

Name _____

Study the following information:

Ocean and Climate: The Sun heats the world's oceans. Water has a much higher heat capacity than land. This means that water holds heat for a longer time and releases heat slower than land. Oceans help even air temperatures by cooling land during the summer and warming land during the winter.

The weather near bodies of water is usually windy. Remember, wind occurs when air moves from an area of high pressure to an area of low pressure. Ocean winds move clouds, air masses, fronts and ocean currents. Ocean currents bring warm and cold water to different parts of the world, affecting air temperatures.

Oceans also provide water vapor, which leads to precipitation and storms throughout the world. In tropical areas of the world, warm ocean water will cause air to heat and rise. Tropical air usually contains a lot of moisture since tropical ocean water evaporates at a high rate due to sunny, warm temperatures. For this reason, hurricanes develop in tropical parts of the world.

Earth's Tilt and Climate: The tilt of the earth and the earth's orbit around the sun causes seasons. The hemisphere "pointing toward" the sun is in summer, while the opposite hemisphere is in winter. The earth makes one full orbit around the sun each year.

Tilt- The earth currently has an axial tilt of about 23.5°. Due to this tilt, the sun shines more directly on the Northern or Southern Hemisphere during the summer and less directly during the winter.

Axis- Invisible line joining the North Pole and South Pole about which the earth rotates daily.

Revolution- 365.24-day orbit around the sun.

Atmosphere: A moving blanket of air that surrounds the earth.

Air mass: An air mass is a large body of air that has the same temperature as the land or water beneath. Air masses often move and collide with other air masses. Air temperature is the most important cause of changes in the weather.

Front: A front is a boundary between two different air masses. Fronts cause us to experience different types of weather.

Cold front: A cold front refers to a cold air mass moving into an area of warm air. Hot or warm air rises and tall clouds form. Cold fronts cause rain and thunderstorms. Cold fronts often move quickly. Cold fronts can produce tornadoes.

Warm front: A warm front causes warm air to rise above cold air. Wide rain clouds form. Warm fronts produce rain or drizzle.

Stationary front: A cold and warm air mass that remains next to each other, in one place. Stationary fronts produce days of precipitation.

Occluded front: A layer of warm air is cut off from the ground and pushed upward by cold air. Wind and precipitation results.

Greenhouse Effect: Greenhouse gases, such as carbon dioxide, water vapor and methane, surround the earth's atmosphere and make up the ozone layer. This layer protects the earth from harmful UV rays from the sun and prevents some of the earth's heat from escaping. Without greenhouse gases, the Earth's average temperature would be -18 degrees Celsius (0 degrees Fahrenheit).