Name _____ Date _____ Class _____

Key Concept Summaries

Air Masses

What Are the Major Air Masses?

An **air mass** is a huge body of air in the lower atmosphere that has similar temperature, humidity, and air pressure at any given height. **Four major types of air masses influence the weather in North America: maritime tropical, continental tropical, maritime polar, and continental polar. Maritime** air masses form over the ocean and can be very humid. **Continental** air masses form over land, and are drier than maritime air masses. **Tropical** air masses are warm, form in the tropics, and have low air pressure. **Polar** air masses are cold, form near the poles, and have high air pressure. In North America, most air masses move from west to east. The **jet stream** is a band of high-speed wind about 10 kilometers above the surface of Earth that pushes air masses along. **Fronts** occur along the boundaries between air masses. Changeable weather develops along fronts.

What Are the Main Types of Fronts?

Colliding air masses can form four types of fronts: cold fronts, warm fronts, stationary fronts, and occluded fronts. When a faster cold air mass runs into a slower warm air mass, a cold front forms. The cold air slides under the warm air. As the warm air rises, it cools and condenses, often resulting in heavy rain or snow. When a faster warm air mass runs into a slower cold air mass, a warm front forms. The warm air slides up over the cold air, possibly causing light rain or snow. When a cold air mass and warm air mass collide, but neither displaces the other, a stationary front occurs. Water vapor in the warm air condenses into rain, snow, fog, or clouds, lingering for days. When a warm air mass is caught between two cooler air masses, the warm air is pushed up and an **occluded** front forms. (The warm air mass is cut off, or occluded, from the ground.) Temperatures at the ground get cooler, and it may get cloudy and rain or snow.

What Weather Do Cyclones and Anticyclones Bring?

A swirling center of low-pressure air is called a **cyclone.** In the Northern Hemisphere, cyclones spin counterclockwise when viewed from above. **Cyclones and decreasing air pressure are associated with clouds, wind, and precipitation.** An **anticyclone** is the opposite of a cyclone. **The descending air in an anticyclone generally causes dry clear weather.**

On a separate sheet of paper, describe what will happen when a fast-moving cold air mass heading due east from the Rocky Mountains runs into a slow moving warm air mass heading northeast over the Gulf of Mexico.