Name _____ Date _____ Class _____

Lesson Outline

LESSON 3

Air Currents

A. Global Winds

1. The amount of energy an area receives is affected by the Sun's _____.

2. More _____ reaches Earth's surface at the equator than at the poles.

3. Low air pressure is usually located over the _____; high air pressure is usually located over the _____.

4. _____ is the movement of air from areas of high pressure toward areas of low pressure.

5. _____ wind belts influence weather and climate throughout the world.

B. Global Wind Belts

1. Scientists use a model that has three _____ to describe air circulation patterns in Earth's atmosphere.

2. In the first cell, hot air at the _____ moves to the top of the troposphere. Then the air moves toward the _____ until it cools and moves back to Earth's surface near the 30° latitude.

3. In the third cell, air from the _____ sinks and moves along Earth's surface toward the _____, warming up until it rises near the 60° latitude.

4. The first cell and the third cell are driven by _____.

5. The second cell lies between the 30° and 60° latitudes and is driven by the motion of the _____.

6. All three cells exist on both sides of the _____, in the northern hemisphere and the southern hemisphere.

7. Global winds appear to curve due to the _____.

a. The _____ are steady winds that flow toward the equator from east to west between the 30°N and 30°S latitudes.

b. The _____ are the prevailing winds that flow from west to east between the 60°N and 30°N latitudes and the 60°S and 30°S latitudes.

c. The _____ are cold winds that blow from the east to the west near the North Pole and South Pole.

Lesson Outline continued

8. A(n) _____ is a narrow band of high winds that are commonly near the top of the troposphere.

a. Jet streams flow from the _____ at up to 300 km/h, often making large loops from north to south.

b. Jet streams influence _____, moving cold air from the poles toward the equator.

C. Local Winds

1. _____ occur when air pressure differs from one location to another.

2. A(n) _____ is a wind that blows from the sea to the land due to local temperature and pressure differences.

a. On a sunny day, the air over land warms and _____, creating an area of _____ pressure. The air over the ocean does not warm as much; this cool air sinks, creating an area of _____ pressure.

b. The contrast in pressure causes a(n) _____ wind to blow across the water toward the land.

3. A(n) _____ is a wind that blows from the land to the sea due to local temperature and air pressure differences.

a. At night, the lands cools more quickly than the water, causing the air above the _____ to sink.

b. The _____ pressure over the land and _____ pressure over the water make the wind blow toward the water.