Name _____ Date _____ Class _____

Note-taking Worksheet

The Atmosphere in Motion

Section 1 The Atmosphere

A. _____—a layer of gases surrounding Earth

B. The atmosphere is composed of gases, water and other liquids, and microscopic particles of solids.

1. Many _____ are in the atmosphere.
   a. _____ makes up 78%
   b. _____ makes up 21%
   c. _____ is responsible for clouds and precipitation.
   d. _____ keeps Earth warm and is used by plants to make food.
2. _____—solids such as dust, salt, pollen, and tiny acid droplets in the atmosphere

B. _____—the amount of water vapor in the air

1. _____ affects how much moisture is in the air.
2. _____—when the air is holding as much water vapor as it can
3. _____—a measure of the amount of water vapor present compared to the amount that could be held at a specific temperature

C. The atmosphere is divided into _____.

1. _____—from surface to about 10 km
   a. Contains most clouds and _____
   b. Most of the troposphere's _____ is from Earth.
   c. Temperature cools about 6.5 degrees Celsius per kilometer of _____.
2. _____—from 10 km to 50 km above Earth, this layer contains ozone that absorbs much of the Sun's ultraviolet radiation.
3. _____ layers include the mesosphere (50 to 85 km above surface), thermosphere (85 to 500 km above surface), and the exosphere.
   a. _____—coldest layer with little ozone
   b. _____—warms as it filters out X-rays and gamma rays from the Sun
   c. _____ contains few atoms and extends into space without a clear boundary

D. _____—makes up about 70% of Earth's surface

Meeting Individual Needs

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Note-taking Worksheet (continued)

E. _____—water is in constant motion.

1. _____ provides water cycle's energy.
2. Water on the surface absorbs heat and _____, entering the atmosphere.
3. _____—water vapor changes back into liquid.
4. Clouds of water become heavy and water falls to Earth as _____.
5. The cycle _____ itself continuously.

Section 2 Earth's Weather

A. _____— the atmosphere's condition in terms of temperature, cloud cover, wind speed and direction, humidity, and air pressure

1. _____—a measure of how fast air molecules are moving
   a. When molecules are moving rapidly, temperature is _____.
   b. When molecules are moving slowly, temperature is _____.
2. Energy is _____ between fast-moving molecules and slower-moving molecules.
   a. _____—transfer of energy when molecules collide
   b. _____ occurs when warm air rises and cool air sinks.
3. _____—air weight that varies over Earth's surface
   a. Warmer air is less dense and exerts _____ pressure.
   b. Cooler air is more dense and exerts _____ pressure.

B. _____—form when air rises, cools to its dew point, and becomes saturated

1. _____ clouds—form at 2000 m or less
   a. _____—puffy clouds formed when air currents rise and carry moisture
   b. _____—layered dull, gray sheets that can cover the entire sky
   c. _____—low, dark, thick layers that hide the Sun
2. _____ clouds—form between 2000 m and 8000 m
   a. Most are _____
   b. Names have _____ prefix
   c. Can produce light _____

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Note-taking Worksheet (continued)

3. High and _____ clouds
   a. _____—wispy, high-level clouds
   b. _____—high, layered clouds that can cover the sky
   c. _____—known as thunderstorm clouds; produce heavy precipitation

C. _____—falling water in the form of rain, freezing rain, sleet, snow, or hail

D. _____—air moving from one temperature or pressure area to another

1. _____—deflected air moves to the right in the northern hemisphere and to the left in the southern hemisphere.
2. _____ include the trade winds near the equator, the prevailing westerlies from about 30 degrees to 60 degrees latitude north and south of the equator, and the polar easterlies near the poles
3. _____—bands of strong winds near the top of the troposphere at the northern and southern boundaries of the prevailing westerlies

Section 3 Air Masses and Fronts

A. _____—large body of air that develops over a particular region; it acquires the characteristics of the area over which it occurs

B. _____—boundary between different air masses

1. _____—cold air mass pushes under a warm air mass and can cause a narrow band of violent storms; temperatures drop
2. _____—warm air mass slides up over a cold air mass; widespread precipitation develops
3. _____—warm air mass and cold air mass meet but neither advances; cloudiness and precipitation result
4. _____—fast-moving cold front overtakes a slower-moving warm front or vice versa; cloudy weather with precipitation

C. Centers of _____

1. _____ pressure—air sinks and spreads away from the high-pressure center; moisture cannot rise and condense; usually dry with few clouds
2. _____ pressure—air rises and cools forming clouds and precipitation

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Note-taking Worksheet (continued)

D. _____ weather—causes strong winds and heavy precipitation; can threaten property or life

1. _____—develop from cumulonimbus clouds that form along cold fronts; can have strong wind, dangerous hail, lightning and thunder
2. _____—violent, whirling wind that moves in a narrow path over land
3. _____—large storm that begins as an area of low pressure over tropical oceans; heat energy from moist air is converted to wind that can reach speeds of 250 km/h
4. The _____ monitors weather and issues watches when severe weather is a potential threat and warnings when severe weather is an actual threat.

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