Energy (Thermal Energy) Cheat Sheet

by Elf (Elf Fatmawati) via cheatography.com/213487/cs/46445/

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

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

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 circumtances
Efficiency -> Ratio of useful energy from total energy	Sankey Diagram -> Diagram that shows efficiency

Transfering Energy

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)

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 effective-ness, use containers with different insulating materials and measure temperature changes over time.	Light color -> Reflect energy, while Dark color -> Emit radiation

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

By **Elf** (Elf Fatmawati)
cheatography.com/elf-fatmawati/

Published 25th May, 2025.
Last updated 25th May, 2025.