Section: Satellites of Other Planets

1. What did Galileo discover in 1610?

2. Which two planets do not have moons?

3. What do Saturn, Jupiter, Uranus, and Neptune each have in addition to moons?

MOONS OF MARS

4. Name the moons of Mars and describe their orbits.

5. Describe the physical appearance of Mars’s moons.

6. Why do astronomers think that the moons of Mars are fairly old?
MOONS OF JUPITER

7. What are the four largest moons of Jupiter called?
   a. Galilean moons
   b. Cassini satellites
   c. gas-giant moons
   d. king’s satellites

8. How do Jupiter’s four largest moons compare with Earth’s moon?
   a. Two are larger.
   b. One is smaller.
   c. Three are larger.
   d. They all are smaller.

9. The innermost of Jupiter’s four large moons is
   a. Ganymede.
   b. Io.
   c. Callisto.
   d. Europa.

10. An engineer examining images from the Voyager spacecraft discovered
    a. another large moon.
    b. a crust of ice on Io.
    c. volcanoes on our moon.
    d. volcanoes on Io.

11. The lava on Io is much hotter than that on Earth because the lava there has more
    a. hydrogen and iron.
    b. magnesium and magma.
    c. nickel and sulfur.
    d. magnesium and iron.

12. Why do scientists think that Io’s volcanic material is mostly sulfur and sulfur dioxide?
    a. because parts of Io’s surface are dark and smooth
    b. because most of Io’s surface is covered by craters
    c. because parts of Io’s surface are yellow-red
    d. because most of Io’s surface is covered by ice

13. Io moves inward and outward in its orbit around Jupiter because of
    a. the gravitational pull of Jupiter’s other moons.
    b. the force of its own inertia.
    c. Jupiter’s gravitational pull.
    d. Jupiter’s magnetic field.
14. The inward and outward movements produce the differences in gravitational pull on opposite sides of Io called
   a. ionic forces.
   b. gravitational forces.
   c. tidal forces.
   d. magnetic forces.

15. The forces that pull Io back and forth cause its surface to also
   a. develop craters.
   b. move in and out.
   c. revolve more slowly.
   d. attract other moons.

16. The flexing of Io's surface causes friction that heats and melts Io's interior, leading to
   a. inertia.
   b. volcanism.
   c. tidal forces.
   d. magnetism.

17. Data from the Galileo spacecraft show that Io has a(n)
   a. iron core and a polar ice cap.
   b. magnetic field and an icy crust.
   c. giant iron core and perhaps a magnetic field.
   d. magnetic field and perhaps a rock core.

18. What is Europa?
   a. the moon closest to Jupiter
   b. the second closest Galilean moon to Jupiter
   c. the third closest Galilean moon to Jupiter
   d. the fourth closest Galilean moon to Jupiter

19. How does this moon compare with Earth's moon?
   a. It is about the same size but denser.
   b. It is smaller and much less dense.
   c. It is bigger and denser.
   d. It is about the same size and slightly less dense.

20. Scientists think Europa has a rock core that is covered with
   a. a thick layer of ice.
   b. oceans and seas.
   c. a thick crust of rock.
   d. rivers of lava.
21. What do scientists think might exist under Europa’s crust?
   a. petroleum and perhaps coal
   b. liquid water and perhaps petroleum
   c. coal and perhaps simple forms of life
   d. liquid water and perhaps simple forms of life

22. The third Galilean moon from Jupiter is ________________ .

23. Why does the third Galilean moon have a relatively small mass even though it is the largest moon in the solar system?

24. What are three features that appear on images of Ganymede’s surface?

25. What do Io and Ganymede possess that the other two Galilean moons do not?

26. The farthest Galilean moon from Jupiter is ________________ .

27. In what ways is Callisto similar to Ganymede?

28. Callisto has a surface covered with ________________ that are the result of collisions that occurred early in the history of the solar system.

**MOONS OF SATURN**

29. How many moons does Saturn have?
   a. 15
   b. more than 75
   c. dozens
   d. less than 100

30. Only Jupiter’s moon Ganymede is larger than Saturn’s largest moon, which is
   a. Olympus.
   b. Janus.
   c. Titan.
   d. Io.
31. Unlike any other moon in our solar system, Titan has
a. a thick atmosphere made of nitrogen.
b. a thick atmosphere made of oxygen.
c. oceans filled with water.
d. a core made of water.

32. Titan’s surface may contain lakes or oceans of
a. liquid water.
b. solid lava.
c. liquid methane.
d. frozen gases.

33. What shape characterizes Saturn’s smaller moons?
a. round
b. elliptical
c. irregular
d. elongated

34. In 2005, what space probe gathered information about Titan’s
atmosphere?
a. Galileo
b. Apollo
c. Cassini
d. Huygens

MOONS OF URANUS AND NEPTUNE

In the space provided, write the letter of the description that best matches the term
or phrase.

35. Triton
a. the fifth of Uranus’s moons to be
discovered

36. Miranda
b. one of Uranus’s largest moons

37. Uranus
c. planet with a moon named Triton

38. Oberon
d. Neptune’s icy moon, which travels in
a retrograde orbit

39. Neptune
e. planet with at least 24 moons

PLUTO’S MOONS

40. What size is Pluto’s moon Charon, compared with Pluto?
41. Why does one side of Pluto always face Charon?

42. What are the names of Pluto's other two known moons?

RINGS OF THE GAS GIANTS
43. When was Saturn's set of rings discovered?

44. Describe Saturn's rings. What are they composed of?

45. What was the early theory about the origin of Saturn's rings?

46. What is the current theory about the origin of Saturn's rings?
47. Describe Jupiter’s single ring.


48. How many rings does Uranus have?


49. Describe Neptune’s rings.

