

Air Movement (p. 439 – 443)

I. Forming Wind

1. Define the term wind.

Wind – movement of air from an area of higher pressure to an area of lower pressure

2. Circle the letter of the following statements that are true concerning wind?

- P-439
- a. Winds are caused by differences in air pressure.
 - b. Winds are caused by differences in heating of the atmosphere.
 - c. Air near the equator is less dense, has less pressure, and expands while rising.
 - d. Air near the poles is dense, has higher pressure, and contracts while sinking.

3. Define the term Coriolis effect.

P-440 Right from Top View
Coriolis Effect – causes moving air + water to turn left in the Southern Hemisphere and turn right in the Northern Hemisphere due to Earth's rotation

4. Differences in solar heating of Earth and the Coriolis Effect create distinct wind patterns.

Circle One : True False

5. What instrument is used to measure wind direction? wind vane (Not in book.)
6. What instrument is used to measure wind speed? anemometer (Not in book.)
7. The increased cooling that wind can cause is called the wind chill (Not in book.)

II. Global Winds

1. Winds that blow steadily from specific directions over long distances are called

global winds.

2. Match each global wind system with the correct characteristics. (Refer to N. Hemisphere)

- P-441
- | | |
|-------------------------------------|--|
| 1. <u>E</u> - Doldrums | A. Windless zone around 30° latitude |
| 2. <u>D</u> - Trade Winds | B. Blow NE → SW between 60° and 90° latitude |
| 3. <u>C</u> - Prevailing Westerlies | C. Blow SW → NE between 30° and 60° latitude |
| 4. <u>R</u> - Polar Easterlies | D. Blow NE → SW between 0° and 30° latitude |
| 5. <u>A</u> - Horse Latitudes | E. Windless zone near the equator |

3. How did the trade winds get named?

Dependable early sailor trade routes.

4. What are the prevailing westerlies responsible for in the United States?

Movement of weather systems

5. What type of weather is produced each afternoon at the doldrums?

Rainy, stormy weather

6. How did the horse latitudes get named? (Not in the book.)

Horses thrown overboard to lessen weight

7. Define the term jet streams.

p. 442

Blow from west to east

Jet Streams - narrow belt of strong winds that blows near the top of the troposphere (50-250 mph) (300 miles wide) (4 miles high)

8. How do jet streams assist storms?

Moves them across the United States

9. What do jet pilots do when flying in a jet stream in the following directions :

Flying Eastward - Save time + fuel (wind-assisted)

Flying Westward - Fly at different altitudes (avoid winds)

III. Local Wind Systems

1. Winds that blow over short distances are called local winds.

2. Circle the letter of each sentence that is true about unequal heating of land and water. (Not in the book.)

a. Land warms up faster than water

b. During the day, air over land is warmer than air over water.

c. Land cools more quickly than water.

d. At night, air over water is cooler than air over land.

3. Define the term sea breeze.

p. 443

Sea Breeze - movement of air from sea to land during the day when cooler air from above the water moves over the land, forcing the heated, less dense air above land to rise

3. Define the term land breeze.

Land Breeze - movement of air from land to sea at night, created when cooler, denser air from the land forces up warmer air over the sea