

Heat Capacity & Latent Heat

Physics

Two different calculations, and when to use each.

Heating with a temperature change uses specific heat capacity; a phase change uses latent heat.

$$Q = mc\Delta T \cdot Q = mL$$

Ice at -10°C to water at 20°C

Three stages

Warm ice, melt, warm water.

Melting

L of fusion

Temperature constant.

Boiling

L of vaporisation, much larger

THE COMMON MISTAKE

✗ **Using $mc\Delta T$ through a phase change**

✓ **Splitting into separate stages**

During a phase change temperature does not change, so ΔT is zero and $mc\Delta T$ gives zero energy.

Latent heat of vaporisation is far larger than fusion: separating molecules entirely costs more than loosening them.