

Module 2

Vocabulary for Module 2:

Absolute humidity – The mass of water vapor contained in a certain volume of air.

Greenhouse effect – The process by which certain gases (principally water, carbon dioxide, and methane) trap heat that would otherwise escape the earth and radiate into space.

Humidity – The moisture content of the air.

Parts per million – The number of molecules (or atoms) of a substance in a mixture for every one million molecules (or atoms) in that mixture.

Relative humidity – A quantity expressing humidity as a percentage of the maximum absolute humidity for that particular temperature.

Pay close attention to the following figures in this module.

Memorize the basic composition of air (figure 2.1)

Note the illustration which shows The Greenhouse Effect (figure 2.4) and the Ozone layer (figure 2.8)

Pay close attention to how to READ graphs, as listed in the module. Both Figures 2.6 and 2.7 have the same information but is represented differently. The focus is to LOOK carefully as you study facts, details and data so that you know what is being represented.

The links below provide additional reading if you are interested:

Humidity

<http://www.usatoday.com/weather/whumdef.htm>

<http://www.wildwildweather.com/humidity.htm>

Greenhouse effect

<http://www.epa.gov/climatechange/kids/basics/index.html> - this link has a animation about the greenhouse effect.

http://www.ucar.edu/learn/1_3_1.htm

EPA Air Standard Trends

<http://www.epa.gov/airtrends/aqtrends.html>

Global Warming

<http://www.answersingenesis.org/articles/am/v3/n4/global-warming>

<http://www.answersingenesis.org/articles/aid/v3/n1/global-warming-natural>

<http://www.answersingenesis.org/articles/am/v5/n3/global-warming-politics>

Module2: Outline

- ☞ Humidity is the moisture content in the air. Our experiment next week will center on the focal pt. of how humidity and temp are correlated.

- Take particular note of the difference between Absolute and relative humidity.

- ☞ Air that is saturated has the maximum moisture content or it can not hold any more levels of water vapor.

- Air(absent of water vapor) is measure as 21% oxygen and 78% nitrogen with trace measured 5 of other This is important for the support of creation or of a evident design. Watch CD.

- Think about this:
 - Certain studies show the composition of the atmosphere is changed by relative standards of concern.
 - Consider the global temperature when you are researching or discussing this topic. It may be that while it is warmer in one area, it's cooler in another. Yet the overall global temp. remains unchanged.
 - Look at the following statistics:
 1. When warming started.
 2. land mass temp vs water temp.
 - a. Best indicator is satellite data

- How do political agendas distort the truth in relation to environmental issues?

➤ Get all your facts first before you assume or adopt a theory.

- Look at all measurement devices and graphs to ascertain truth in relation to facts.
- PPM = Parts per Million -- # of molecules or atoms of a substance in a mixture for every 1 million molecules or atoms in that mixture.
 - 1%=10,000ppm
 - $290\text{ppm}/1\% = 290/10,000 = .0290$

- Continue to work the Factor Label Method. (think unit multipliers from Algebra)
 - $.9\%/1\text{ppm} \times 10,000\text{ppm}/1\% = 9,000\text{ ppm}$

☞ Ozone

- Consider the perfect design of the creation in our atmosphere to meet the very personal needs of His creation.

- Think:

- Ozone is made up of oxygen that blocks the ultraviolet rays but allows the necessary infrared and visible light that is important to sustain life. The oxygen molecule is broken in the process but then replenished to accomplish its divine purpose, thus continuing to protect life on Earth.
- Consider also its placement in the atmosphere –
- Consider the works of His hands, His Handiwork, all that he has made. He has placed the stars in the heavens.

☞ Look at page P.44 PP 5 sentence # 8 to see what Dr. Wile write about 'Intelligent Design', make a note of this in your notes.

☞ Air Pollution

- Define Oxide - Chemical process of burning when an element/chemical is burned the result is oxide.
 - Ie: Sulfur--- sulfur oxide (a chemical pollutant)

🌱 Note: Dr. Wile points out along side that man made or human activity resources which cause pollutants there is also a natural source for each one.

➡ What is combustion? How does it apply to the air we breathe?

- Notice the cause and effect relationship in the air pollutants vs the govt. restrictions to prohibit additional pollutants into the air we breathe.
 - What considerations should be taken for future safety both in regulations and cost prohibition? Please use the cost/benefit analysis to base your answer on.

🌱 **Think of the morality issues in experimenting with pollutants and the effects they have on life.**

🌱 **Bring in your answer to OYO ? #29**

For the Test:

- *Make a note of terms*
- *Be able to discuss global temp and global warming*
- *Know what Greenhouse effect is like here on earth vs other planets which also points to intelligent design and the earth being specific to maintaining life.*
- *Note graphs*
- *Describe cost/benefit analysis*
- *Catalytic conversion*
- *What is ground level ozone.*

Thought Questions/Research Ideas:

- Considering the composition of the air we breathe, the layers of the atmosphere and the processes found in nature how can you dispel the theory of evolution with what you have read in this module? Could life exist on earth if the measurements were any different?
- Research the inert gases and see if you can come up with an explanation as to why they are not harmful.
- Logic demands we look at all the information critically measure the facts against supposed truth. God has created all we see out of nothing. 1 John 1, Hebrews 1:10, Genesis 1:1... remind us it was all good. He didn't miss a detail. Scripture reminds us over and over about how the world will end... how can you minimize the false theories by relating truth to what you hear. Read Isaiah 28:13.
- Research the Greenhouse Effect and determine if a change in the Earth's distance from the Sun (its heat source) would altar life on our planet. Is there a greenhouse effect on other planets?
- Research the "Hole in the Ozone Layer" and discuss the findings on natural pollutants and chemical pollutants and their effect on this current political debate. Consider the placement of the Ozone Layer in the atmosphere. (Psalm 19:1)
- After reading about the Cost/Benefit Analysis, create a scenario in which you could apply this concept yourself. Think of morality issues in experimenting with pollutants and the effects they

have on life. Be circumspect in your research, but rely heavily on the Word of God as your final authority.

- Using the Beaufort Wind Scale(see below) keep track of the wind for a select amount of time, at least 1 week. Record your data.
- What air pollutant is most prevalent in our area and what can be done to reduce the measurement of this substance the air we breathe.
- Do certain pollutants affect only the air?
- What does combustion and oxidization have in common with the Earth’s Crust? Explain both.

- **Beaufort Wind Scale**

- *Developed in 1805 by Sir Francis Beaufort of England*

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On the Water	On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft, whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft, white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high (13-20 ft) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (30-45 ft) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft, sea completely white with driving spray, visibility greatly reduced	