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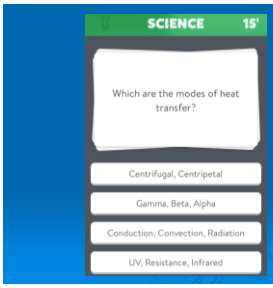

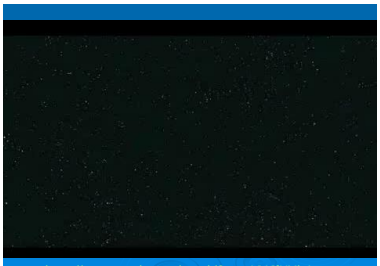
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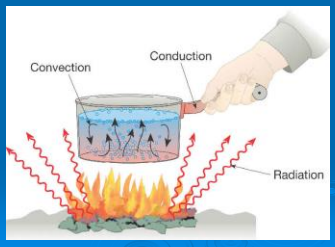
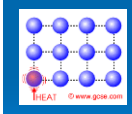
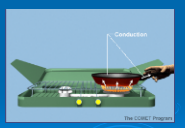


Conduction

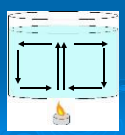
- The transfer of heat energy from atom to atom through touch in solids





Convection

- Transfer of heat by movement in liquids or gasses by differences in density



DRAW

Radiation

- Transfer of heat through EM waves
  - Can radiate through empty space

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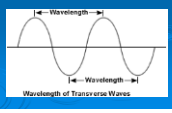
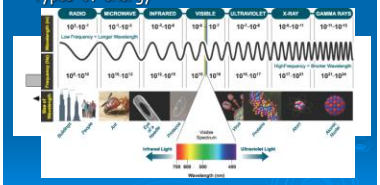
Electromagnetic Energy

- Energy that is given off by transverse waves not at absolute zero
- Energy is classified by their different wavelengths (distance from one crest to another)



- EM spectrum is used to show different types of energy



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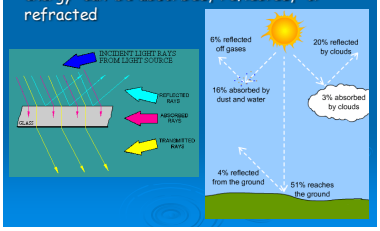
- Surface properties determine how much energy can be absorbed, reflected, or refracted



- Example:
  - The **DARKER** the color & the **ROUGHER** the texture the more energy it will absorb

Which material will become hotter? Why?

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Specific Heat

- The amount of heat needed to raise the temp of 1 gram of any substance 1 °C.

Specific Heats of Common Materials

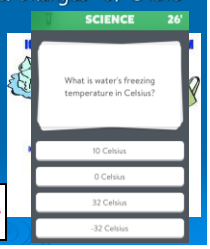
MATERIAL	SPECIFIC HEAT (Joules/gram • °C)
Liquid water	4.18
Solid water (ice)	2.11
Water vapor	2.00
Dry air	1.01
Basalt	0.84
Granite	0.79
Iron	0.45
Copper	0.38
Lead	0.13

Remember – Liquid water has the highest specific heat

Stored Heat & Changes of State

- When water is changing state of matter the temp remains the same

Frozen water bottles keeps water colder for a longer time why?



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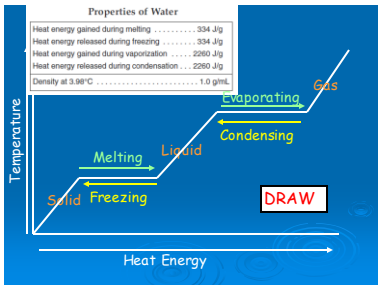

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