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Law of Conservation of Matter & Energy amnt. energy + matter stays same, but Δ into each other!

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Temperature Avg. kinetic en. ptcls.

Thermal Energy Total kinetic. en. ptcls.

Heat Thermal energy moves $H \rightarrow C$

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	Fahrenheit	Celcius	Kelvin
FP water	32°	0°	273°
BP water	212°	100°	373°
scale	Fahrenheit	Centigrade	Centigrade

gas
 start 0°C
 ↓ 1°C
 Smaller 1/273rd.
 $\frac{273}{273} = \text{No size!}$
 No movement
 °K
 Absolute zero!

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Specific Heat $\frac{\text{J}}{\text{kgK}}$ en. \uparrow temp. 1°K for 1kg

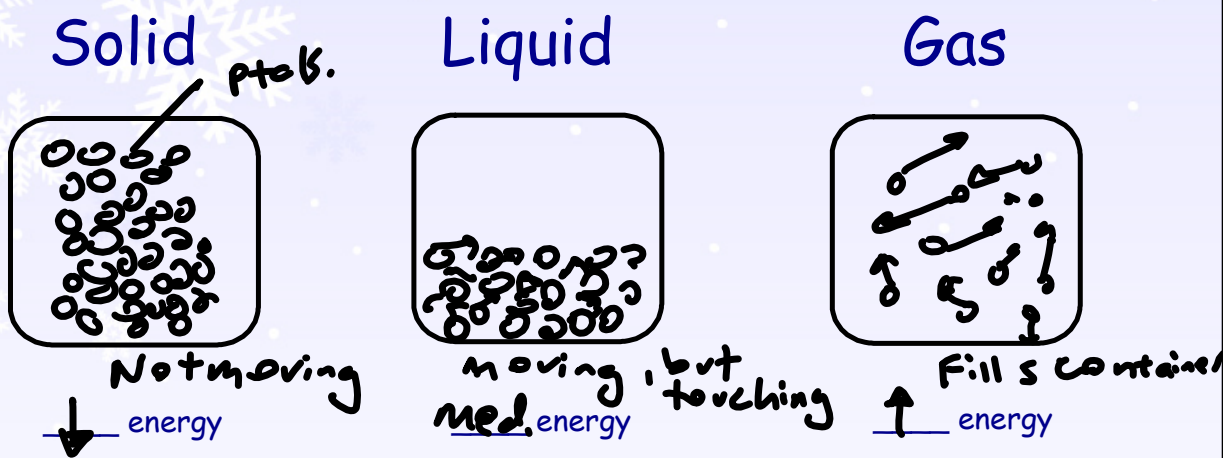
Change in Energy = $(\text{mass}) \times (\text{s. h.}) \times (\Delta t \text{ } ^\circ\text{K})$

en? $\uparrow 10^\circ\text{K}$ 5kg H_2O

$(4180)(5)(10^\circ\text{K})$

$209,000\text{J}$

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Changing State When thermal en. is absorbed - or - released!

melting S → L (absorb en.) S → G
 Freezing L → S (release en.) Sublimation
 Evaporation/boiling L → g (absorb en.) g → S
 Condensation g → L (release en.) deposition
 g → P (excitation)

