Chapter Review

1. Sample answer: The terrestrial planets are the small, rocky planets of the inner solar system. The gas giants are the large, gaseous planets of the outer solar system.
2. Sample answer: Asteroids are small bodies made of rocky material, and comets are small bodies made of ice, rock, and cosmic dust.
3. Sample answer: A meteor is a streak of light that results from a meteoroid burning up in the atmosphere. A meteorite is a meteoroid that has passed through the atmosphere and struck the ground.
4. astronomical unit
5. meteoroid
6. prograde
7. satellite
8. D
9. D
10. A
11. D
12. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune
13. Sample answer: The inner planets are small, rocky, and closely spaced. The outer planets are large, gaseous, and far apart.
14. Sample answer: The gas giants are the large, gaseous planets of the outer solar system. In contrast, the terrestrial planets are the small, rocky planets of the inner solar system.
15. Asteroids are small bodies made of rocky material. Meteoroids are similar to asteroids but are much smaller.
16. The period of rotation is how long a planet takes to complete a turn on its axis. The period of revolution is how long a planet takes to orbit the sun.
17. Prograde rotation is counterclockwise when viewed from a planet 's North Pole. Retrograde rotation is clockwise when viewed from a planet's North pole.
18. Sample answer: The presence of liquid water makes Earth suitable for life. Earth's atmosphere also regulates temperature on Earth.
19. The current theory is that a collision with a Mars-sized object blasted part of Earth's mantle into space. This material formed the moon.
20. Answers may vary. Sample answer: As Earth and the moon revolve together around the sun, the side of the moon that faces Earth gets varying amounts of sunlight.
21. An answer to this exercise can be found at the end of the Teacher Edition.
22. Sample answer: Mercury's surface is covered with impact craters that record the planet's history. Earth's surface has only a few craters, which indicates that the rocks on Earth's surface are continually recycled.
23. Sample answer: The search for life should include areas where liquid water is present because life as we know it depends on liquid water for survival.
24. Sample answer: no; The far side of the moon gets as much sunlight as the near side does. As the moon revolves around Earth, the moon also rotates.
25. Answers will vary. If Europa were closer to the sun, it would heat up considerably. Europa is made mostly of ice, so much of its surface might melt to form oceans and an atmosphere.
26. Neptune's gravitational field prevented Uranus from following its predicted orbit. The irregular orbit of Uranus indicated to scientists that there was something, probably a planet, beyond Uranus.
27. Neptune is denser. It has a higher density value on the chart. (Neptune has a smaller volume and more mass, so its density is greater than Uranus's.)
28. The masses of Neptune and Uranus occupy a much larger volume than the mass of Earth does. (Density is the amount of mass that exists within a given volume of space.)

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