Delta \theta$
- Energy (J), Mass (kg), Specific Heat Capacity (J/kg/°C), Temperature (°C)



Define specific heat capacity.



Define specific heat capacity.

The amount of energy needed to increase the temperature of 1kg of a substance by  $1^{\circ}\text{C}$ .



Describe how the internal energy and temperature of a substance changes when a change of state occurs.



Describe how the internal energy and temperature of a substance changes when a change of state occurs.

- The internal energy of the substance will be increased or decreased
- The temperature of the substance will remain constant



Define specific latent heat.





Define specific latent heat.

The amount of energy needed to change the state of 1kg of a substance **with no change in temperature.**



State the equation for the energy required to change state. Give appropriate units.



State the equation for the energy required to change state. Give appropriate units.

- Energy to change state = mass  $\times$  specific latent heat
- Energy (J), Mass (kg), Specific latent heat (J/kg)



# What is the specific latent heat of fusion?



What is the specific latent heat of fusion?

The energy required to change 1kg of a substance from solid state to liquid state without a change in temperature.



What is the specific latent heat of vaporisation?



What is the specific latent heat of vaporisation?

The energy required to change 1kg of a substance from liquid state to gas state (vapour) without a change in temperature.

