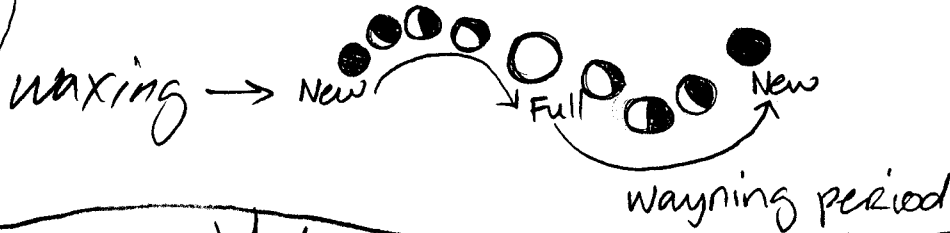


~~Geography~~ TIDE/MOON/TIME

①
2/22/00
8-8

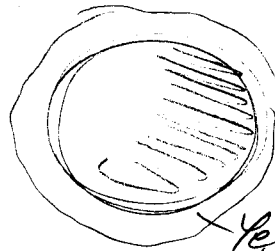
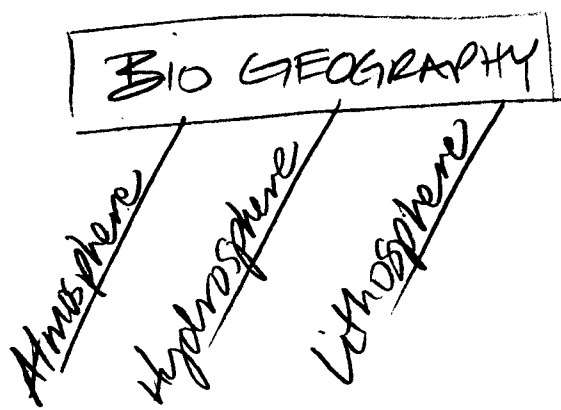
(Review)

- Ebb Tide → Tide goes out
- Flood tide → Tide goes in
- Slack tide → still H_2O



WEATHER & CLIMATE

3 major things that hold up the BIOSPHERE



(=)

moon is NOT as large as Earth
thus, gravitational pull is NOT as strong!

NO Atmosphere

Yes, Atmosphere

Atmosphere =

Gaseous combination of gases that surround EARTH.

Refer to AIR =

↑ Hot increase temp° = makes gas molecules travel faster.

Kinetic Energy = molecules in motion.

② Escape Velocity = is the speed you have to go in order to leave the planet


* If molecules reach escape velocity it can leave the atmosphere of planet *

Whether or NOT Planet has an ATMOSPHERE depends upon (2) things

① temp ② Gravitational pull

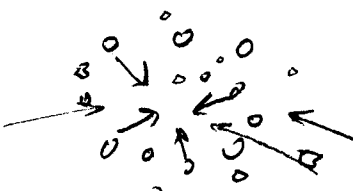
* Terminal Velocity is how fast object is going when it hits the ground.

* Travel 32 ft/sec.

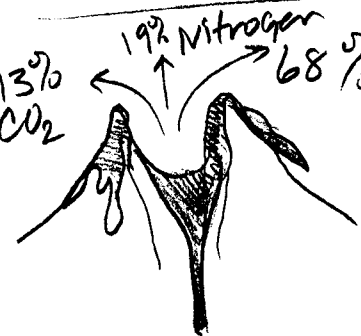


* When forcing material together → Compressed Material Heat

the molecules heat up and ↑ temp



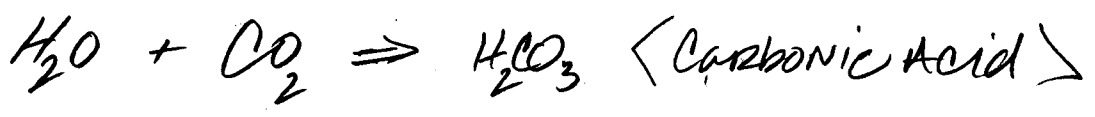
← GASES COMING OUT OF VOLCANOE



- 68% H₂O Vapor
- 13% CO₂
- 19% Nitrogen

H₂O liquid cannot exist = Above boiling pt.

EARTH WHEN STARTED was guessed around 14,000° F
But over time cooled down to a temp where H₂O was able to stay @ a liquid



Chemistry of Atmosphere changed w/ change of Earth's Temp.

CO₂ will Dissolve w/ H₂O → BUT Nitrogen will NOT

To make an Ozone layer. → you need O₃ → in order to have O₃ you need O₂ ←

160° F = Magic Number life doesn't exist above 160° F

plants produce → CO₂ & O₂



First O₂ Producing Plants were guess to come from ocean.

H₂O can hold a lot of O₂

AIR

What is AIR made up of?

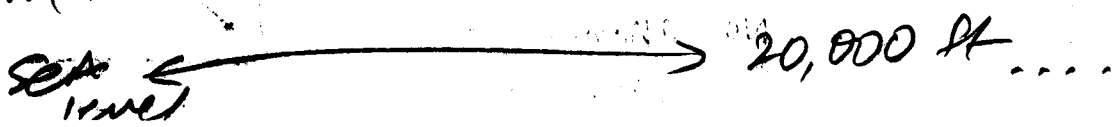
- 78.084% - Nitrogen (78%)
- 20.946% - Oxygen (21%)
- 0.934% - Argon (~1%)
- .033% - CO₂ - Holds heat in greenhouse gas. (.033%)

Lightening helps fertilize soil

Oxide of Nitrogen caused by very high heats used to make an Oxide of Nitrogen.

[very low Acid level]

These % (=) same @ all different elevations



(7)

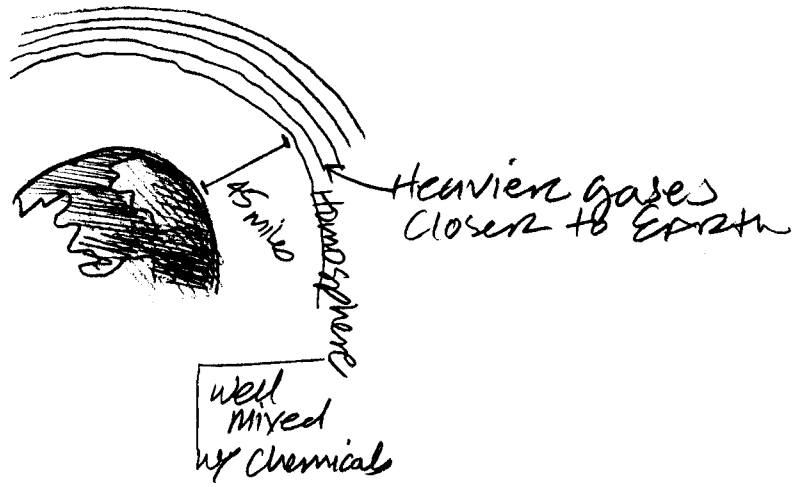
9-4

measured by a BAROMETER

Atmospheric Pressure = measurement of the weight of AIR above you

212° F = H₂O Boils (sealevel)

As you go up into elevation = you decrease the temp° @ of Boiling pt.



AIR IS LESS DENSE

↓
THAN WATER

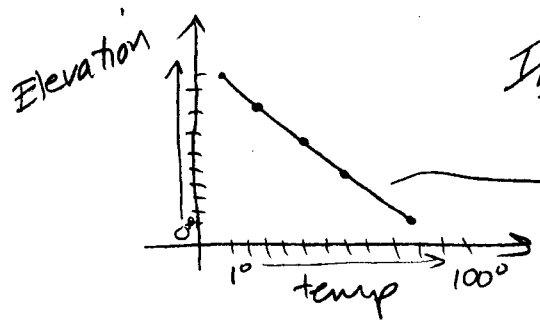
↓
WATER IS LESS DENSE

↓
THAN DIRT

Above 45 miles Gases Begin to layer

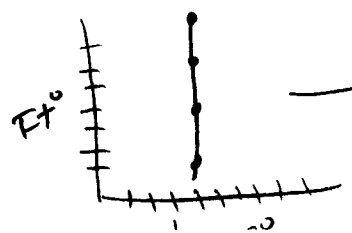
THREE things that could happen to temp° of Air as you go up ↑.

- 1 Increase
- 2 Decrease
- 3 Stay Same

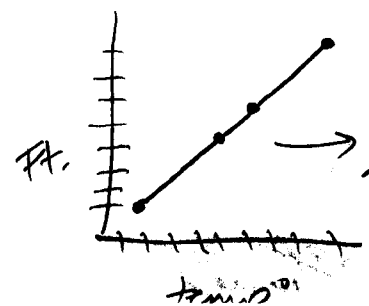


Increase Height in Elevation ⇒ Decrease in temp°

→ NORMAL LAPSE RATE



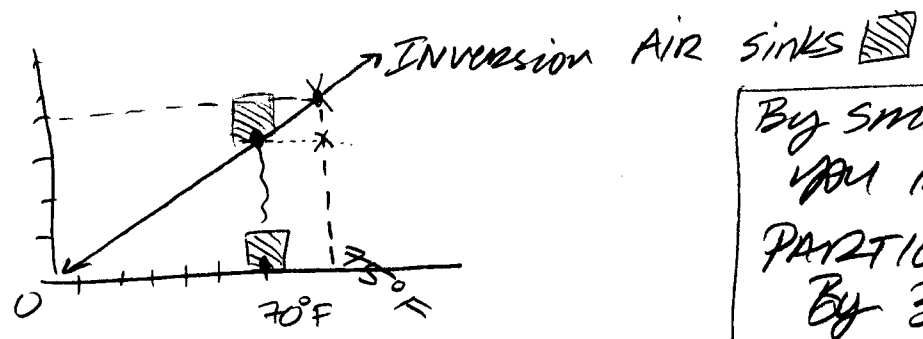
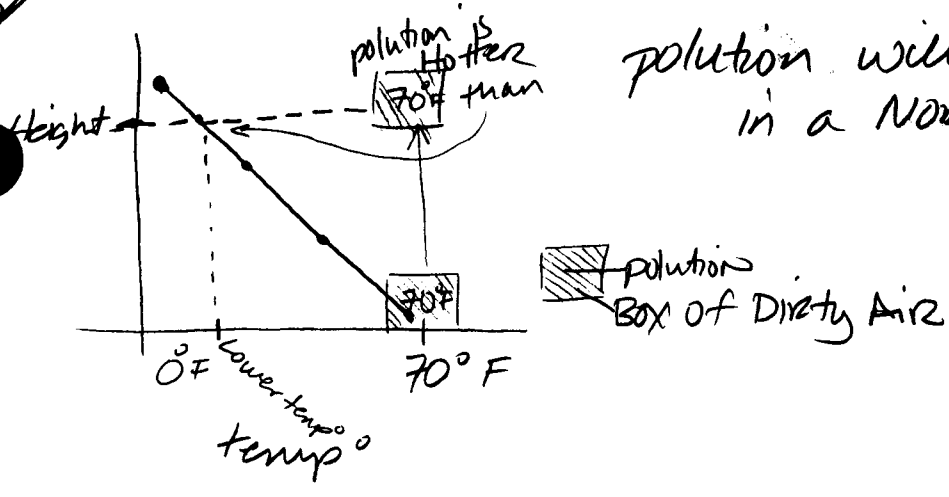
→ f: ISOTHERMAL
NO change in temp w/ ↑ Height



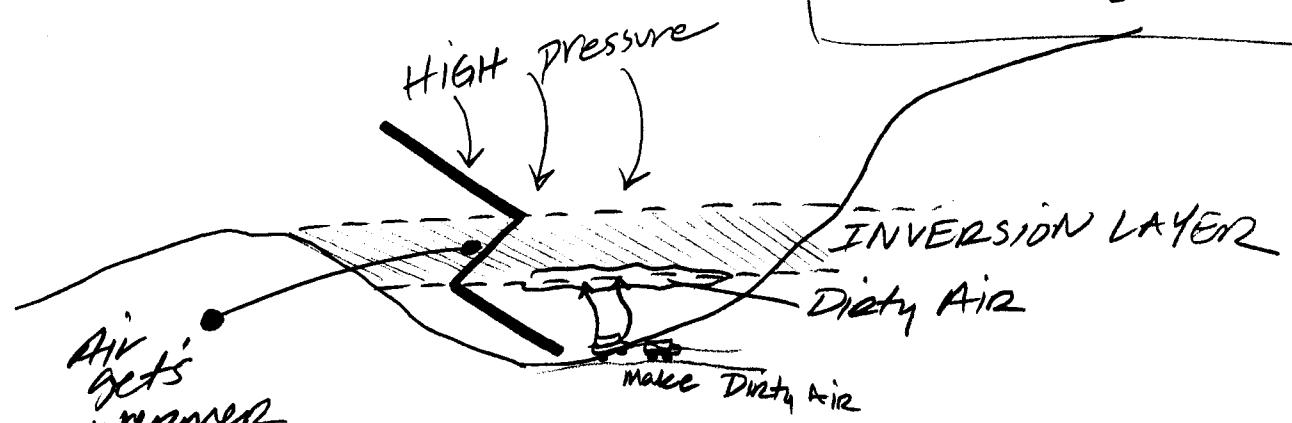
→ f: INVERSION

5

pollution will rise
in a Normal Lapse Rate



By smoking 1 cigarette
you increase
PARTICLE POLLUTION
By 300%



Air gets warmer
as you go up
in an
inversion
layer

* smog made up of
GASEOUS pollution.

2 KINDS OF POLLUTION → Gaseous pollution
→ Particle pollution

Oxides of Nitrogen = very hard to get
Oxides of Sulfurs = Rid of

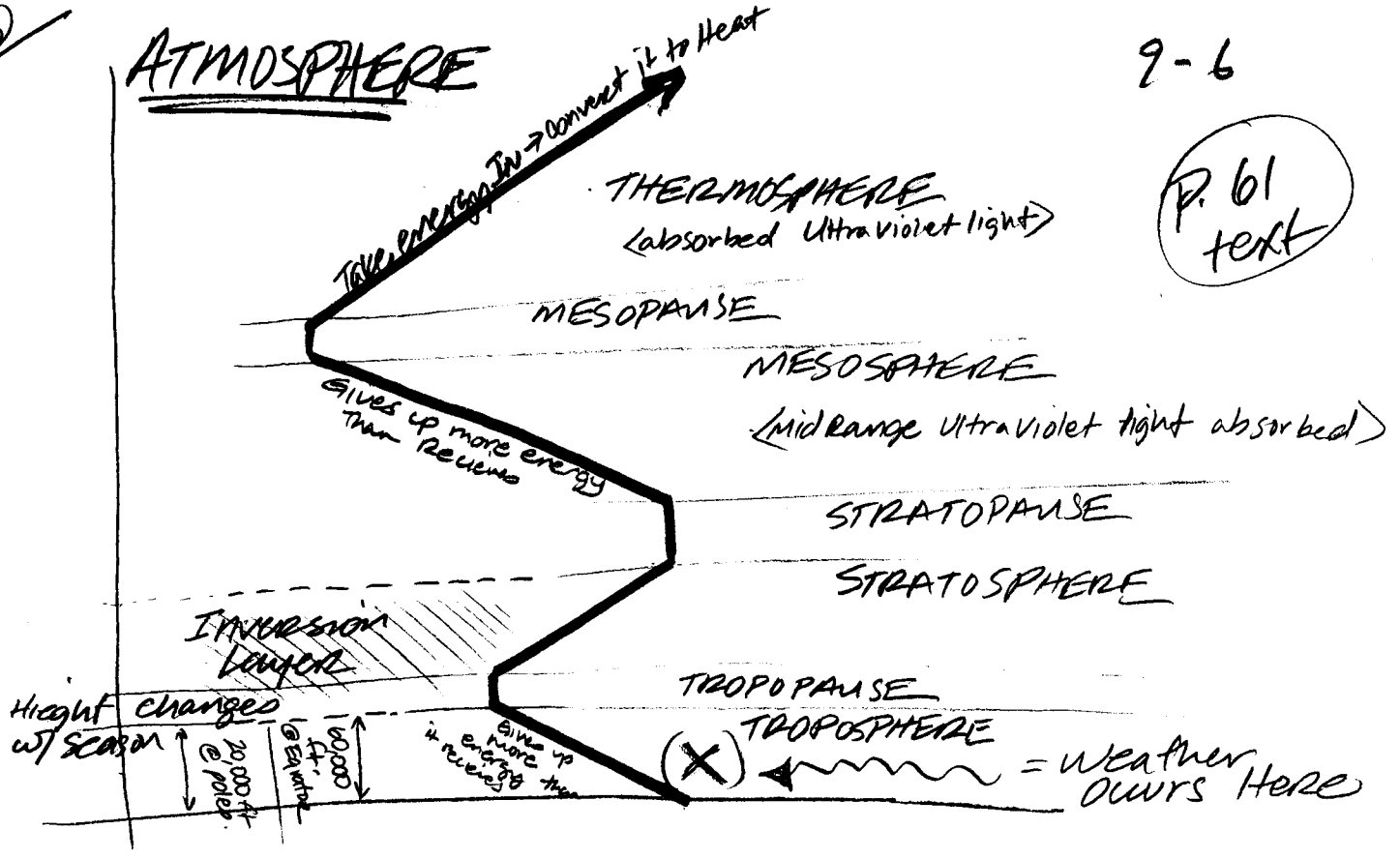
Particles = you just use a filter mask
Pollution

both are
not good
for you!

ATMOSPHERE

9-6

P. 61 text



* A lot of Volcanic Eruptions can lead to Climate Change

Cl^- takes $O_3 \rightarrow$ OZONE and converts it to (O_2)

* Very BAD because O_3 is what absorbs UV light
 one Cl^- acts as a catalyst thus, it takes out hundreds of O_3 molecules

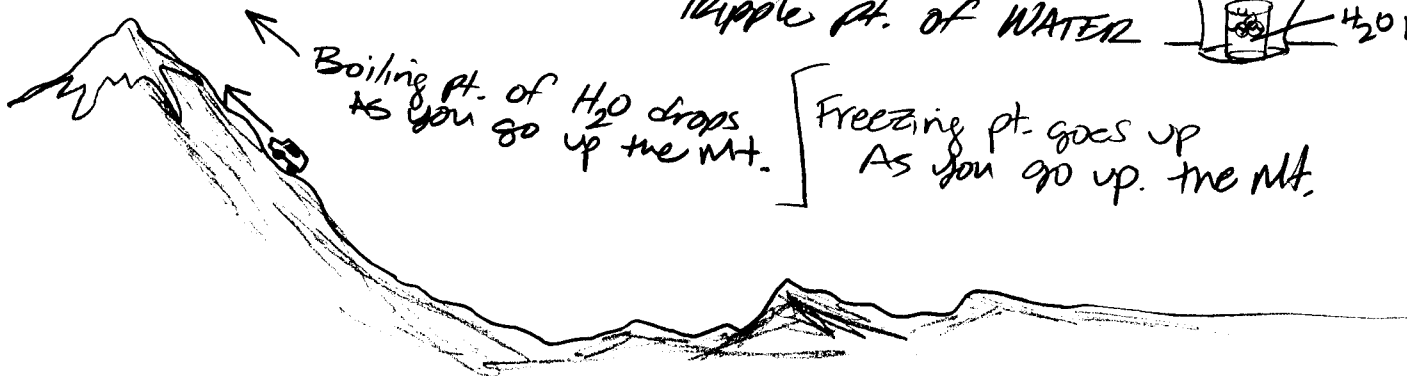
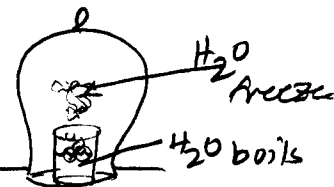
- Pressure & Density Decrease as you go \uparrow into the Atmosphere.
- Density over Equator is Higher than @ Poles.
- Aurora - Caused By charged Particles from Sun.
 - O_2 = green
 - Argon = Orange
 - Radon = Red
 - Even Tungsten

2.24.00

< NOT ON FIRST 1ST TEST ↓

< go back over - changing time ↻
what time is it in _____?

Triple pt. of WATER



< Hot Air Rises / Cold Air Sinks

Electro Magnetic Spectrum.

10-1

3 States of Matter - < solid / liquid / gas >

main concern → H₂O → ICE, WATER, VAPOR

Q. which has more Energy?
A. Vapor.

f: Phase Change = going from ICE → WATER → VAPOR

f: SUBLIMATION = you can go from SOLID STATE straight to VAPOR i.e. → [⊙] SNOW

⊙ DRY ICE - CO₂

Method of Transferring Energy = (4 ways)

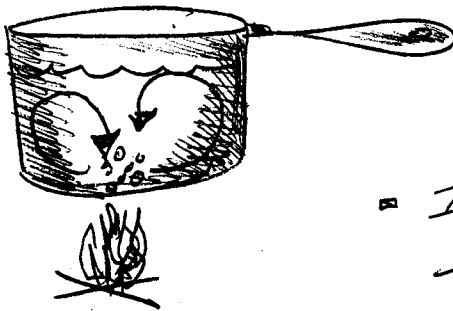
1. Conduction
2. Convection
3. Radiation
4. Phase Change

1. Only method of transferring energy in a Solid, is thru = CONDUCTION



THINK
Kids in line, kid @ end of line punches kid in front and says Pass it forward.

2. CONVECTION = Transfers Energy better than Conduction
 → occurs in LIQUID & GASES
 i.e.



w/o Insulation in house walls there would be convection

- It's the AIRSPACES / pockets Is what keeps me WARM Not the products used to make the Insulation.

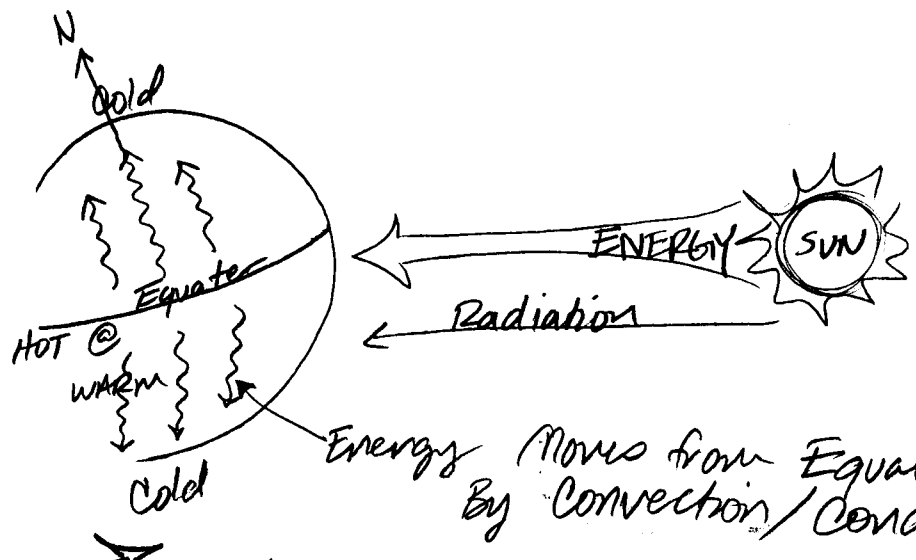
3. RADIATION = Speed of Light & Line of Sight
 (180,000 miles/sec.) (doesn't go around corners)

- * FAR more Efficient than → Conduction or Convection.
- * Sun transfers its Energy to EARTH - Thru Radiation →

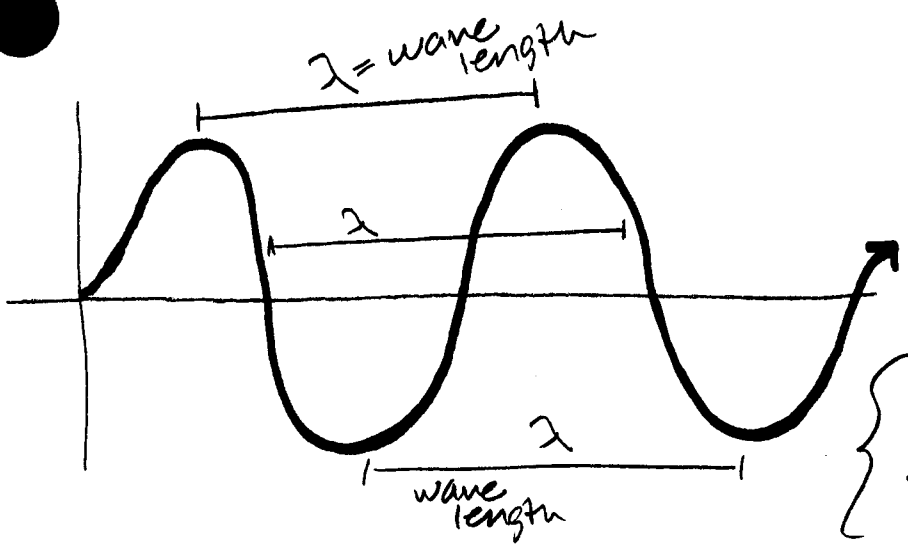
3/

The way a Thermometer works it Reads the CONVECTION Energy → PEOPLE Read temp° thru RADIATION feel

Earth Receives light from SUN → By Radiation



THIS IS THE WHOLE IDEA OF WEATHER



Speed of light = $f \cdot \lambda$

↑ Frequency

↑ wave length

frequency is Directly proportion to wave length

RADIO - is a form of Radiation

P. 75 text

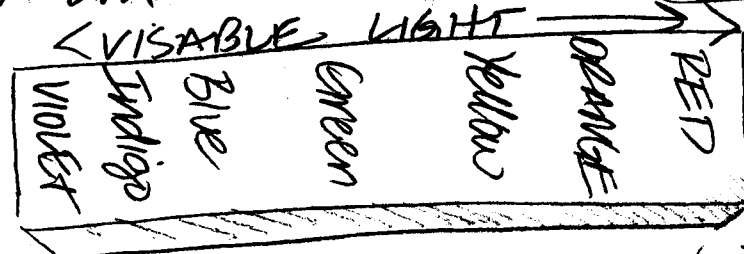
Electro Magnetic Spectrum:



$\mu\text{m} = \text{micrometers} = 10^{-6} \text{ meters} = .000001$ } (very small)

ELECTROMAGNETIC SPECTRUM

10-4 (4)



White is All these Visible colors put together

Black - is the Absence of light
NO Visible Light

.4 μ m

.77 μ m

41% of Energy from Sun is sent in the form of Visible Light

Shorter wave length

LONGER wave length

IONIZING RADIATION

NON-IONIZING RADIATION



10⁻⁸

10⁺⁶

Just Electrical stuff that comes out of wall.

MICRO-WAVES

- used for
- Radar.
 - Communication
 - microwaves (oven)

- Cooking
Radiation heats absorbed by H₂O w/in food.

↓
food then heats up thru conduction.

Usually weight 5min. for food to finish cooking.

Because conduction & convection is slower process than

Visible Light

NEAR INFRARED

Very healthy vegetation
Plants - Infra Red lights are bounced back to camera - is light Red. to film.

Different veggies/plants = will bounce off / reflect the Infra Red light as different shades of color

FAR- INFRARED

HEAT

- you can photograph Earth News Channel
Use this system, to give weather info

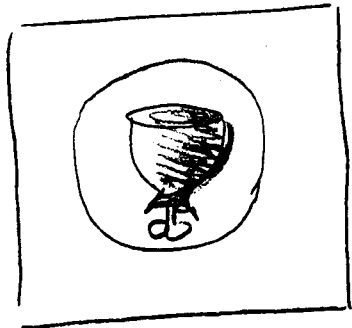
Picks up the change of different temperature of objects

Remote Sensing Device

- is where a device senses something → w/ Triangulation

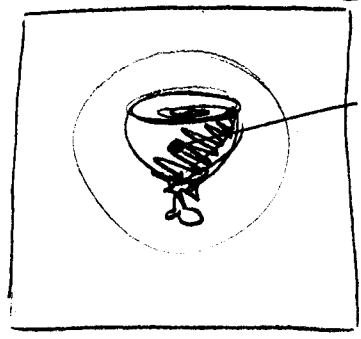
5

Convection Oven



Whole outside surface has to heat up
 In order to heat meat
CONVECTION & CONDUCTION

microwave

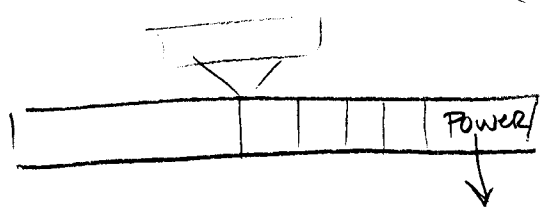


finds H_2O and heats H_2O to spread heat thru.



uses RADIATION to cook FOOD

★ Limiting resolution = sensor cannot see anything bigger than it is calibrated for.
 (in wave lengths)



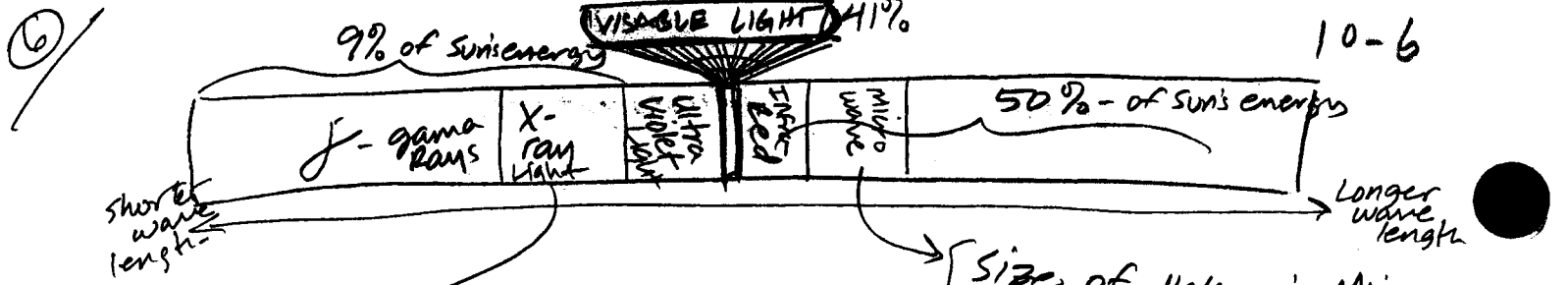
110 - 120 V } Nominclature is energy
 AC 60 ~ } power out of wall →

TAKE: to find wave length

$$\lambda = \frac{\text{speed of light}}{\text{frequency}} \implies \lambda = \frac{186,000 \text{ miles/sec}}{60 \sim / \text{sec}}$$

$$\lambda = \frac{c}{f}$$

$$\lambda = 3.100 \text{ miles} \sim$$



X-Ray ←
 wave lengths
 are so short
 they can go
 thru. Body.

Size of Holes in Microwave
 are the size they
 are. Because microwaves
 are LARGER - so they don't
 fit thru. the holes.

Gamma Radiation = most Deadly form of
 Radiation

< → used for Killing things >

Soon Gov't will → be Radiating Meat to get Rid of
 Bacteria

11 = Test Day

10/10/10