7. Sample answer: Neptune is so far from the sun that expressing this distance in light-minutes would require a very large number. The distance is measured in light-hours, which is a smaller number than light-minutes.

SECTION: THE INNER PLANETS

1. Sample answer: A terrestrial planet is a planet that has a solid, rocky surface.
2. Answers may vary. Answers should indicate that retrograde rotation is counterclockwise and retrograde rotation is clockwise when viewed from above the planet's North Pole.
3. D
4. Sample answer: Unlike Earth, Venus has retrograde rotation, Venus's surface temperature is very hot, and Venus's atmosphere is very dense. Also, Venus's atmosphere contains destructive acids. Similarities between Earth and Venus include size, density, mass, and surface gravity.
5. Answers may vary. Answers should indicate that the period of rotation is the amount of time a planet takes to spin on its axis. The period of revolution is the amount of time the planet takes to make one trip around the sun.
6. Sample answer: Earth is warm enough to keep most of its water from freezing and cool enough to keep its water from boiling away. Living things depend on liquid water for survival.
7. The surface temperature of Venus is high because of a severe greenhouse effect.
8. 1.5 rotations per revolution (88 days/revolution ÷ 58.67 days/rotation = 1.5 rotations/revolution)
9. Answers may vary. Sample answer: We can learn about Earth's systems and how they interact.
10. Answers may vary. Sample answer: Some features on Mars might have resulted from the deposition of sediment in a lake. For this reason, some scientists think that Mars might have been a warmer place and had a thicker atmosphere in the past. If Mars had not been warmer and had a thicker atmosphere, a lake would not have formed.

SECTION: THE OUTER PLANETS

1. Sample answer: A gas giant is a planet that has a deep, massive atmosphere.
2. D
3. Answers may vary. Helium is currently falling out of Saturn's atmosphere and sinking to Saturn's core. So, scientists think that Saturn is still forming.
4. The atmosphere of Uranus is mainly hydrogen and methane gases, which absorb red light. As a result, Uranus appears blue green.
5. Charon is the largest satellite relative to its planet or dwarf planet in the solar system.
6. Sample answer: The Great Red Spot is a storm system on Jupiter that is more than 400 years old and is about 3 times the diameter of Earth.
7. Jupiter radiates energy because Jupiter's interior is very hot.
8. Sample answer: Gas giants are much larger and more massive than terrestrial planets are and gas giants have deep, massive atmospheres rather than hard, rocky surfaces.
9. Sample answer: Uranus is tipped over on its side. Uranus's axis of rotation is tilted so that the axis nearly parallel to the plane of Uranus's orbit. Each pole points toward the sun for part of Uranus's year.
10. About 40 AU (5.5 light-hours × 60 min/h = 330 light-minutes; 330 light-minutes ÷ 8.3 light-minutes/AU - 39.8 AU)
11. 208.7 light-minutes (4.2 light-hours × 60 min/h = 252 light-minutes; 252 light-minutes - 43.3 light-minutes = 208.7 light-minutes)
12. Answers may vary. Planets farther from the sun tend to have lower surface temperatures, are spaced farther apart, have much longer periods of revolution than the inner planets do, and are more likely to be gas giants. (This pattern does not necessarily apply to other solar systems.)
13. Sample answer: Gas giants have no definite surface. Their atmosphere blends smoothly into the dense layers of their interior.

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