Thermal Energy

Thermal Energy	total energy of molecules in a substance
thermal energy is proportional to the no. of molecules	
Total Energy	the sum of the potential and kinetic energies
Temperature	the average kinetic energy of molecules in matter
Thermal equilibrium	a state in which two substances have the same temperature
Transmission of Thermal Energy	conduction - convection - radiation
Calorimeter	an object used to measure the heat of chemical and physcial reactions

Intermolecular Forces in Fluids

Intermolecular Forces	Forces between molecules
Cohesive Force	Attractive forces between molecules of the same type, such as surface tension
Surface Tension	the property of the surface of a liquid that allows it to resist external forces
Adhesive Forces	Forces of attraction between a liquid and a solid, such as capillarity

Intermolecular Forces in Fluids (cont)

Applications of Capillarity	clothes absorbing water, and water moving up stems to leaves
Pascale's Principle	states that, in a fluid at rest in a closed container, a pressure change in one part is transmitted without loss to every portion of the fluid and to the walls of the container.
Application of Pascale's Principle	Hydraulic Lift
thermocouple	a sensor that detects temp

Specific Heat

Specific Heat	The amount of heat energy required to raise one kg of matter by 1 degree C
Transferred Heat Energy Formula	Q = mcΔT (c is the specific heat)
latent heat of fusion	the amount of heat energy required to melt 1 kg of a substance
latent heat of fusion formula	Q = mHf (Hf = heat of fusion)
Latent Heat Of Vaporization	the amount of heat energy required to evaporate 1 kg of a substance
Latent Heat Of Vaporization Formula	Q = mHv (Hv = heat of vaporization)

Buoyant Force and Liquid Pressure

Fluid's Pressure	P = ρgh (ρ = density, g = 9.8, h = height)
Archimedes' principle	states that a body immersed in a fluid is subjected to an upward force equal to the weight of the displaced fluid
Buoyant Force	the force acting on an object opposite to gravity by a fluid in which it is submerged, opposing the weight
Buoyant Force Formula	F = ρ(fluid)Vg
applications of the buoyant force	ships, submarines
Viscosity	a measure of an object's resistance to flow
Bernoulli's principle	states that in horizontal fluids, the higher the velocity, the lower the pressure
applications of bernoulli's principle	spry paint, perfume atomizer
Solid Expansion	a change in the length, width, or height of a solid
same depth = same pressure	

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Thermodynamics	
The First Law Of Thermo-dynamics	E = Q - W
The Second law Of Thermodyn-amics	the law of entropy
Entropy	The measure of a system's useless thermal energy, or disorder
Entropy Formula	ΔS = Q/T
Heat Engine	a device that converts thermal energy into work
Efficiency of a Heat Engine	Eff = W/Qh or Eff = (Qh - Qc / Qh)
Heat engine energy relations	Qh = W + Qc
Density	density = m/V
Pressure	P = F/A

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