Name: _____ Period: _____

Ch. 15-16 Notes

The Atmosphere & Weather

I. Theory of Earth's Original Atmosphere

a. What are the two components of Earth's original atmosphere?

i.

ii.

iii. Where did these gases come from?

b. What other gases were found in our original atmosphere?

i.

ii.

iii.

c. Earth cooled

d. Water condensed & absorbed most of CO_2

e. Oxygen formed (?)

f. Where do we think the original oxygen came from?

i.

ii.

II. What is the composition of Earth's atmosphere NOW?

a. _____ Nitrogen

b. _____Oxygen

c. _____Trace Gases

i. What are the 5 main trace gases?

1.

2.

3.

4.

5.

III. SMOG

i. What is the smog capital of the U.S.?

1.

ii. Brown Smog

iii. Gray Smog

IV. Atmospheric solids and liquids

a. What are the atmospheric solids?

i.

ii.

iii.

b. What are the liquids in the atmosphere composed of?

i.

c. What is the only liquid found in the atmosphere as a solid, liquid, and gas?

V. Structure of the Atmosphere

a. What are the five layers of the atmosphere?

i.

ii.

iii.

iv.

v.

b. Troposphere

    i. We live here.

    ii. _____ of gases, dust, ice, liquid water, weather, & clouds.

    iii. What happens to temperature as you go up?

        1.

c. Stratosphere

    i. What is found here, that normally is not found in the troposphere?

        1.

    ii. What happens to temperature as you go up?

        1.

    iii. Why do most jets fly here instead of the troposphere?

        1.

d. Mesosphere

    i. How can you remember this is the third layer?

        1.

e. Thermosphere

    i. Ionosphere

        1. What is significant about the ionosphere?

            a. Electrically charged particles

b. Ions and _____

c. Interfers with _____

d. What happens at night with AM radio because of this layer?

e. What two other features are seen in this layer?

i.

ii.

f. Exosphere

i. Top layer

ii. What is beyond this layer?

1.

iii. What orbits in this layer?

1.

2. At what altitude?

VI. Atmospheric Pressure

a. Demo

b. All gases have mass and are pulled towards Earth

c. Gases extend hundreds of kilometers up.

d. Towards earth, air is denser

e. **This air exerts more force than the less dense air above creating pressure.**

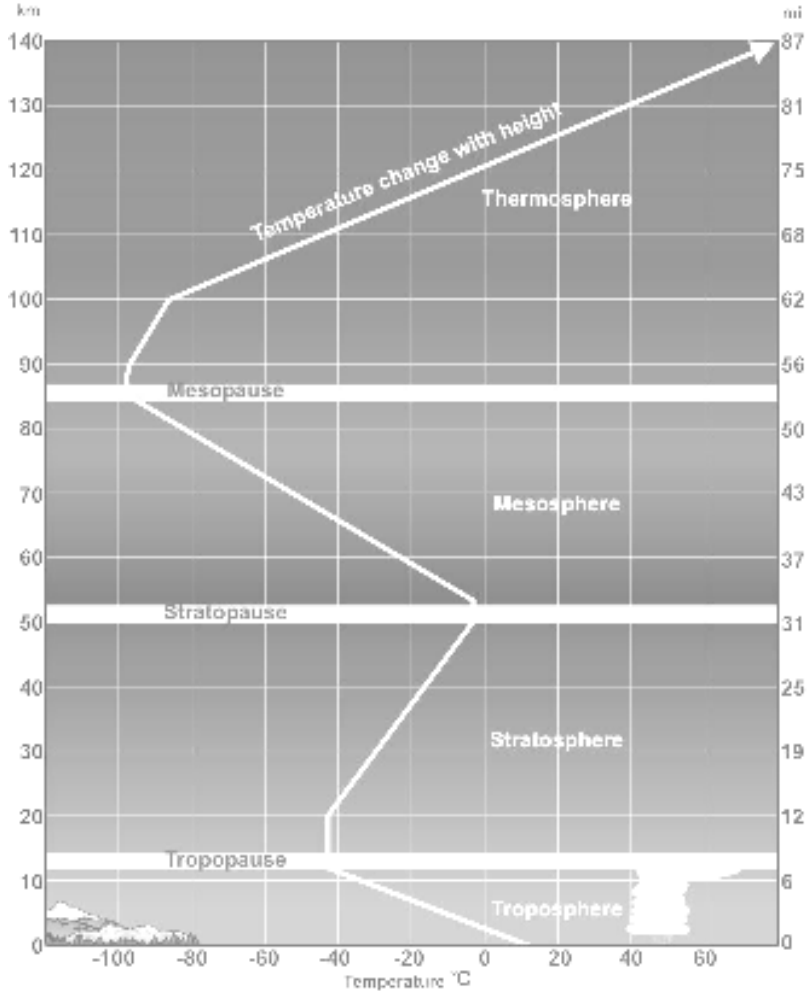
f. Where is atmospheric pressure the greatest?

i.

g. Why do some people find it harder to breathe in high mountains?

i.

VII. Temperature in the atmosphere



a. Heated Air

    i. Less dense/Lower pressure

b. Cooler Air

    i. Denser/Higher pressure

c. Atmosphere is divided into layers based on _____

d. Sun heats atmospheric gases.

e. Troposphere—_____as you increase altitude.

f. Stratosphere—temp goes _____as you go up because of Ozone layer.

    i. Ozone—absorbs sun's UV radiation, heating this layer.

g. Mesosphere—lacks gases, which absorb UV, _____effect.

h. Thermosphere—UV radiation causes reactions giving _____.

VIII. Weather

a. Weather occurs in the troposphere because of **_____!!!!**

    i. What does this cause?

b. Why do we need to understand the atmosphere?

    i.

IX. The Ozone Layer

a. Why do we need the ozone layer?

    i.

    ii.

b. What are the dangers of UV Radiation?

i.

ii.

iii.

c. Hole in the ozone layer

    i. 1986—scientists found a large hole over Antarctica & small hole over the North Pole.

    ii. The holes appear & disappear (seasonal)

    iii. The layer is thinning worldwide, not just over the poles

d. Theory of the ozone layers disappearance.

    i. Pollutants ???????

        1. Chlorofluorocarbons (CFCs)—group of chemicals used for:

            a. Refrigerators

            b. Aerosol Sprays

            c. Foam Packaging

    ii. Use of CFCs is restricted, but much of the damage is already done.

    iii. How CFCs destroy Ozone

        1.

        2.

        3.

        4.

X. Energy from the sun

a. Mars

    i. Less dense atmosphere

ii. Thermal energy from the Sun escapes

iii. So, Mars is a _____--planet.

iv. Living organisms would instantly freeze

b. Venus

i. Very dense atmosphere

ii. Thermal energy doesn't escape

iii. Venus is very _____

iv. Living organisms would burn up

XI. Radiation, Conduction, and Convection

a. Three principles to sustain life on Earth

b. Radiation—_____

i. Radiation travels through space as light or heat

ii. Radiation heats up the surface.

iii. **Heated surfaces then radiate energy.**

iv. Some radiates into space.

c. Conduction—_____

i. Energy transfer when objects are in contact

ii. Energy transfers from:

iii. Areas of fast-moving particles TO Areas of slow-moving particles

iv. This happens until all molecules are at the same rate. (Equilibrium)

d. Convection—_____

i. Occurs in Gases or Liquids

ii. Air is warmed