Energy (Thermal Energy) Cheat Sheet

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Energy (Temperature Changes)

Internal (Thermal) Energy -> Energy stored in the movement of particles	Amount of internal energy depends on temperature, materials, mass
Temperature -> How hot or cold something is	

Efficiency Formula (Energy)

Formula: Efficient Powers / Total Amount of Electricity Produced x 100% = Percentage	4/40 x 100% = 100

Energy Formula

Formula: Q = mcAT	Q -> Amount of heat transfered
M = Mass	C = Specific Heat Capacity
A = The changes in temperature	T = Temperature

In a refrigerator, 2kg of water cools from 30 °C to 0 °C and then freezes to form ice at 0 °C. The specific heat capacity of water is 4200 J kg °C, and the specific latent heat of fusion of ice is 336000 J kg °C. What is the heat washed in this process?
Q1 = mcAT = 2 x 4 x 200 x -30
Q2 = mAHf = 2 x -336000
Q1 + Q2 = -924000

Paying for Energy

Unit (Times, Energy, Power wrattings)	Electricity and gas are paid base on usage and measure in KwH

Formula -> KW x H x KwH (Hour)

Direction of Energy Transfer

https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcS7XK65-RLuX-XyXrlq-xN3YJpISXVf9259F7Q&s

Listric Energy

Appliances -> Machines	Power -> Different appliance transfer different amount per second
Wratts -> Method measurement of the rate of electricity	Power rattings -> Max amount of power a device produce under normal circum-tances
Efficiency -> Ratio of useful energy from total energy	Sankey Diagram -> Diagram that shows efficiency

Transfering Energy

Evaporation	Conduction -> Passing vibrations (heat)
Radiation -> All objects emit infrared radiation (hotter, emit more, no need medium, thermal imagers)	Convection -> Cooler fluid sink, hotter fluids rise

Controlling Energy Transfer

Insulation -> Retain warmth inside the house and reduces fuel costs.	Air is only good conductor if it is trapped
To test insulation effectiveness, use containers with different insulating materials and measure temperature changes over time.	Light color -> Reflect energy, while Dark color -> Emit radiation

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