Teacher Guide and Answers

Study Guide – Chapter 14 – Climate

Section 14.1 Defining Climate

1. ✓
2.
3. ✓
4. ✓
5.
6.
7. The amount of solar radiation received at any place varies with latitude. Areas near the equator are warm because they receive the most direct solar radiation. Areas near the poles are cold because the Sun strikes them at a lower, less-direct angle.
8. A large body of water affects the climate of a coastal area by making it warmer in winter and cooler in summer than an inland area at the same latitude.
9. Because temperature decreases with altitude in the lower atmosphere, mountain climates are cooler than those at lower elevations at the same latitude. The climate can also be wetter and cooler on the windward side of a mountain than on the leeward side, where deserts can form.
10. The climate in and near regions of air-mass formation is fairly similar to that exhibited by the air masses themselves. For example, if a city is located where maritime tropical (warm and humid) air masses dominate the weather, the city's climate will have maritime tropical characteristics.

Section 14.2 Climate Classification

1. dry climate
2. continental climate
3. mild climate
4. polar climate
5. tropical climate
6. microclimate
7. heat island
8. precipitation
9. temperatures

Section 14.3 Climatic Changes

1. true
2. true
3. false
4. true
5. true
6. true
7. false
8. Because Earth is tilted, seasonal climatic changes occur as Earth revolves around the Sun and different areas of the planet receive varying amounts of solar radiation. During summer in the northern hemisphere, for example, the North Pole is tilted toward the Sun, and the northern hemisphere has longer hours of daylight and warmer temperatures. At the same time, the South Pole is tilted away from the Sun, causing the southern hemisphere to experience longer hours of darkness and colder temperatures. Also, the angle of the tilt varies every 41,000 years. Scientists theorize that these changes in angle cause seasons to become more severe.
9. Seasons on Earth will be reversed, meaning that winter will come in the northern hemisphere when Earth is farthest from the Sun and summer will come when it is closest. That is the opposite of what happens now. The result will be colder winters and warmer summers than we now experience.
10. d
11. a
12. a
13. b
14. b
15. c
16. b
17. d

18. d

Section 14.4 Impact of Human Activities

1. d
2. e
3. a
4. c
5. b
6. d
7. a
8. a
9. fossil fuels
10. true
11. deforestation
12. true
13. decreasing
14. temperature
15. To conserve energy, which reduces the consumption of fossil fuels, people can turn off appliances and lights when a room is not in use. (Answers for questions 15 through 17 can be in any order. Accept all reasonable answers.)
16. Turning down thermostats in winter conserves energy and reduces fossil fuel consumption.
17. Recycling conserves resources such as trees, decreasing deforestation.