# Tahsili Physics (States Of Matter) Cheat Sheet

by TheGoldenClover via cheatography.com/201551/cs/42768/

## 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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