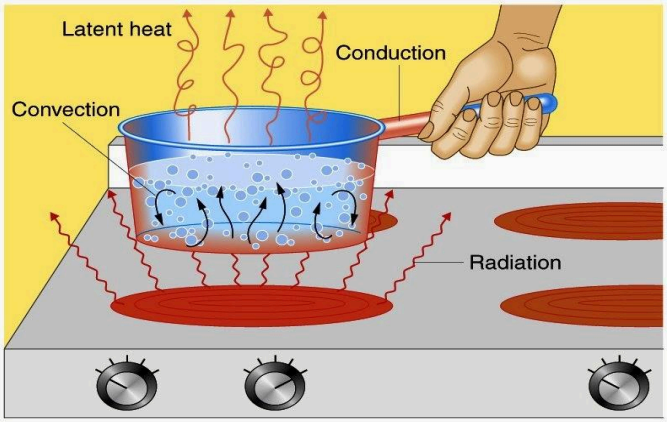
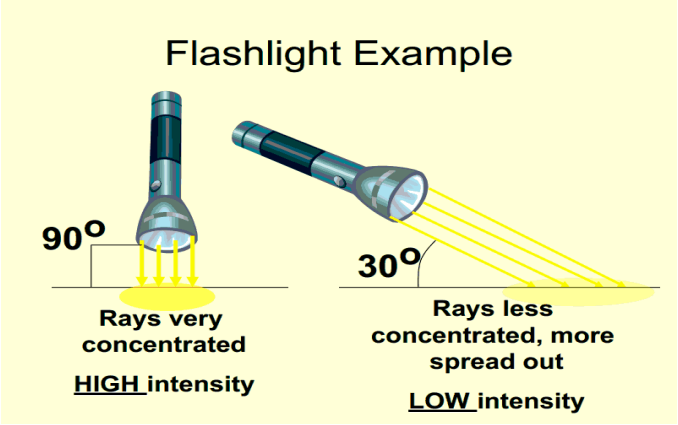
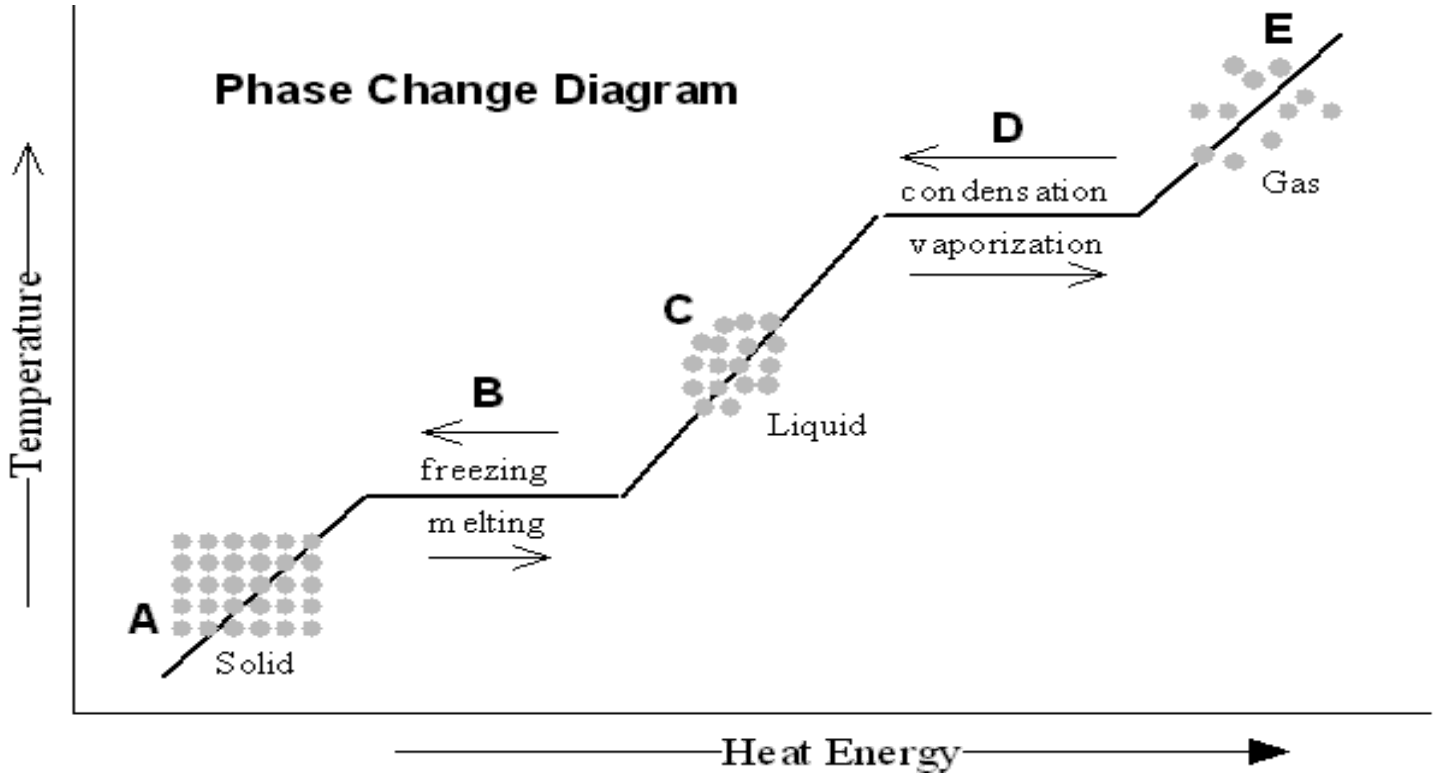
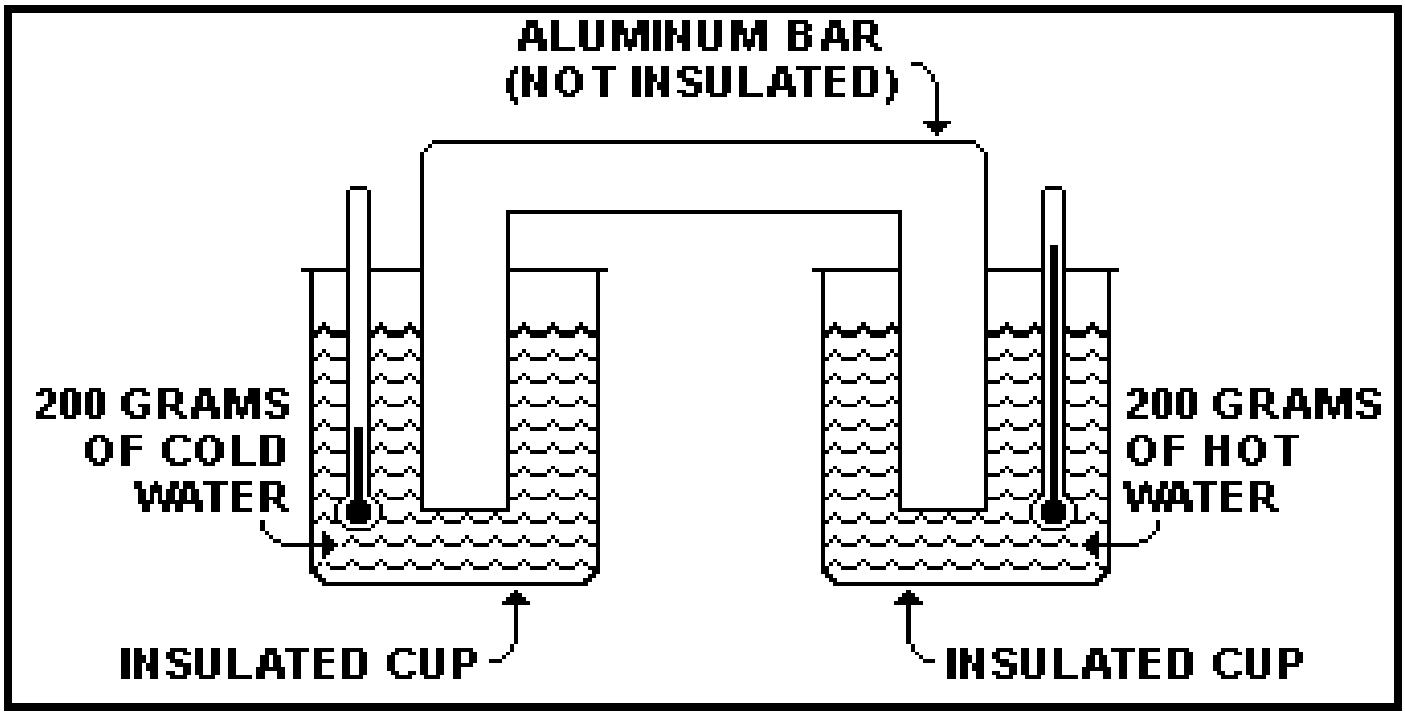
Energy and Insolation

1. Infrared has a long wavelength; Visible light has a short wavelength (more intense).
2. Carbon dioxide (CO_2) and water vapor absorb infrared radiation.
3. Energy moves from source to sink: high to low, some transfers require a medium or boundary to exchange the energy.
4. Potential Energy – stored energy.
5. Kinetic Energy – energy of motion.
6. Black/rough – absorbs the most; White/smooth – reflects the most
7. A good absorber of energy is a good radiator of energy
8. Land heats up faster than water, and also cools faster.
9. Water bodies moderate temperature (smaller temperature range).
10. Most changes are cyclic and predictable.
11. Conduction – molecule to molecule (solids AND ground heats atmosphere)
12. Radiation – through space (vacuum) – ex: light
13. Convection – heat movement in fluids due to differences in density (atmosphere– weather, oceans, liquid mantle –plates move)
14. An interface is a boundary / medium across which energy is exchanged.
15. Temperature does NOT change during a phase change (energy is either gained or lost)
    a. Condensation: water vapor changing into liquid water (remove heat)
    b. Evaporation / Vaporization / Boiling: liquid water changing to water vapor (add heat)
16. Air cools and expands as it rises, warms as it falls.
17. Hottest part of the year is the end of July.
18. Hottest part of the day is after 1:00p.m.

3 types of energy transfer	Angle of Incidence
	



Conduction Lab - Hot and Cold Calorimeters



Use your Reference Tables!!!!