Composition of Our Atmosphere

COMPOSITION OF THE ATMOSPHERE **NAME** _____

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
12	20	26	18	22	9	3	4	19	17	19	16	23	8	14	10	24	15	21	5	6	1	25	7	2	11

22 12 15 5 4 21 12 5 23 14 21 10 4 22 15 22 18 21 28 12 18 22

6 10 14 9 8 18 5 15 14 3 22 8 14 7 2 3 22 8 26 12 15 20 14 8

18 13 14 7 13 18 22 25 12 5 22 15 1 12 10 14 15 12 8 18

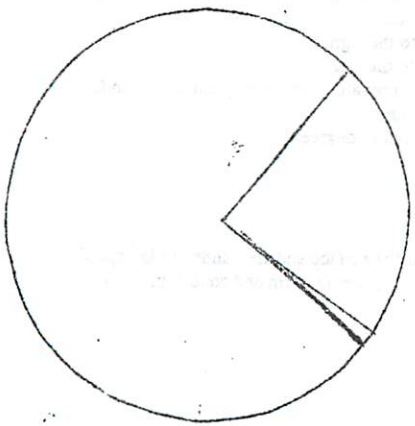
23 12 8 2 14 5 4 22 15 5 12 21 22 21 8 13 5 15 14 3 22 8

19 21 5 4 22 23 14 21 5 26 14 23 23 14 8 3 12 21 13 8

5 4 22 12 5 23 14 21 10 4 22 15 22 14 7 2 3 22 8 13 21

5 4 22 21 22 26 14 8 18 23 14 21 5 12 20 6 8 18 12 8 5 3 12 21

19 8 5 4 22 12 5 23 14 21 10 4 22 15 22



See pg 393, figure 1

Label the circle graph with the appropriate title, gases, and percentage

On page 394, under water vapor, find the answer to this question

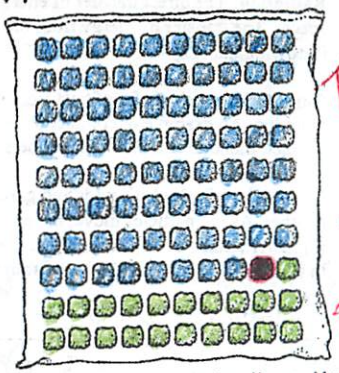
IS AIR DRY?

AIR BAGS

The chart below lists 11 most abundant gases found in the lower part of Earth's atmosphere. Use the colored marshmallows and the percentage wheel to guess the amount of each gas. You will need to use white marshmallows for the gas you think is the most abundant. Use the other colors for the rest. Make sure you only put 100 marshmallows in the bag.

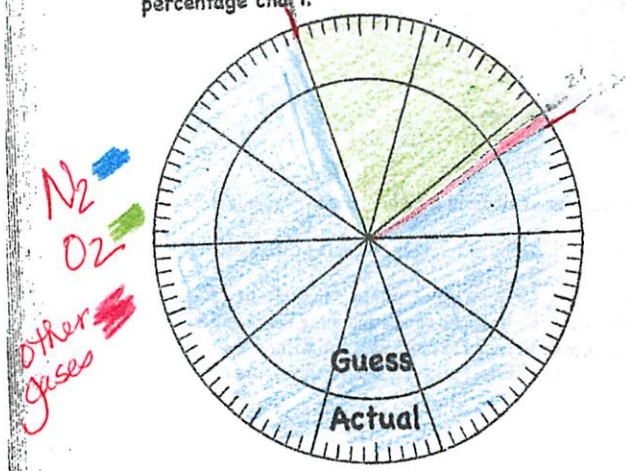
Gases in the Atmosphere

Argon
Carbon Dioxide
Helium
Hydrogen
Methane
Neon
Nitrogen
Nitrous Oxide
Oxygen
Ozone
Water Vapor



Use the same color code to record your guesses on the inside circle of the percentage chart.

Color code the marshmallows. Use the chart to make a color key.



After you have read the rubber band book, color the outside circle of the percentage chart to show the actual results.

Temperature is measured with a thermometer. Temperature is the average amount of energy of motion of each particle of a substance. The temperature measures how hot of cold something is. **See page 415 to define Thermal energy. (total energy of motion of particles in a substance)**

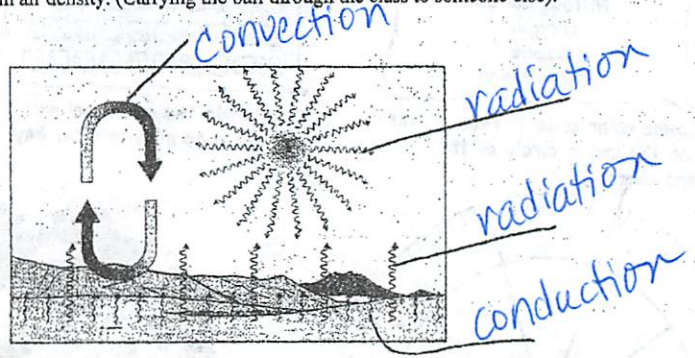
Freezing point water Celsius 0 °C	**Freezing point of water Fahrenheit 32 °F**
Boiling point water Celsius 100 °C	**Boiling point of water Fahrenheit 212 °F**

How is heat transferred?

Radiation: The direct transfer of energy by electromagnetic waves traveling through space. The transfer of energy from the Sun to the Earth's surface is due to radiation. (throwing the ball)

Conduction- the transfer of heat from one substance to another that is in contact or touching. An example of conduction is the transfer of energy and water to air by direct contact. (hand the ball to the other person)

Convection- In fluids (liquids and gases) particles can move easily from one place to another. As the particles move, the energy goes along with them. In the troposphere, heat is mostly transferred by convection. Convection causes transfer of heat causes differences in air density. (Carrying the ball through the class to someone else).



Winds: Wind is the horizontal movement of air from a higher pressure to a lower pressure.
Wind patterns on the Earth's surface are caused by differences in heating (unequal heating) of the atmosphere and the coriolis effect.
As air heats, it expands and becomes less dense. As it becomes less dense, the air pressure decreases. If air is not heated as much, it will be cooler and more dense and a higher pressure. Air that is cooler is more dense, and has more pressure will flow underneath air that is warmer, less dense, and has less pressure. This forces warm air to rise. Heat rises…cool sinks.

We measure wind with an **anemometer.**
When the wind blows and flows over your skin it removes body heat and makes the air feel colder. This is the **wind- chill factor.**

Local winds blow over short distances and are caused by unequal heating of the Earth's surface within a small area. Local winds form when large scale winds are weak. There are two types of local winds: sea breeze and land breeze.
Sea Breeze- Unequal heating occurs along the shore of a large body of water (lake, ocean). It takes more energy to warm up water than land, so the land will warm up quicker and form an area of low pressure. The high pressure from the cooler air above the ocean will blow towards the low pressure and moves under the warm air on land causing a sea breeze. The wind blows from the ocean to towards the land. This occurs during the daylight.

Land Breeze- A land breeze occurs at night and is the opposite effect of the sea breeze. Here the cooler air is over the land and the warmer air is over the sea as the water does not loose heat as fast as the land. The wind now blows from cooler higher pressure from the land towards warmer lower pressure over the sea. The wind blows from land out toward sea.

Global winds: Global winds blow steadily in specific directions over long distances. The global winds are caused by unequal heating of the Earth. A series of wind belts circle the Earth. Warm air rises at the equator and cold air sinks at the poles. Between the wind belts are calm areas where the air is rising or falling.

** **The coriolis effect-** As the Earth rotates on its axis, this causes ocean currents and air currents to curve and not to go in a straight line from poles to equator.
Winds in the northern hemisphere turn to the right
Winds in the southern hemisphere turn to the left.
The major global wind belts are polar easterlies, prevaling westerlies, and trade winds.
The calm areas are the horse latitudes and doldrums.
Latitude is the distance from the equator measured in degrees.

See the work sheets for local and global winds.

Jet Stream is about 10 kilometers above the earths surface and are bands of high speed winds. The Jet streams travel around the Earth (wandering north and south) in wavy path.