

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 4/40 x
Produced x 100% = Percentage 100% =
100

Energy Formula

Formula: $Q = mc\Delta T$ Q -> Amount of heat transferred
 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?

$$Q1 = mc\Delta T = 2 \times 4 \times 200 \times -30$$

$$Q2 = m\Delta H_f = 2 \times -336000$$

$$Q1 + Q2 = -924000$$

Paying for Energy

Unit (Times, Energy, Electricity and gas are paid base on
Power wrattings) 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 Power rattings -> Max amount of power
measurement of the rate a device produce under normal circum-
of electricity tances

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

Transferring Energy

Evaporation Conduction ->
Passing vibrations
(heat)

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

Controlling Energy Transfer

Insulation -> Retain warmth inside the house Air is only good
and reduces fuel costs. conductor if it is
trapped

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

