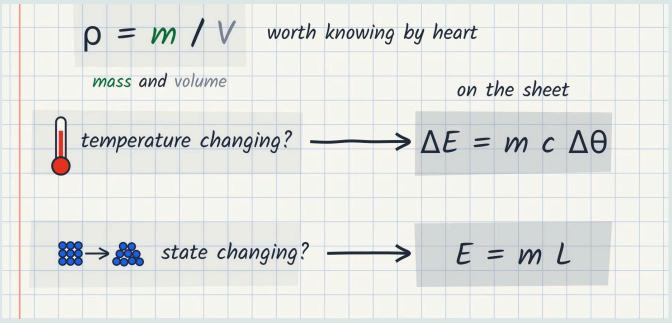
Exam workout

particle model

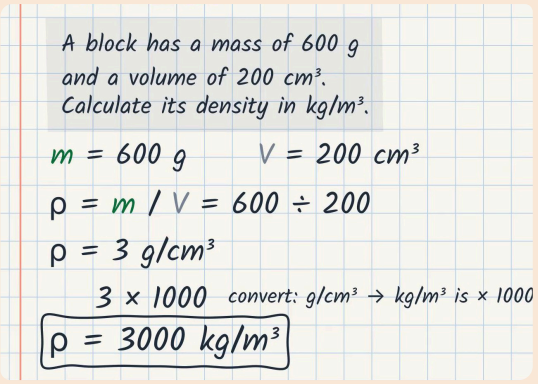
sansara academy
Summary sheet

1 Choosing the equation



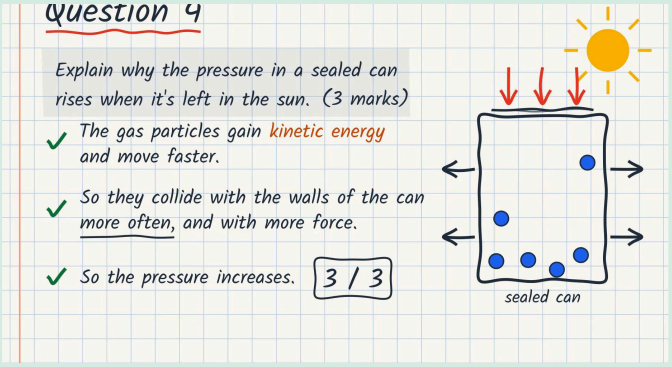
- Know **ρ = m / V** by heart. ΔE = m c Δθ and E = m L are on the equation sheet.
- Ask: is the **temperature** changing (ΔE = m c Δθ) or the **state** changing (E = m L)?

2 Density and latent heat questions



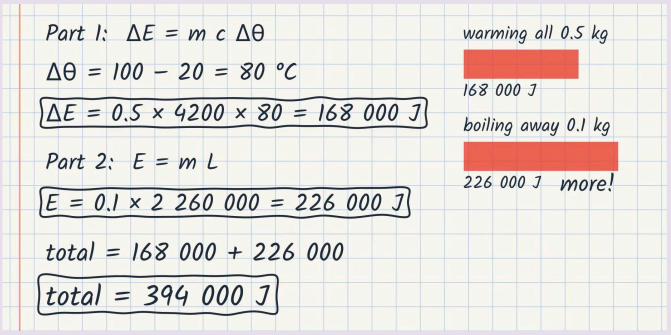
- 600 g and 200 cm³: ρ = 600 ÷ 200 = 3 g/cm³. × **1000** gives 3000 kg/m³.
- Melting 250 g of ice: convert to **0.25 kg**, then E = 0.25 × 334 000 = 83 500 J.

3 Gas pressure answer



- Heated gas particles gain kinetic energy and **move faster**.
- They hit the walls **more often** and with more force, so the pressure increases.

4 A two-part stretch question



- Warming: 0.5 × 4200 × 80 = 168 000 J. Boiling: 0.1 × 2 260 000 = 226 000 J.
- Add the parts: **394 000 J**. Boiling a fifth of the water took more energy than warming all of it.

E = m L

energy = mass × specific latent heat

E	energy for a change of state	joule (J)
m	mass	kilogram (kg)
L	specific latent heat	joule per kilogram (J/kg)

Convert grams to kilograms first.

Exam tip

Temperature changing: ΔE = m c Δθ. State changing: E = m L. Gas answers: particles, the walls, "more often".

Check yourself

1. 10 000 J melts 0.04 kg of a solid at its melting point. What is its specific latent heat of fusion?

Answers: 1. L = E ÷ m = 10 000 ÷ 0.04 = 250 000 J/kg