**Weather Unit Study Guide**

**Layers of the Atmosphere:**

1. Describe the composition of Earth’s atmosphere. (Include the percentages of gases.)

**78% nitrogen, 21% oxygen, 1% other (argon, water vapor, and carbon dioxide)**

1. Name the 5 layers in order from lowest to highest altitude.

**Troposphere, Stratosphere, Mesosphere, Thermosphere, Exosphere**

1. How does the temperature differ between the layers?

**As altitude increases, temperature in the: Troposphere decreases,**

 **Stratosphere increases,**

 **Mesosphere decreases,**

 **Thermosphere increases,**

 **Exosphere decreases**

1. How does the air pressure differ from layer to layer?

**Air pressure decreases as altitude increases.**

1. What is the ozone layer and where is it located?

**The ozone layer is a protective layer found in the Stratosphere that blocks harmful Ultra-Violet light.**

**Water Cycle:**

1. List the seven steps of the water cycle and define each step. \*\*\*FOCUS ON THE FIRST 6\*\*\*

**Sun=Energy Source (evaporates the water)**

**Precipitation: rain, sleet, snow, or hail that falls to the ground**

**Evaporation: when water is moved from the Earth into the air**

**Condensation: when water vapor changes from a gas to a liquid stat as it is cooled**

**Runoff: water being moved from Earth’s surface to oceans**

**Transpiration: plants lose water out of their leaves and it evaporates**

**Groundwater: when water from precipitation soaks into the Earth**

**Accumulation: precipitation collects in large bodies of water**

1. Define relative humidity. How does temperature of the air effect how much water vapor it can hold?

**The amount of moisture in the air compared to how much moisture it could hold at a particular temperature. The warmer the temperature the more water vapor air can hold.**

**Air Masses and Fronts:**

1. What is an air mass?

**A large body of air with similar temperature and moisture content.**

1. List the 4 types of air masses and the characteristics of each.

**Maritime Tropical (mT): humid and warm**

**Maritime Polar (mP): humid and cold**

**Continental Tropical (cT): dry and warm**

**Continental Polar (cP): dry and cold**

1. What is a front?

**A boundary between different air masses.**

1. What are the 4 types of fronts and how do they form?

**Warm Front: warm air mass slowly moves over cold, denser air**

**Cold Front: cold air mass violently crashes under a warm air mass**

**Stationary Front: cold air mass meets a warm air mass and remains separate**

**Occluded Front: warm air mass gets caught between two cold air masses**

**Severe Weather:**

1. How are hurricanes formed?

**Hurricanes form over warm water in low pressure systems**

1. How are tornados formed?

**Tornados form over land in an unstable atmosphere**

**Forecasting:**

1. Explain the differences between weather and climate.

**Weather: conditions of a certain area over a short period of time**

**Climate: average conditions of an area over a long or extended period of time**

1. List the technologies used to study weather.

**Barometer: measures air pressure**

**Thermometer: measures temperature**

**Anemometer: measures wind speed**

**Wind sock/vane: measures wind direction**

**Doppler radar, computers, hygrometers/psychrometers, weather balloons, and satellites**

1. What kind of weather is associated with each of the four fronts? Draw the symbols used to represent each front on a weather map.
	1. Warm Front: **gentle rain, followed by clear/warm temperatures**



* 1. Cold Front: **thunderstorms, heavy rain/snow, followed by cool temperatures**



* 1. Stationary Front: **cloudy, wet weather**



* 1. Occluded Front: **cool temperatures with large amounts of rain and snow**



1. How are low pressure systems different than high pressure systems?

**High pressure systems bring clear, calm weather (happy weather)**

**Low pressure systems bring clouds and stormy weather (lousy weather)**