

Lesson: Atmospheric Variables

I Can.../Main Ideas

Notes

I can define weather

Weather is the condition of the _____ in the atmosphere at a given _____ and _____.

Variables - _____, air pressure, _____, cloud cover, _____, etc.

I can name the 3 scales for temperature & how to use the ESRT chart

3 scales are: (ESRT pg _____) _____, _____, and _____.

I can name the instrument used to measure temperature

Temperature is measured using a _____ (liquid filled glass tube)

Temperature is modeled on maps or charts by using _____ (_____)

I can describe air pressure & use the ESRT

When air rises in the atmosphere it _____ & its temperature _____ (ESRT pg _____)

Pressure & Density are _____

The denser the atmosphere the _____ the weight & therefore the _____ the pressure

_____ (ESRT pg _____)

I can name the instruments used to measure pressure

Mercury _____ (inches of _____)

Aneroid _____ (_____)

I can explain how moisture in the air affects density & pressure

Water weighs less than the _____ or _____ that it replaces, which is why the more _____ in the air the _____ the pressure & density.

As the temperature of air increases the density & pressure _____

| Type of Gas | Relative Molecular Weight |
|---|---------------------------|
| N = N ₂ , nitrogen molecules | 14 |
| O = O ₂ , oxygen molecules | 16 |
| W = H ₂ O, water molecules | 10 |

Dry air: More air pressure

Air with water vapor: Less air pressure

As the altitude increases the density & pressure _____

Lesson: Wind

I Can.../Main Ideas

I can define wind

Notes

_____ movement of air parallel to earth's surface

Named from the _____ they come _____

Caused by _____ in air pressures

Air pressure gradient - _____ in air pressure for a specific _____

_____ the isobars = _____ Pressure Gradient & _____ Wind Speed

Winds move from: Areas of _____ pressure to areas of _____ pressure

Coriolis Effect (_____) causes winds to move

- _____ Northern Hemisphere
- _____ Southern Hemisphere

I can explain what causes wind



I can name the instrument used to measure wind

_____ - Instrument used to measure wind speed, Measured in _____ & _____
 _____ tells the direction of the wind

I can describe planetary winds & use the ESRT

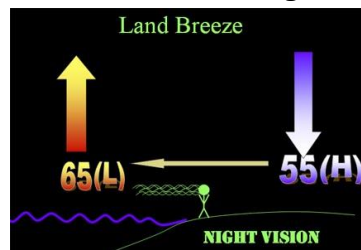
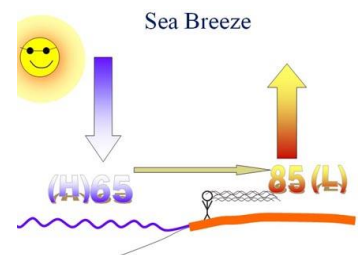
Unequal heating of Earth causes huge _____
 _____ around Earth (ESRT pg _____)

Bands of _____ moving air at the top of the _____
 _____ called _____, blow _____ miles an hour or more

I can describe local breezes

SEA BREEZE

Air blows from the _____ onto the _____ during the _____



LAND BREEZE

Air blows from the _____ out to _____ at _____

Monsoons: -Similar to _____ scale _____/_____

breezes. Causes _____ weather changes

I can understand
water currents & use
the ESRT

Caused by _____ blowing over the _____ &

transferring _____ to the water

Direction of Currents is affected by: (ESRT pg _____)

1) _____

2) _____ of Earth

3) _____ by _____

Lesson: Humidity & Dew Point

I Can.../Main Ideas

Notes

I can define
atmospheric moisture &
describe how it enters
the atmosphere

Amount of moisture in the air is _____

3 states of matter - 1) _____, 2) _____

3) _____

Gaseous water in the atmosphere is called _____

Water vapor enters the atmosphere by:

- _____ - _____ changes to _____

- _____ - _____ release water vapor

- _____ - change of phase from _____
to _____ (NO _____ phase)

I can describe factors
that increase &
decrease evaporation

Factors INCREASING evaporation:

1. _____ available.

2. _____ in _____

of the water

3. _____ speed

Factors DECREASING evaporation

1. _____ in _____ of the air

I can describe humidity & how temperature affects it

Absolute Humidity - _____ of water _____ present in the air

Moisture Capacity - _____ amount of water vapor the air _____

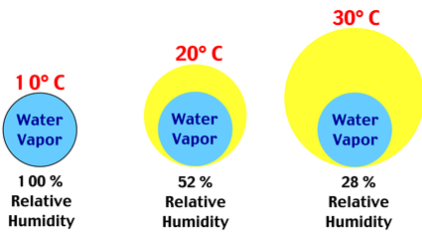
Relative Humidity - _____ between _____ & _____

HOT AIR HOLDS _____ MOISTURE THAN _____ AIR

1) Temperature _____ but amount of water vapor remains the SAME, then the Relative Humidity will _____.

2) Temperature _____ but amount of water vapor remains the SAME, then the Relative Humidity will _____.

3) Temperature remains the SAME, but MORE water vapor is added, then the Relative Humidity will _____.



I can name the instrument used to measure humidity

Instrument used to measure is called a _____

Smaller the difference between the _____ & _____ bulb temperature the _____ the air

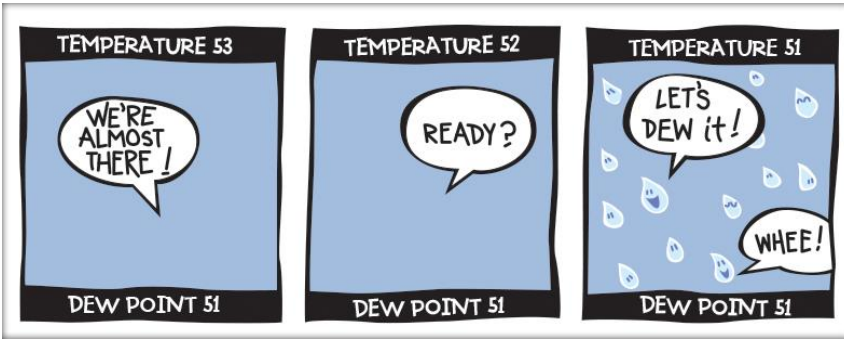
I can define Dewpoint

Temperature at which the air becomes _____ with water vapor & the _____ is _____%

Air drops BELOW the _____ will occur (_____ FORM)

I can explain cloud formation

1. _____ Air _____
2. _____ & _____
3. Reaches its _____
4. _____ (_____ Formation)
5. _____



If the _____ and the _____ are the same or almost the same you get _____ (any precipitation)

Relative Humidity & Dewpoint Chart is on ESRT pg _____

Lesson: Air Masses

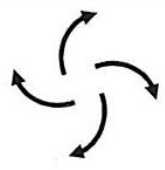
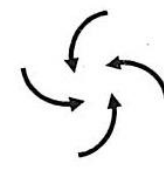
I Can.../Main Idea

Notes

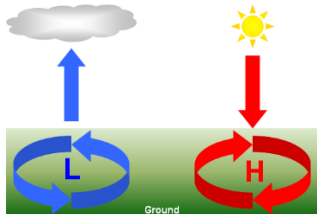
Review

Weather Factors Associated with Different Pressure Areas

- Fill in the blanks below using the terms in the center of this chart.
- Draw an arrow on the line provided at the center, top of the chart to show the direction the wind blows (from _____ pressure to _____ pressure).

| High Pressure | | Low Pressure |
|--|--|---|
| Air moves _____ Air is _____ Air is _____ There are _____ There is _____ | _____ (in / out) (rising / sinking) (warm / cold) (clouds / no clouds) (Precipitation /no precipitation) Use the diagrams to the left and right to determine if the air is moving clockwise or counterclockwise around the center of the pressure system. (clockwise / counter clockwise) | Air moves _____ Air is _____ Air is _____ There are _____ There is _____ |
|  | |  |
| Air moves _____ | | Air moves _____ |

I can describe high & low pressure systems



Higs (_____)

- Winds blow _____
- Coriolis effect causes highs to move _____
- _____ temp
- _____ Air



Draw arrow on the word High & label the HOC & the key to playing ice hockey →

High

H _____
 O _____
 C _____
 k _____
 e _____
 y _____

and



I can describe the four different weather fronts

Lows (_____) -

- Winds blow _____ toward the _____
- Coriolis effect causes lows to move _____
- _____ temp
- _____ air

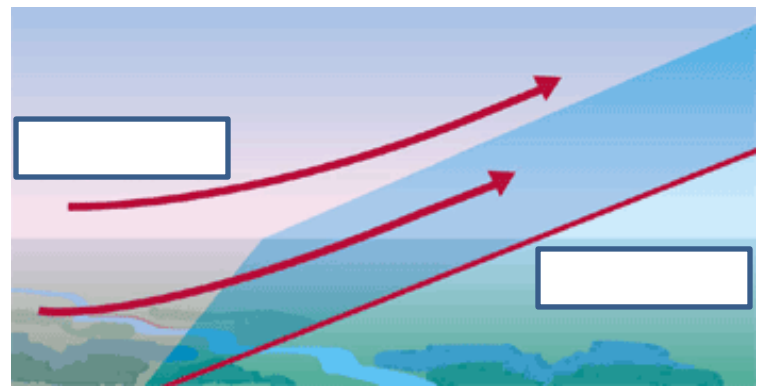
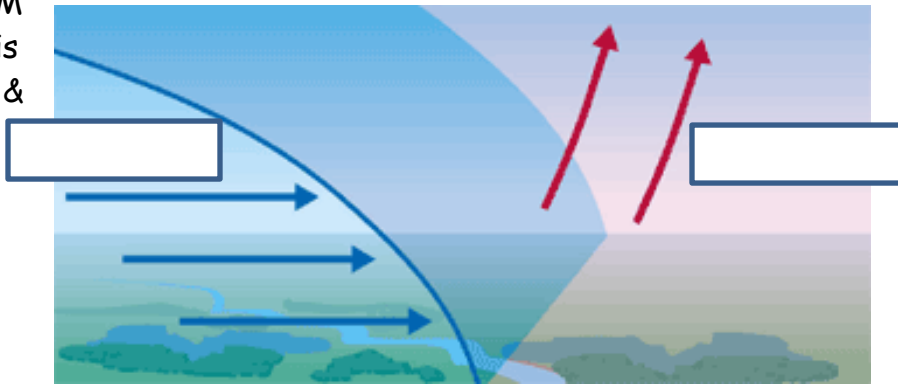
Draw arrow on the word Low & label the LICC & what happens when a dog licks you →

L _____
 I _____
 C _____
 C _____

Low

 and

Make sure to LABEL the COLD air & WARM air & where the rain is occurring on the cold & warm fronts



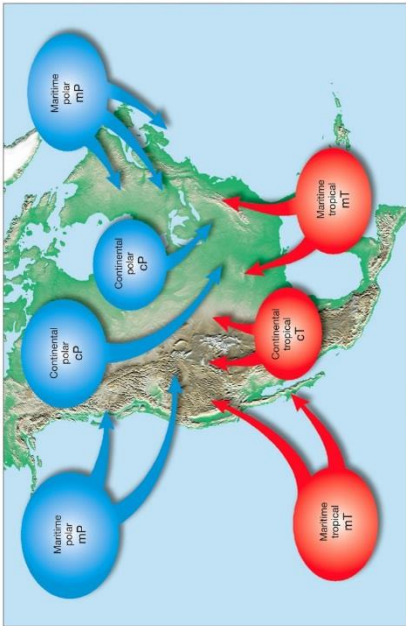
Draw symbols for occluded & stationary fronts

Occluded Symbol _____

Stationary Symbol: _____

ESRT pg _____

I can describe what an air mass is & where it came from



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ESRT Pg _____

Lesson: Storm Safety

I Can.../Main Idea

I can describe safety precautions for a thunderstorm



I can describe safety precautions for a tornado



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Air Mass - large _____ of _____ with _____ characteristics of _____, _____, & _____.

- An air mass forms when a _____ mass of air remains _____ for a period of time acquiring _____.

Source Regions - where air masses _____

Temperature:

High Latitude → _____ Low Latitude → _____

Humidity:

Land → _____ Water → _____

m = _____ c = _____

T = _____ P = _____

Notes

Thunderstorm Safety

- Stay _____ & _____ from windows
- If in your car, stay _____ the _____
- If _____, stay _____ to the _____ & away from _____ objects

Ex: trees & lampposts

Tornado Safety

- Go into a _____ or storm _____
- If None
 - Stay away from _____
 - Stay away from _____ objects
 - If in a _____, try to get _____ an _____

I can describe safety precautions for a blizzard



Blizzards are dangerous winter storms that are a combination of _____ and _____ resulting in _____.

- Stay _____
- Dress _____ & keep _____
- Have _____ & _____
- Have _____ & back up _____ source if the power goes out

I can describe safety precautions for a hurricane



- Board or _____ windows & _____
 - Especially in coastal areas due to _____
- If you can't leave
 - Make sure you have _____ & _____ supplies
 - _____, _____, _____, _____ etc.