4. anticyclone: the rotation of air around a high-pressure center in the direction opposite to Earth's rotation

SECTION: SEVERE WEATHER

1. thunderstorm: a usually brief, heavy storm that consists of rain, strong winds, lightning, and thunder
2. lightning: an electric discharge that takes place between two oppositely charged surfaces, such as between a cloud and the ground, between two clouds, or between two parts of the same cloud
3. thunder: the sound caused by the rapid expansion of air along an electrical strike
4. tornado: a destructive, rotating column of air that has very high wind speeds, is visible as a funnel-shaped cloud, and touches the ground
5. hurricane: a severe storm that develops over tropical oceans and whose strong winds of more than 120 km/h spiral in toward the intensely low-pressure storm center

SECTION: FORECASTING THE WEATHER

1. thermometer: an instrument that measures and indicates temperature
2. barometer: an instrument that measures atmospheric pressure
3. anemometer: an instrument used to measure wind speed

Section Review

SECTION: WATER IN THE AIR

1. Sample answer: Relative humidity is the amount of water vapor that the air ontains compared with the maximum amount of water vapor that the air can hold at a given temperature. Conden sation is a process that occurs when air reaches its saturation point. A cloud is a mass of air that contains millions of condensed water droplets. Precipitation is solid or liquid water that falls from a cloud.
2. C
3. If the amount of water vapor in the air increases, the relative humidity also increases.
4. The air contains 75% of the maximum amount of water that the air can hold at a given temperature.
5. Sample answer: Water evaporates from Earth's surface and rises into the atmosphere. The air cools as it rises. As the air cools, water condenses and falls as precipitation. The precipitation falls to Earth.
6. rain, snow, sleet, and hail
7. Sample answer: Clouds that form at high altitudes are usually colder than clouds that form at lower altitudes. The cold, high-altitude clouds can be composed of ice crystals.
8. Sample answer: Cumulonimbus clouds can be very tall. Rain can form at the bottom of the cloud, and hail can form near the top of the cloud.
9. As the air temperature drops below the dew point, relative humidity increases to the saturation point and condensation occurs.
10. a cumulus cloud
11. Cumulus clouds form when warm, moist air rises.
12. Sample answer: Cumulus clouds usually indicate fair weather. However, when cumulus clouds grow large, they can become cumulonimbus clouds, which often produce thunderstorms.

SECTION: AIR MASSES AND FRONTS

1. Sample answer: An air mass is a large body of air that has a similar temperature and moisture level throughout. A front is a boundary between two air masses.
2. Sample answer: A cyclone is an area of low pressure with winds that spiral toward the center. An anticyclone is an area of high pressure with winds that flow outward.
3. A
4. continental polar, maritime polar, maritime tropical, and continental tropical
5. The North Pacific Ocean is one source region for maritime polar air masses.
6. A cP air mass is very cold and dry. It forms over areas near the poles, such as northern Canada.

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