Answer Key

Directed Reading A

SECTION: CHARACTERISTICS OF THE ATMOSPHERE

1. A
2. C
3. A
4. C
5. B
6. C
7. air pressure
8. Answers may vary. Sample answer: As you move farther from the Earth's surface, there are fewer gas molecules above. As altitude increases, air pressure decreases.
9. Answers may vary. Sample answer: Some parts of the atmosphere are warmer because they contain a high percentage of gases that absorb solar energy. Parts of the atmosphere that are cooler contain less of these gases.
10. B
11. C
12. A
13. D
14. The atmosphere is divided into four layers based on temperature changes.
15. Answers may vary. Sample answer: Temperature rises as altitude increases because ozone in the stratosphere absorbs ultraviolet radiation from the sun, which warms the air.
16. ions
17. auroras

SECTION: ATMOSPHERIC HEATING

1. C
2. D
3. B
4. C
5. A
6. D
7. C
8. B
9. Answers may vary. Sample answer: Atmospheric gases, such as water vapor and carbon dioxide, absorb thermal energy and radiate it back to earth. The gases function like the glass walls and roof of a greenhouse, allowing solar energy to enter and preventing thermal energy from escaping.
10. radiation balance
11. global warming
12. Greenhouse gases are gases that absorb thermal energy in the atmosphere.
13. Answers may vary. Sample answer: the burning of fossil fuels and deforestation

SECTION: GLOBAL WINDS AND LOCAL WINDS

1. C
2. B
3. C
4. B
5. D
6. A
7. convection cells
8. pressure belts
9. Coriolis effect
10. C
11. D
12. A
13. B
14. E
15. jet stream
16. A
17. Answers may vary. Sample answer: Local geographic features, such as a shoreline or mountain, can produce temperature differences that cause local winds.

SECTION: AIR POLLUTION

1. air pollution
2. volcanic ash
3. Answers may vary. Sample answer: When primary pollutants react with other primary pollutants or with naturally occurring substances, secondary pollutants form.
4. Answers may vary. Sample answer: ozone, smog
5. Answers may vary. Sample answer: Ozone can damage the lungs.
6. Smog forms when sunlight reacts with ozone and vehicle exhaust.

Original content Copyright © by Holt, Rinehart and Winston. Additions and changes to the original content are the responsibility of the instructor.

7. Los Angeles is almost completely surrounded by mountains that trap pollutants and contribute to smog formation.
8. A
9. Answers may vary. Sample answer: burning fossil fuel; production of chemicals
10. Answers may vary. Sample answer: ventilation and limiting the use of chemical solvents and cleaners
11. C
12. B
13. B
14. Answers may vary. Sample answer: Eastern Europe, northeastern United States, eastern Canada
15. acid shock
16. C
17. The ozone hole allows more UV radiation to reach the Earth's surface.
18. UV radiation damages genes and causes skin cancer.
19. Answers may vary. Sample answer: Air pollution can cause coughing, headaches, an increase in asthma-related problems, and lung cancer.
20. C
21. Answers may vary. Sample answer: Industries may use pollution control devices such as scrubbers; industrial plants may burn fuel more efficiently so fewer pollutants are released.
22. Answers may vary. Sample answer: Car manufacturers place catalytic converters in cars to reduce pollution from exhaust; they make cars that run on hydrogen or natural gas; they make hybrid cars that use both gasoline and electric power.
23. Answers may vary. Sample answer: People can carpool, use public transportation, bike, or walk.

Directed Reading B

SECTION: CHARACTERISTICS OF THE ATMOSPHERE

1. C
2. B
3. C
4. C
5. B
6. B
7. D
8. B
9. D
10. B
11. C
12. A
13. D
14. B

SECTION: ATMOSPHERIC HEATING

1. C
2. C
3. B
4. A
5. A
6. B

SECTION: GLOBAL WINDS AND LOCAL WINDS

1. C
2. A
3. D
4. A
5. trade winds
6. doldrums
7. polar easterlies
8. westerlies
9. the horse latitudes
10. D
11. A
12. C

SECTION: AIR POLLUTION

1. C
2. B
3. A
4. A
5. D
6. B
7. A
8. D
9. B
10. C
11. D
12. C
13. A
14. B
15. D
16. A
17. B

Vocabulary and Section Summary

SECTION: CHARACTERISTICS OF THE ATMOSPHERE

1. atmosphere: a mixture of gases that surrounds a planet or moon
2. air pressure: the measure of the force with which air molecules push on a surface
3. troposphere: the lowest layer of the atmosphere, in which temperature decreases at a constant rate as altitude increases
4. stratosphere: the layer of the atmosphere that is above the troposphere and in which temperature increases as altitude increases
5. mesosphere: the layer of the atmosphere between the stratosphere and the thermosphere and in which temperature decreases as altitude increases

Original content Copyright © by Holt, Rinehart and Winston. Additions and changes to the original content are the responsibility of the instructor.