ATMOSPHERE TEST REVIEW ANSWER KEY!!!!

Part I: Layers of the Atmosphere

Word Bank: Use the following words for questions 1-13.
They may be used more than once.

stratosphere	**mesosphere**	**ozone layer**	**ionosphere**
thermosphere	**troposphere**	**exosphere**	**air pressure**

A. List the layers in order from closest to the ground to farthest from the ground.

Outer Space

Layers	Unique Features
Exosphere	- Ionosphere – Outer space – space shuttle - least pressure
Thermosphere	-Warmest Layer – Ionosphere – Northern Lights
Mesosphere	- Middle layer – Meteors burn up here
Stratosphere	- Jet Stream (brings weather) – Ozone Layer
Troposphere	- Life exist – 75% of atmosphere here – High pressure - 99% of all weather occurs here

Earth's Surface

6. List the layers in which the temperature increases as elevation increases.
   ___thermosphere_____ _____stratosphere_____

7. List the layers in which the temperature decreases as elevation increases.
   _____mesosphere / troposphere _____ ____exosphere_____

8. _____ Troposphere _____We live in this layer of the atmosphere.
9. _____ Troposphere_____Weather is formed in this layer.
10. _____Mesosphere_____Shooting stars are seen and burn up in this layer.
11. _____Thermosphere_____This layer is the largest layer.
12. _____Exosphere_____This layer is where the space shuttle orbits.
13. _____Ionosphere_____ This is found within the thermosphere. It is where charged particles are located which reflects or absorbs radio waves.
14. Where is there the greatest amount of atmospheric pressure? Why?
    -Troposphere – all the molecules in the layers above are pushing down.

Part II: Composition of the Atmosphere: Place the correct letter to the answer on the line.

_C_ 15. The gas that is most abundant in the atmosphere is
A. oxygen B. carbon dioxide C. nitrogen D. water vapor

_B_ 16. What absorbs ultraviolet rays in the stratosphere?
A. CFCs B. ozone layer C. nitrogen D. ionosphere

_A__ 17. Air pressure _____ as elevation increases.
A. decreases B. increases C. stays the same

_A_ 18. The gas that is second in abundance in the atmosphere is
A. oxygen B. carbon dioxide C. nitrogen D. water vapor

_C_ 19. What is the formula for ozone?
A. O B. O_2 C. O_3 D. O_4

_B_ 20. Our atmosphere is only made up of gases, no solids or liquids.
A. True B. False C. It depends

*Note: The above questions may or may not be on the test.

Part III: Atmospheric Pressure:

21. What is the definition for Air Pressure? is the weight of the air above an object.
22. What tool is used to measure Air Pressure? What unit is air pressure measured in?
using a barometer, in units of inches of mercury or millibars.
23. What type of weather is associated with High Pressure?
When the pressure rises the weather should get more clear.
24. When the pressure falls (Low), the weather generally gets more stormy.
25. Warm air is less dense and tends to rise in the atmosphere. **Heat rises!**
26. Cold air is more dense and tends to fall in the atmosphere.

Part IV: Heat:

(Honors #27 is convection causes heat to rise and cool air to sink)

27. What is the source of heat for the Earth? The Sun
28. Most of the heat from the sun is lost to space.
29. The heat from the sun that enters the earth's atmosphere is divided in three ways:

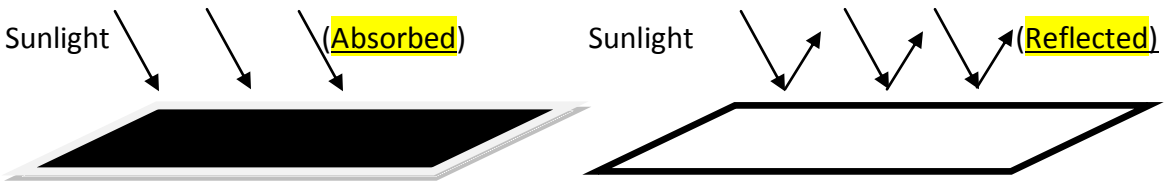
3 Division of heat as it enter earth's atmosphere:	Absorbed or Reflected	% absorbed or reflected
a. Atmosphere	absorbed	19%
b. Land/Water	Absorbed	51%
c. Space (clouds, etc)	Reflected	30%

30. Heat from the earth's surfaces heats up the atmosphere. What transfer process is this?
Radiation causes the earth's surface to heat up. Once heat is released then convection process continues to heat the atmosphere.

31. Academic: The Earth acts like a greenhouse which traps radiation (heat) from the sun?(T/F)___T___
Honors: The Earth's atmosphere traps the sun's energy and due to certain gases and clouds some of the heat is trapped warming the earth. Gases in our atmosphere that trap heat are methane, oxygen and carbon dioxide
32. Which region gets the most direct rays? Equator

Which region poles do not get direct sunlight? North & South Poles

33. Dark colors absorb sunlight, while light colors reflect them. Fill in the blanks below….

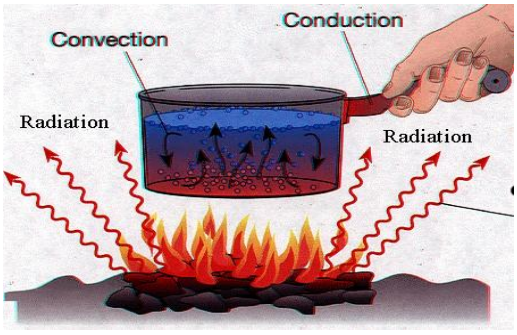


34. How do clouds help cool the earth?
Clouds reflect sunlight during the day making the earth cooler.
35. How do clouds keep nights warmer?
Clouds act like a blanket during the night holding heat near the earth's surface.

36. What are 3 ways in which energy is transferred?

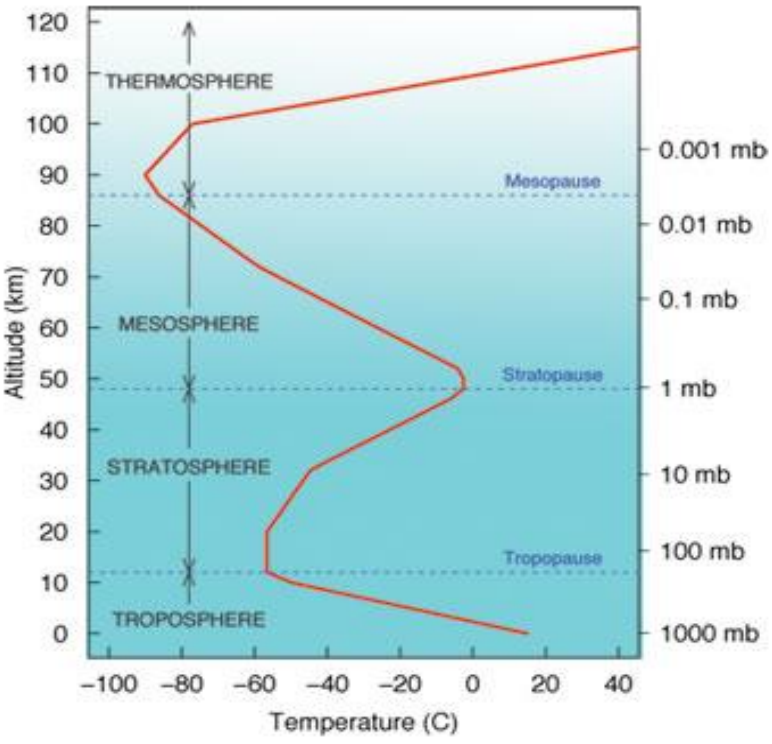
Way which heat is transferred?	Transferred through…..	Example:
a. Conduction	Solid	Pots and pans
b. Convection	Fluid (gas or liquid molecules)	Heat rising; Cold sinks
c. Radiation	Space	Light; xray; microwave

37. Draw 1 picture that has all 3 ways of energy transfer…..label each one..



Data / Graph Analysis:
-Make sure your able to explain….
-Why does the line zig zag.
-The line is indicating that temperature increases and decreases in the layers of the atmosphere.

-What is the relationship between altitude & pressure (mb).
Higher altitude less pressure.



Part Vi: Wind

1. Define the Coriolis Effect and explain how it causes movement of air in the Northern Hemisphere.

-Due to the earth's rotation the wind in the Northern Hemisphere rotates clockwise while the wind in the Southern Hemisphere rotates counterclockwise.

2. What causes wind in the atmosphere and how does wind move? Be sure to include the terms high pressure and low pressure in your description.

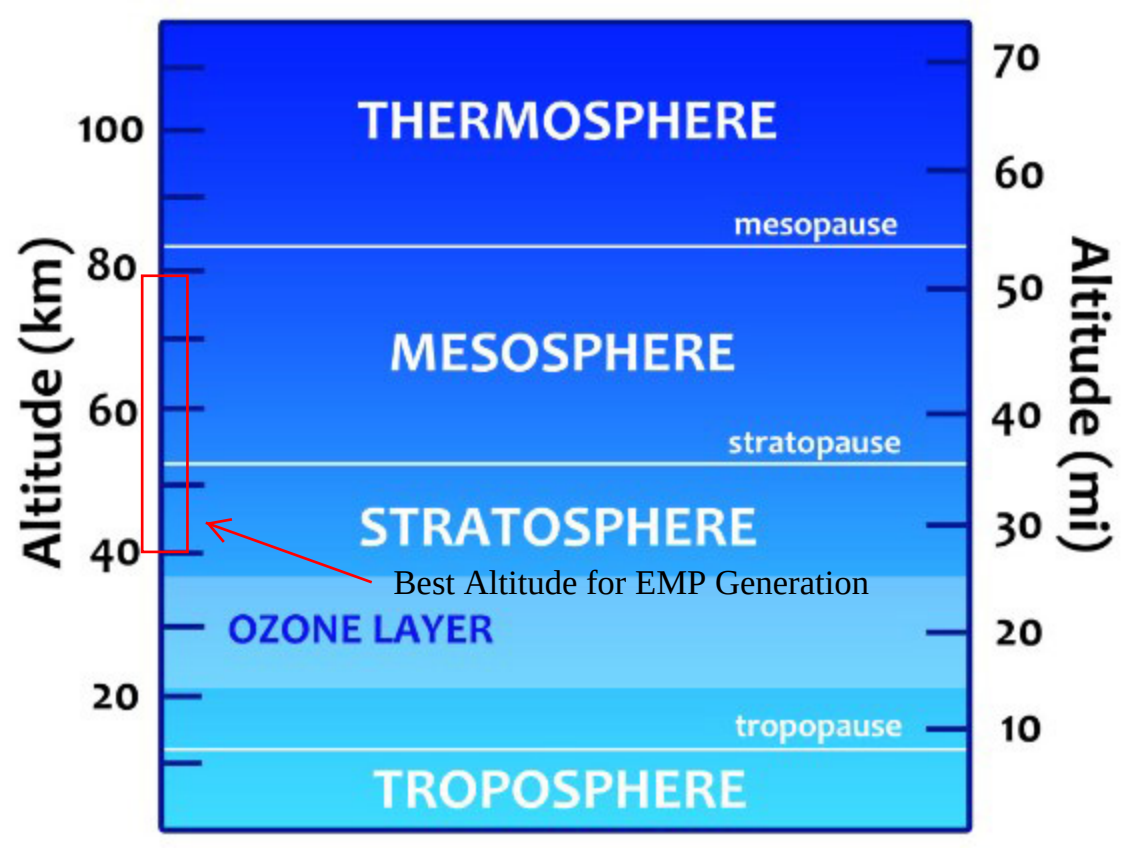
-Wind is created by the uneven heating of the earth's surface by the sun.
-Wind moves from area's of high to low pressure. As the high (heavy) pressure push down the low (light) pressure goes up. As the low pressure (warm air) rises it cools, condenses becomes high pressure (cold air) and sinks back down. This circular process is known as convection which helps create wind currents.

3. How do meteorologists report wind direction (what tool is used)?

-Wind Vane
-Winds are named by the direction which they come from.
Example: The major wind in the United States is the Westerlies, as it comes from the west and moves east.

4. How do meteorologists measure wind speed (what tool is used)?

-Anemometer – measured in knots


THERMOSPHERE
mesopause
MESOSPHERE
stratopause
STRATOSPHERE
OZONE LAYER
tropopause
TROPOSPHERE
Altitude (km)
100
80
60
40
20
Altitude (mi)
70
60
50
40
30
20
10
Best Altitude for EMP Generation