Name _____ Date _____ Class _____

Key Concept Summaries

Clouds

How Do Clouds Form?

Clouds form when water vapor in the air condenses to form liquid water or ice crystals. Two conditions are required for condensation: cooling of the air, and the presence of particles in the air. When air cools, water vapor in it condenses into tiny droplets of water. The temperature at which condensation begins is called the **dew point.** Before water vapor can condense and form clouds, it must have a surface on which to condense. These surfaces are small particles of dust, smoke, and salt crystals. Liquid water that condenses from the air onto a cooler surface is called dew. Ice deposited on a surface that is below freezing is called frost.

What Are the Three Main Types of Clouds?

Scientists classify clouds into three main types based on their shape: cirrus, cumulus, and stratus. Each type of cloud is associated with a different type of weather. **Cirrus** clouds are wispy and feathery. They form at high altitudes, usually above 6 km, and at low temperatures. Cirrus clouds are made of ice crystals and indicate fair weather. **Cumulus** clouds look like cotton. They form less than 2 km above the ground, but they may extend upward as much as 18 km. Short cumulus clouds usually indicate fair weather, but towering clouds with flat tops often produce thunderstorms. They are then called cumulonimbus clouds. (The suffix *–nimbus* means "rain.") **Stratus** clouds form in low, flat layers covering most or all of the sky. They are dull gray and may produce drizzle, rain, or snow. They are then called nimbostratus clouds.

Clouds are further classified by their altitude. Clouds that form between 2 and 6 km above Earth's surface have the prefix *alto-*, which means "high." Altocumulus and altostratus clouds are higher than regular cumulus and stratus clouds, but lower than cirrus clouds. Altocumulus and altostratus clouds indicate precipitation. Clouds that form near the ground are called fog.

On a separate sheet of paper, analyze the names of the following cloud types: altostratus, cumulonimbus, and cirrocumulus. Describe each type, and explain where in the atmosphere it forms and what type of weather is usually associated with it.

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