

ES - Chapter 23 Study Guide

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 1. Which of the following is NOT considered a terrestrial planet?
- a. Mars
 - b. Venus
 - c. Neptune
 - d. Mercury
- ___ 2. The largest of the terrestrial planets is
- a. Jupiter.
 - b. Earth.
 - c. Mars.
 - d. Uranus.
- ___ 3. The densities of the Jovian planets are
- a. not more than about 0.5 times the density of water.
 - b. not more than about 1.5 times the density of water.
 - c. from 3.9 to 5.5 times the density of water.
 - d. more than 5.5 times the density of water.
- ___ 4. According to scientists, the solar system formed from
- a. colliding planetesimals.
 - b. rotating stars.
 - c. colliding nebulae.
 - d. a rotating disk of dust and gases.
- ___ 5. Which of the following is one difference between the way terrestrial planets and Jovian planets formed?
- a. The terrestrial planets formed only from bits of ice.
 - b. The Jovian planets formed only from bits of ice.
 - c. The terrestrial planets formed only from metals and silicate minerals.
 - d. The Jovian planets formed only from metals and silicate minerals.
- ___ 6. How does the diameter of the terrestrial and Jovian planets compare?
- a. The diameters of the Jovian planets are much larger.
 - b. All but one of the terrestrial planets have diameters about equal to the diameters of the Jovian planets.
 - c. The diameters of the terrestrial planets are much larger.
 - d. All but one of the Jovian planets have diameters about equal to the diameters of the terrestrial planets.
- ___ 7. The fact that Mercury has no atmosphere is evidence that it
- a. reflects almost all of the sunlight that strikes it.
 - b. is composed almost entirely of gases.
 - c. is much farther from the sun than it appears.
 - d. reflects a small percentage of the sunlight that strikes it.

- ___ 8. One reason that life as we know it is unlikely to exist on Venus is because
- a. the surface temperature is too high.
 - b. the surface temperature is too low.
 - c. the surface has too much ice covering it.
 - d. there is no atmosphere.
- ___ 9. When viewed from Earth, Mars appears to change colors. This most likely happens because
- a. gases in the dense Martian atmosphere are constantly changing.
 - b. volcanic activity produces thick gas clouds.
 - c. dust storms lasting for weeks cause the atmosphere to change color.
 - d. active volcanoes on the Mars surface intermittently flood the surface with lava.
- ___ 10. What is the mass of Jupiter?
- a. $2\frac{1}{2}$ times the mass of Earth
 - b. twice the mass of all the terrestrial planets
 - c. about half the mass of all the Jovian planets
 - d. $2\frac{1}{2}$ times the mass of all the other planets and their moons
- ___ 11. Which of the Jovian planets have rings?
- a. only Saturn and Jupiter
 - b. Saturn, Jupiter, Uranus, and Neptune
 - c. only Saturn and Neptune
 - d. only Saturn, Jupiter, and Uranus
- ___ 12. Which planet has the lowest surface temperature of any planet and an atmosphere comprised mostly of nitrogen?
- a. Jupiter
 - b. Saturn
 - c. Neptune
 - d. Uranus
- ___ 13. Which planet has an axis of rotation parallel with the plane of its orbit?
- a. Jupiter
 - b. Saturn
 - c. Neptune
 - d. Uranus
- ___ 14. Most asteroids lie between the orbits of
- a. Jupiter and Saturn.
 - b. Mars and Jupiter.
 - c. Jupiter and Neptune.
 - d. Mars and Earth.
- ___ 15. Which of the following is true about asteroids?
- a. Asteroids rarely pass close to Earth.
 - b. Asteroids never actually collide with planetary bodies.
 - c. Recent impact craters on the moon were likely caused by asteroids.
 - d. Most asteroids are no larger than a grain of sand.

- ___ 16. Which of the following is true about comets?
- The orbits of comets do not take them past the Jovian planets.
 - Comets are held together by frozen gases.
 - All comets have long tails made of vaporizing gases.
 - The Oort cloud of comets is found between Neptune and Pluto.
- ___ 17. The Kuiper Belt is a region beyond Neptune containing
- comets with short orbit periods.
 - meteors smaller than 1 km across.
 - a dense collection of meteoroids.
 - comets with unusually large nuclei.
- ___ 18. Scientists have been able to estimate the age of our solar system by dating
- comets.
 - asteroids.
 - meteors.
 - meteorites.
- ___ 19. Which of the following is NOT a source of meteoroids?
- rocky chunks from neighboring solar systems
 - leftover interplanetary debris
 - material from the asteroid belt
 - the solid remains of comets

Completion

Asteroids	Comets	Earth	Elliptical	Jupiter's
Mars	Mercury	Meteorite	Meteoroids	Nebular
Oort Cloud	Planetesimals	Pluto	Shorter	Venus

20. One object, _____, was recently reclassified as a dwarf planet.
21. The period of rotation for any of the Jovian planets is _____ than Earth's period of rotation.
22. The formation of the solar system from a rotating disk of dust and gases is described by the _____ theory.
23. Planets were originally formed when bits of matter collided and clumped together to form _____.
24. Because of its many similarities to Earth, _____ has been referred to as "Earth's twin."
25. Some scientists believe that on _____, a thick, water-laden atmosphere once surrounded the planet, producing torrential downpours.

26. _____ satellite system resembles a miniature solar system with at least 63 moons.
27. _____ is the smallest planet in the solar system.
28. Pluto's orbit is very _____.
29. The orbits of most _____ lie between Mars and Jupiter.
30. The total mass of all the asteroids is estimated to be only 1/1000 that of _____.
31. _____ are pieces of rocky and metallic materials held together by frozen gases.
32. Comets with long orbital periods form a spherical shell around the solar system called the _____.
33. A few _____ are thought to be fragments of the moon, or possibly Mars, that were ejected when an asteroid impacted these bodies.
34. A meteoroid that reaches Earth's surface is called a(n) _____.

Short Answer

35. **Comparing and Contrasting** How do the atmospheres of the terrestrial and the Jovian planets differ?
36. **Applying Concepts** Explain why Pluto is no longer considered to be a planet.
37. What are Saturn's rings made of?

Planet	Average Distance from Sun		Period of Revolution	Orbital Velocity km/s	Period of Rotation
	AU	Millions of km			
Mercury	0.39	58	88 ^d	47.5	59 ^d
Venus	0.72	108	225 ^d	35.0	244 ^d
Earth	1.00	150	365.25 ^d	29.8	23 ^h 56 ^m 04 ^s
Mars	1.52	228	687 ^d	24.1	24 ^h 37 ^m 23 ^s
Jupiter	5.20	778	12 ^{yr}	13.1	9 ^h 50 ^m
Saturn	9.54	1427	29.5 ^{yr}	9.6	10 ^h 14 ^m
Uranus	19.18	2870	84 ^{yr}	6.8	17 ^h 14 ^m
Neptune	30.06	4497	165 ^{yr}	5.3	16 ^h 03 ^m

Figure 2

38. **Using Tables and Graphs** Which two planets have a period of revolution that is most similar to Earth's?
39. **Inferring** Based on Mercury's surface temperatures (-173°C to 427°C), what can you infer about the possibility of life existing on Mercury?

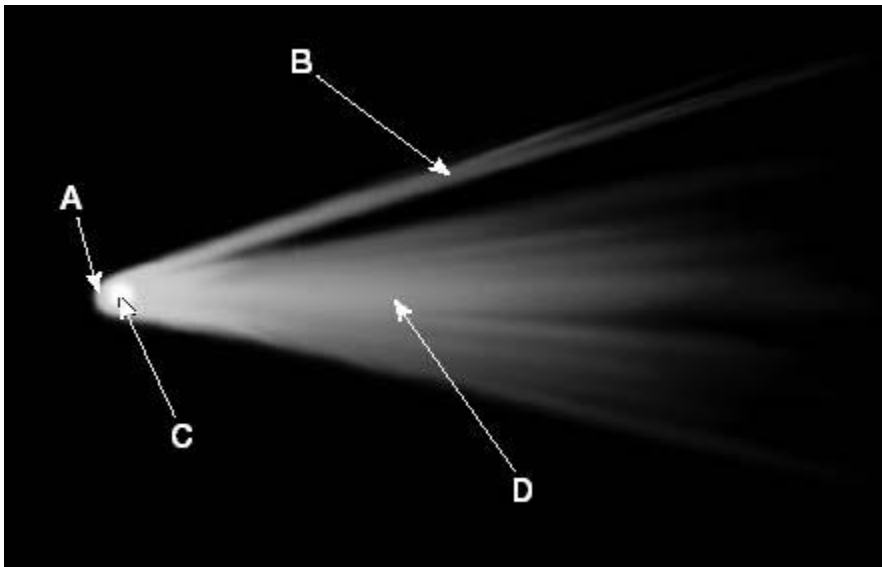


Figure 4

40. **Interpreting Graphics** – Identify the part of a comet represented by each letter.
- A) _____ C) _____
 B) _____ D) _____