2.5 I can understand the structure of and processes within our atmosphere.

What is Meteorology?

The study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How does Weather and Climate differ?

**Weather** is constantly changing and it refers to the state of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Climate is based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that have been collected over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to help describe a place or region

**Atmosphere**

Purpose: provides a suitable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for organisms as it absorbs only small amounts of UV rays

Greenhouse Gas Effect:

|  |  |  |
| --- | --- | --- |
| Main Components | Layers | Description |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– 78%  (Greenhouse Gas) | Thermosphere (hottest) | farthest from Earth  Temperature **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**with height |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – 21%  (Greenhouse Gas) | Mesosphere | Temperature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with height |
| CO2 < 1%  (Greenhouse Gas) | Stratosphere | Temperature remains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then gradually starts to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  contains ‘good’ ozone |
| Argon < 1% | Troposphere  (coldest) | closest to Earth, contains the ‘bad’ ozone due to air pollution -**WEATHER** |

Ozone

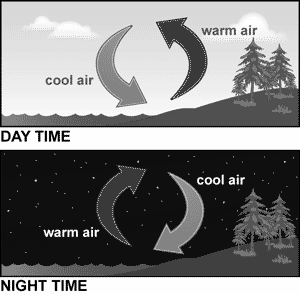
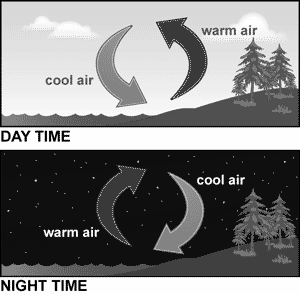
* Ozone is a form of oxygen that combines \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into each molecule (O3)
* Ozone filters and absorbs harmful \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by the sun

**Water in Atmosphere**

1. Precipitation is any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that falls from a cloud.
2. When it comes to understanding atmospheric processes, water vapor is the most important gas in the atmosphere

**Land and Water Temperatures**

1. Land \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during higher temperatures than water
2. Water – takes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to heat up and cool down



Coastal Climates

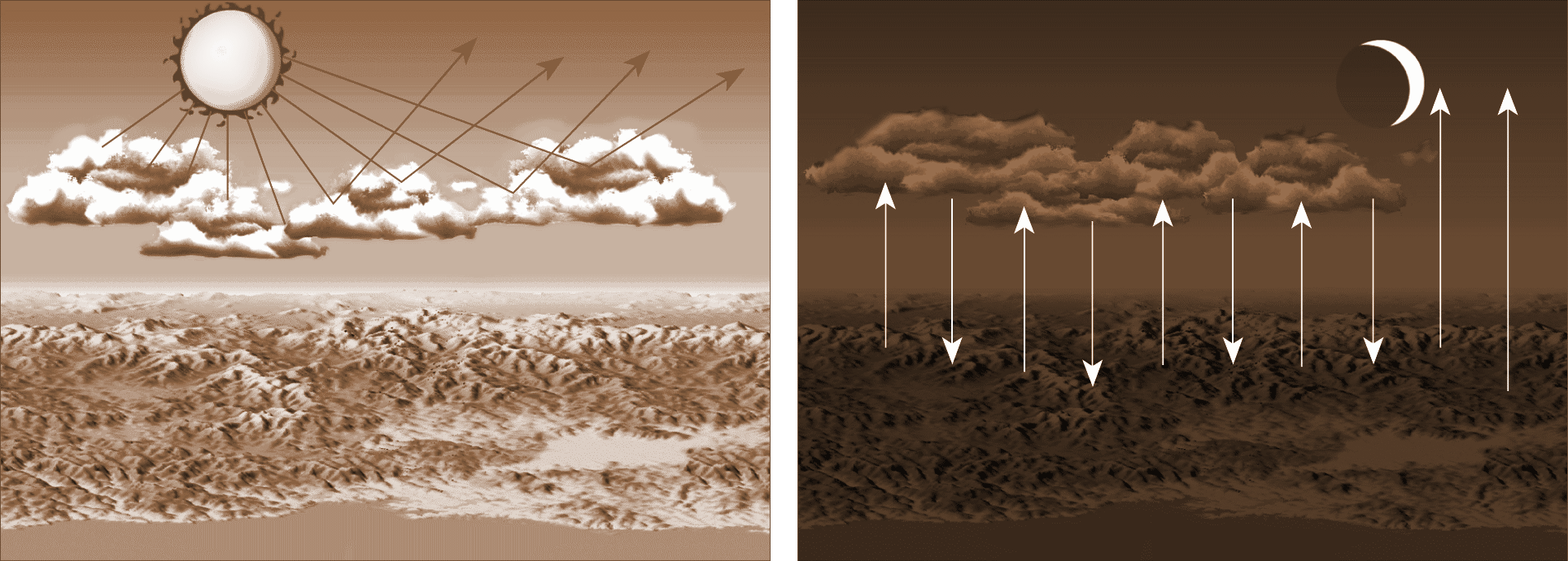
The oceans heat up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_but retain the heat for a \_\_\_\_\_\_\_\_\_\_ period of time.

Sea Breezes blow \_\_\_\_\_\_\_\_\_\_\_\_\_bringing rain and \_\_\_\_\_\_\_\_\_\_\_the land in the summer.

In the winter, the coastal climates are warmer and generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cloud Cover

Daylight Cloud Cover --- Temperatures are **lower** than on a **clear day**  
Nighttime Cloud Cover ---Temperatures are **higher** than on a **clear night**



Isotherms - a line on a map connecting points having the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at a given time or on average over a given period

Ways Heat can be Transferred

1. Conduction: objects touching
2. Convection: mass movement or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within a substance
3. Radiation: through rays of heat

Humidity

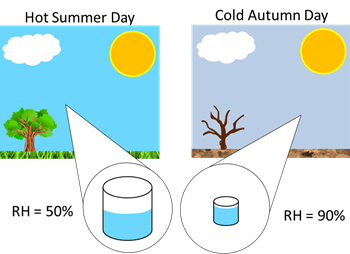
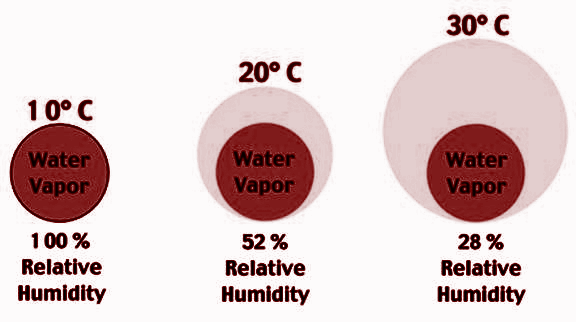
amount of water vapor in air

Relative Humidity

Ratio of the air’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_ water-vapor content compared with the amount of water

vapor\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at that\_\_\_\_\_\_\_\_\_\_\_ and pressure.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ air temperature =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in relative humidity

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ air temperature = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in relative humidity  


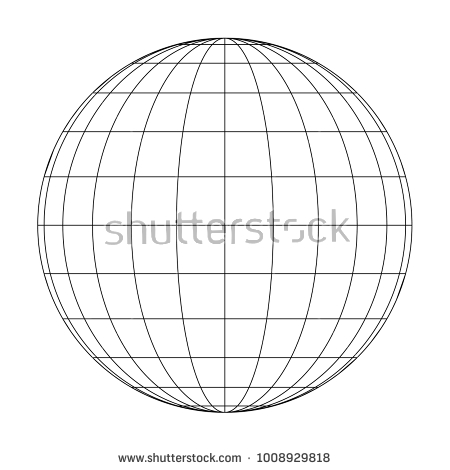
Dew Point

Dew point is the temperature to which a parcel of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to reach saturation.

Severe Weather

**Wind**: Air flows from areas of **\_\_\_\_\_\_\_\_\_\_\_\_**pressure to areas of  **\_\_\_\_\_\_\_\_\_\_\_**pressure.

****

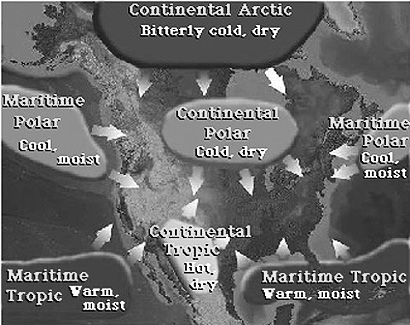
**Low Pressure System vs. High Pressure System**

|  |  |  |
| --- | --- | --- |
|  | **Low** | **High** |
| Air | Sinking | Rising |
| Pressure Behavior | Pressure drops = Cyclone | Pressure increases = Anticyclone |
| Wind Behavior | Winds blow \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Wind blows outward and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Weather Associated | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Symbol | “L” that is RED | “H” that is BLUE |



Topic: Air Masses

Air mass is an immense body of air that is characterized by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at any given altitude



|  |  |  |
| --- | --- | --- |
| NAME  P – Polar | LOCATION  \_\_\_\_\_\_\_\_\_\_\_Latitudes towards the poles | TEMPERATURE  \_\_\_\_\_\_\_\_\_\_\_ Temps |
| T – Tropical | \_\_\_\_\_\_\_\_ Latitudes towards the equator | \_\_\_\_\_\_\_\_\_\_\_\_ Temps |
| C – Continental | Over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mass | Cold or warm, depending on the latitude |
| M – Maritime | Over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Cold or warm, depending on the latitude |

Four Main Types of Air Masses

|  |  |
| --- | --- |
| **cP** – Continental Polar  dry and cool  **cold and dry in winter and**  **summer** | **cT** – Continental Tropical  dry and warm  **hot, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** conditions |
| **mT** – Maritime Tropical  wet and warm  source of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in the United States | **mP** – Maritime Polar  wet and cold  **mild, humid, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** cold air from Canada |

**Isobars**: lines on a map that connect places of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Closely spaced isobars: indicate a steep pressure gradient and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ winds.

Widely spaced isobars: indicate a weak pressure gradient and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ winds.

Topic: Air Fronts

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cold Front | Warm Front | Stationary Front | Occluded Front |
| Symbol |  |  |  |  |
| Profile/  Description | Cold air mass moves into an area \_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_ air. | Warm air \_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_ a cold, dense air mass | The \_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the front does not move | When an active cold front \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a warm front |