20 minute midterm review

1. Density

Density is a term used to describe how much matter is inside of an object

To calculate density we find out the mass of an object and divide it by its volume

(d=m/v)

Example: An Elephant may be the same size as a hot air balloon, but which one is more dense? Which one has more matter on the inside?

Example: A hot air mass is the same size as a cold air mass. Which one holds more gas molecules (matter) ?

2. Gravity

Gravity is a force.

The force of gravity causes you to feel the weight of an object.

Without gravity there is no weight! Therefore, weight depends on gravity.

On Mars….we ALL weigh less :)

3. Compare origins of universe vs. solar system

When did our universe form?

When did our solar system form?

4. Hydrogen Fusion

Hydrogen fusion is a process that takes place in the Sun. Two hydrogen atoms fuse together to form 1 helium atom.

What is another name for Hydrogen Fusion?

How does the sun produce energy? What is the name of this process?

5. Measuring Length

If you want to measure the length of a soccer field, would you use a:

a: measuring cup

b. Scale

c. Meter Stick

d. Thermometer

6. Density of Water

The density of water is 1.0 g/m3 that means:

Every cubic meter of space can hold 1.0 gram of water.

Q: If an object’s density is 5.2g/m3, will it sink or float if you place it in water?

A:?

7. Greenhouse Gas

Carbon Dioxide and water vapor trapa heat in the atmosphere and don’t allow radiation to rise all the way through the atmosphere.

In order to get energy, we sometimes burn materials like coal.

When we burn coal, Carbon Dioxide is released into the atmosphere.

What effect will this have on the amount of greenhouse gases? What effect will this have on Earth’s temperature?

8. Air Pressure

If you increase the number of molecules in a mass of air, what will happen to the weight of the air mass?

What term is used to describe the force felt by the weight of air?

9. Low Air Pressure System Movement

Low pressure systems typically follow the direction of Earth’s rotation as they move across N. America.

What is the direction of Earth’s rotation?

10. Measurement in our Atmosphere

What tool is used to measure air pressure?

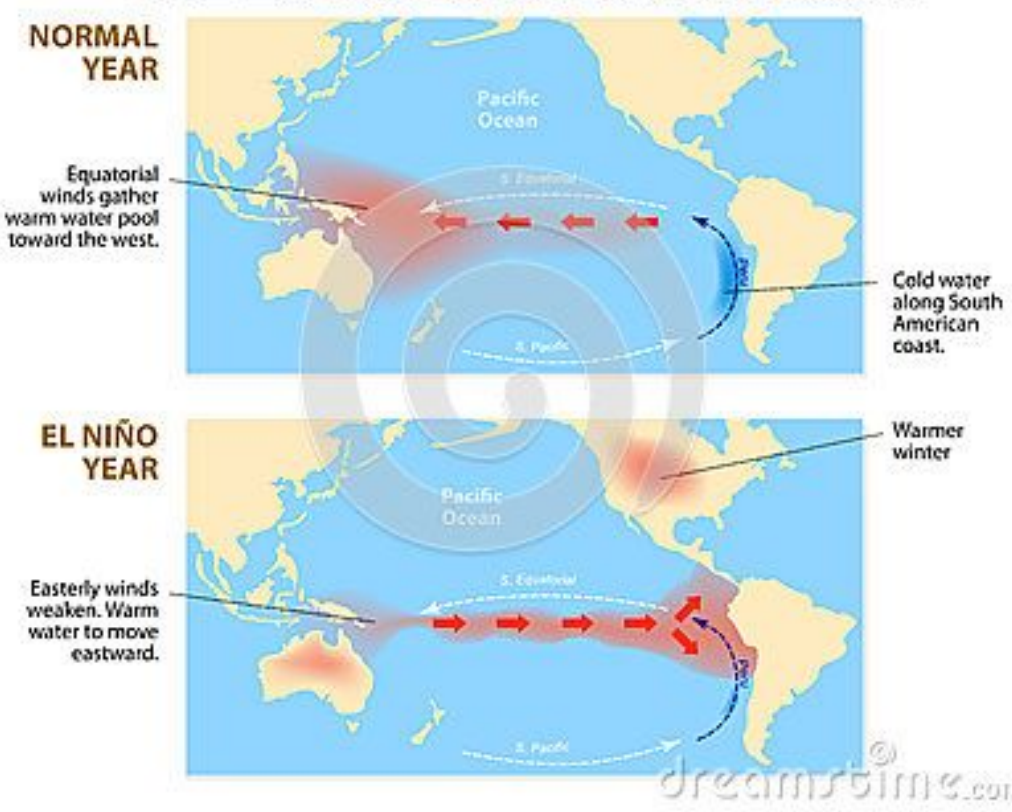
What tool is used to measure wind?

What tool is used to measure humidity?

What tool is used to measure temperature?

11. El Nino

El nino is the term used to describe a warm countercurrent (against normal currents) that occasionally moves along the coasts of countries like Peru and Ecuador.



12. El Niño and Cooler Waters

An El Niño occurs when waters in the eastern Pacific Ocean off the coast of northern South America are unusually warm.

When that happens, it generates upper-level winds over the Atlantic. Those dry winds make it more difficult for tropical storms to form.

13. Volcanoes and Earth’s temperature

Sometimes when volcanoes erupt they release ash into the air. This ash now serves as a cloud that blocks solar radiation from reaching Earth’s surface.

Knowing this information- what will happen to the temperature of an area if volcanoes keep erupting?

14. Clouds!

What does nimbo mean? Dark and Rainy

What does cumulus mean? This pile of round, puffy, masses

What should cumulonimbus mean?

What kind of precipitation comes from a cumulonimbus cloud?

15. Hurricane=low pressure center= cyclone

The richter scale is used to measure an earthquake-what scale is used to measure a hurricane?

Which way are winds moving at the surface during a hurricane?

16. Air Masses

Using the words, wet, dry, hot, and cold - describe each air mass:

mT

mP

cT

cP

17. Anticyclone vs. Cyclone

Which one brings good weather?

Which one brings bad weather?

Which one has a Low Pressure center?

Which one has High Pressure center?

18. Fossil Fuels

When humans started burning coal (fossil fuel)- the amount of greenhouse gases began to increase in the atmosphere. Greenhouse gases trap heat in our atmosphere and cause temperatures to rise.

Therefore during the 20th century temperature on Earth’s surface began to rise as a result of burning more fossil fuels

19. Winds

What is the relationship between solar radiation and wind?

> **Think: We call it a seabreeze because the wind flows from the sea toward the land**
>
> **Think: We call it a land breeze because the wind flows from the land to the sea**

What does this tell you about how winds are named?

What effect is responsible for the deflection of winds on Earth?

20.

Think: In order for a 77F air mass to reach saturation, it needs 20 g/kg of water vapor.

How do I know this?

Q: If a 15C air mass has reached saturation, how much water vapor is in the air mass?

Table 1 Water Vapor Needed for Saturation

Temperature		Water Vapor Content at Saturation (g/kg)
°C	(°F)	
−40	(−40)	0.1
−30	(−22)	0.3
−20	(−4)	0.75
−10	(14)	2
0	(32)	3.5
5	(41)	5
10	(50)	7
15	(59)	10
20	(68)	14
25	(77)	20
30	(86)	26.5
35	(95)	35
40	(104)	47

The End! Good Luck :)