

UNIT

EARTH'S ATMOSPHERE

Q2 Quarterly Assessment Review (Benchmark)

Key Concepts

Choose the letter of the best answer.

- ___ 1. Which of the following gases makes up less than 1 percent of air, but has important effects?

a. oxygen
b. nitrogen
c. carbon dioxide
d. argon

* Draw a pie chart of the gases in the atmosphere.

- ___ 2. Without the greenhouse effect of Earth's atmosphere,

a. none of the Sun's energy would ever reach Earth's surface
b. most of the Sun's energy would be returned quickly into space
c. all of the Sun's radiation would be absorbed by Earth
d. Earth's surface would become too hot to support life

* List 4 greenhouse gases! What is their main cause?

- ___ 3. One effect of air pollution may be

a. more ozone in the troposphere
b. fewer particulates in the troposphere
c. more ozone in the stratosphere
d. less chlorine in the stratosphere

* Which gas is the one that scientist are most worried about increasing?

- ___ 4. As altitude increases, which of the following is true?

a. air density decreases
b. air density increases
c. air temperature increases
d. wind speeds decrease

* Where in the atmos. is density the highest and the lowest?

- ___ 5. Atmospheric wind patterns are LEAST influenced by

a. the Coriolis effect
b. air pressure
c. the Sun
d. pollution

* Where is air pressure the highest and the lowest?

* What causes Global Wind Belts?

* How do Global winds influence local climates?

The * questions are super important!

- 6. Clouds form when
 - a. warm air sinks and spreads out
 - b. cool air sinks and becomes warm
 - c. cool air rises and spreads out
 - d. warm air rises and cools

* What are the steps in the H₂O Cycle?

* What is the main energy source for the H₂O cycle?

* Where on Earth does most evaporation occur? Why?

- 7. The movement of an air mass causes
 - a. only climate to change
 - b. only weather to change
 - c. both climate and weather to change
 - d. neither climate nor weather to change

* Why are maritime/marine climates so humid?

- 8. Large bodies of water produce
 - a. marine climates
 - b. continental climates
 - c. altitude
 - d. latitude

* What is the main characteristic of the following climates?

Continental _____
 maritime/marine _____
 Polar _____
 Tropical _____

- 9. Which layer of the atmosphere contains almost all of the H₂O vapor?

- a. Tropo.
- b. Strato.
- c. meso.

- 10. In which layer is the Ozone layer located?

- a. Tropo.
- b. Strato.
- c. meso.
- d. Thermo.

* How does smog form?

* What does the ozone layer do?

* How are the different layers of the atmosphere defined?

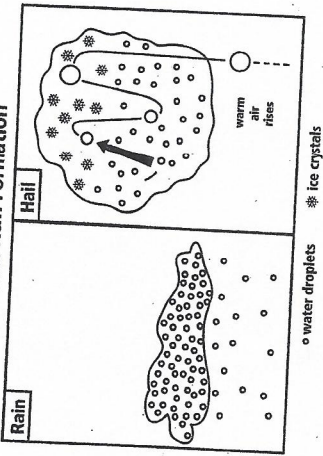
* What are the temperature patterns of the layers of the atmosphere?

* Explain land breezes and sea breezes. Draw a picture to help.

Interpreting Visuals

Using the diagram, answer the following questions. (6 points each)

Rain and Hail Formation



15. Look at the rain formation diagram. What would happen if the air below the cloud was below freezing?

16. Explain how the type of cloud pictured in the hail formation diagram may have formed.

17. Explain how fog is formed.

Extended Response

Answer the following questions on the back of this paper or on a separate sheet of paper. (6 points each)

18. **Describing** Identify and discuss three natural causes of climate change. Tell whether each change takes place quickly or slowly. Then tell how long each change may last.

19. **Synthesizing** Explain the greenhouse effect. Include the gases, type of radiation, and layer of the atmosphere that are involved. Then discuss the result of human activities on Earth's natural greenhouse effect.

20. What does each tool measure?

Thermometer _____

Barometer _____

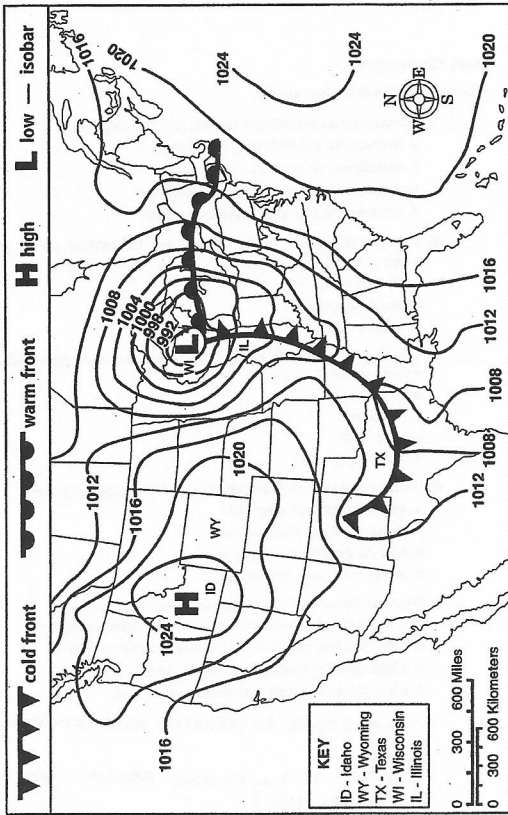
Psychrometer _____

Anemometer _____

Interpreting Visuals

Using the map, answer the following questions.

Weather Map



11. What are the lines that have numbers on the map, and what do they tell you about the weather?

12. Identify the type of front over Texas and the direction in which it is moving. How will the temperature be different after the front passes?

13. Most of Wyoming is between what two pressures?

14. There is a low-pressure area over Wisconsin that is affecting the weather in the Great Lakes area. Two fronts are shown associated with it. What would you most likely see over the Great Lakes on a satellite photo?

*What causes there to be air masses with different pressures?
(What causes differences in air pressure?)

Key Concepts

Choose the letter of the best answer.

1. A maritime tropical air mass is moist and warm, so it probably formed over
 - a. land near the equator
 - b. the ocean near the equator
 - c. land near the pole
 - d. the ocean near the pole
2. Which describes the air motion in a low-pressure system?
 - a. Air moves inward around the center and then moves upward.
 - b. Air moves around and outward from the center and then moves upward.
 - c. Air moves inward around the center and then sinks.
 - d. Air moves around and outward from the center and then sinks.
3. Clear skies and gentle breezes are usually associated with a
 - a. cold front
 - b. stationary front
 - c. high-pressure system
 - d. low-pressure system
4. Many hours of steady rain or snow are associated with a
 - a. warm front
 - b. cold front
 - c. continental polar air mass
 - d. continental tropical air mass

Extended Response

Answer the following question on the back of this paper or on a separate sheet of paper.

Write a paragraph that describes the movement of air from a high-pressure system to a low-pressure system. Include a description of both the vertical air movement within each system and air movement around the systems.

CHAPTER 3
Weather Fronts and Storms

Copyright © by McDougal Littell, a division of Houghton Mifflin Company

Key Concepts

Choose the letter of the best answer.

1. When an air mass reaches a new location, it brings its
 - a. temperature and altitude to the location
 - b. altitude and air pressure to the location
 - c. temperature and moisture to the location
 - d. moisture and precipitation to the location
2. A continental tropical air mass forms over land near the equator and is
 - a. dry and cold
 - b. dry and warm
 - c. moist and cold
 - d. moist and warm
3. What type of weather front forms when two air masses push against each other without moving?
 - a. warm front
 - b. cold front
 - c. polar front
 - d. stationary front
4. What type of weather is associated with a low-pressure system?
 - a. gentle breezes and clear skies
 - b. strong wind and precipitation
 - c. cold temperatures and clear skies
 - d. strong winds and clear skies
5. What conditions can lead to the formation of a hurricane?
 - a. a high-pressure system over the ocean far from the equator
 - b. a low-pressure system over the ocean near the equator
 - c. a high-pressure system over hot, dry land
 - d. a low-pressure system over snow-covered land

* What gives hurricanes their energy?

* When is hurricane season for the east coast of the US?

* Where do hurricanes form? (In general conditions)

CHAPTER 3
Weather Fronts and Storms

Copyright © by McDougal Littell, a division of Houghton Mifflin Company

Copyright © by McDougal Littell, a division of Houghton Mifflin Company

6. Which two effects of hurricanes can cause flooding?
 - a. dense clouds and a storm surge
 - b. strong wind and dense clouds
 - c. strong wind and heavy rain
 - d. heavy rain and a storm surge
7. Which of the following would be usual in a southern coastal state such as Florida?
 - a. ice storm
 - b. lake effect snow
 - c. thunderstorm
 - d. blizzard
8. How does a thunderstorm form?
 - a. Humid air rises rapidly and forms cumulonimbus clouds.
 - b. Dry air sinks rapidly and forms cirrus clouds.
 - c. Humid air sinks rapidly and forms cumulonimbus clouds.
 - d. Dry air rises rapidly and forms cirrus clouds.
9. Which of these is often a source of danger in both thunderstorms and winter storms?
 - a. ice
 - b. strong wind
 - c. lightning
 - d. tornadoes
10. Which of these would be most useful for studying cloud cover?
 - a. surface weather map with isobars
 - b. satellite images from infrared radiation
 - c. data charts of air temperatures
 - d. an informational map that shows pollution

CHAPTER 3
Weather Fronts and Storms