Warm Up 1: Atmosphere
10-16-18

LT I can describe dew point, condensation nuclei and explain the difference between relative and absolute humidity.

Q1 List as many layers of the atmosphere as you can remember.

Q2 What are the two most abundant gases in the atmosphere?

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A1 Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere

Q2 What is the two most abundant gases in the atmosphere?

A2 Nitrogen 78%, Oxygen 21%

TABLE 1. Major Components of the Earth's Atmosphere

GAS	CONCENTRATION	
Nitrogen, N_2	78.1% by volume	
Oxygen, O_2	20.9% by volume	
Argon, A	0.9% by volume	
Water Vapor, H_2O	0-4%, variable	**Greenhouse Gas**
Methane, CH_4	1,750 ppb	"
Carbon Dioxide, CO_2	350 ppm	"
Nitrous oxide, N_2O	280 ppb	"
Carbon Monoxide, CO	150 ppb	"
Ozone, O_3	4-65 ppb	"

(ppm = parts per million, ppb = parts per billion)

Review Twister Project.

3 Minutes

Focus on #s: 1,2,3, 4, ~~6, 10~~

4 minutes

Questions???

Notes 1: Weather Instruments

Please make a chart or diagram that summarizes the different weather instruments and what they monitor, and what does it hope to predict?

Notes 1: Weather Instruments

Inst	Function	Predict

Vocab

1) Dew Point

2) Relative Humidity

3) Absolute Humidity

4) Condensation Nuclei

Vocab 1-4

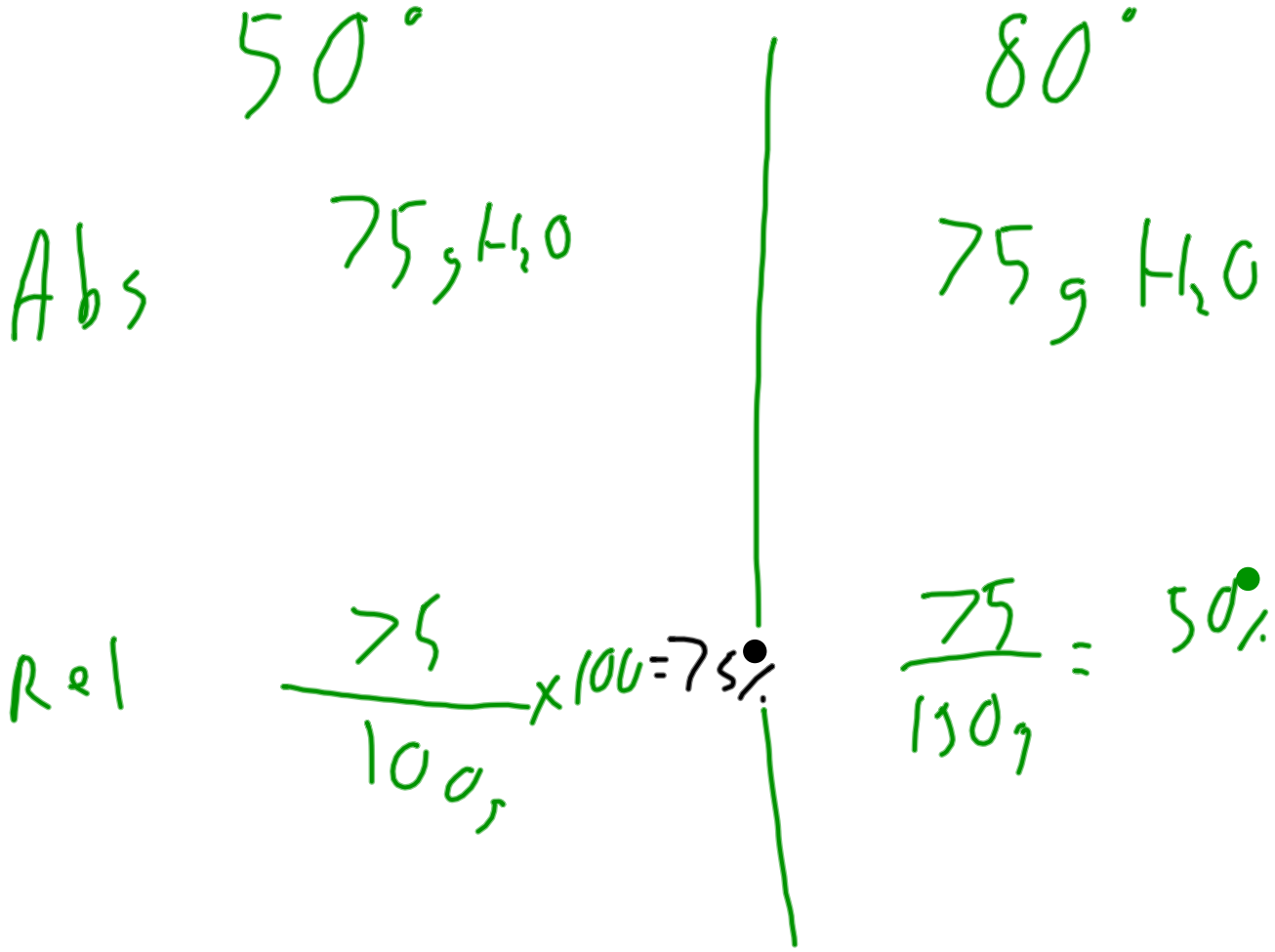
Dew point: at constant pressure and water vapor content, the temperature at which the rate of condensation equals the rate of evaporation

The point where air can no longer hold any more moisture

Absolute Humidity: the mass of water vapor per unit volume of air that contains the water vapor. Usually expressed as grams of water vapor per cubic meter of air

Relative Humidity: the ratio of the amount of water vapor in the air to the amount of water vapor needed to reach saturation at a given temperature.

Condensation Nuclei: A solid particle in the atmosphere that provides the surface on which water vapor condenses


50°
80°
Abs
75 g H2O
75 g H2O
Rel
75 / 100 x 100 = 75%
75 / 150 = 50%

Q. What is the water cycle, what generates it's motion?

A. The movement of water from bodies of water to the atmosphere, back to the earth and again. The sun powers this cycle.

Q. What layer does the water cycle mostly occur in?

A. Troposphere

Q. When the sun changes surface/ocean water into vapor, where is this water going?

A. Into the atmosphere.

Q. What makes the water fall back down to earth?

A. The vapor cools, condenses (changes from gas to liquid) and collects, becomes too have and fall pack to earth as precipitate.

Q. What happens to air as the water vapor continuities to accumulate?

A. Becomes more dense and Humid.

Q. Can the air continue to hold more and more water vapor, or is there a point at which it can no longer hold any more?

A. There is a limit, it is called Saturation. The point at which the rate of condensation equals the point of evaporation, known as Dew Point

Q. How do we measure Saturation of water?

A. We use Relative Humidity, % of water vapor compared to how much vapor it can hold at given temp.

Q. Why does the east coast feel so much more humid than the west coast if they are both at 70% humidity?

A. Relative humidity is based off of how much moisture can be in the air at a given temperature, if the east coast if warmer, it can hold more water in the air?

Q. Can we measure how much water is in the air regardless of temperature?

A. Yes, it is Absolute Humidity.

Q. What happens when the temperature drops below the Dew Point?

A. Liquid water forms

Q. Can liquid water (or solid water) form with just other gasses around or does it need a solid to form on?

A. It needs a structure that is cooler than the Dew Point. Ex. grass, car window, Condensation Nuclei (particles floating in the air such as dust, salt that allow liquid water to form)

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Q3 What Layer does most weather occur in?

Q4 What are condensation nuclei, why are they important?

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LT I can describe dew point, condensation nuclei and explain the difference between relative and absolute humidity.

Q3 What Layer does most weather occur in?

A3 Troposphere

Q4 What are condensation nuclei, what are they important?

A4 They are objects such as dust, salt, grass that allow water vapor to condense into liquid water. Without them, there would be no rain and the water cycle would stop!!!

Get the HW Packet cover slip out

This unit we need to fill it out every day.

Date	Lecture	Warm Ups	Notes Vocab ✓	HW	Quiz/ Project