**Astronomy chapter 3 test bank**

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. When do annular eclipses occur?

|  |  |
| --- | --- |
| a. | every solar eclipse |
| b. | when the moon is closest to the Earth |
| c. | only during full moon |
| d. | when the moon is farthest from the Earth |

\_\_\_\_ 2. Of the following, which is the largest body?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the moon | c. | Mercury |
| b. | Pluto | d. | Ganymede |

\_\_\_\_ 3. Which is NOT true about impacts?

|  |  |
| --- | --- |
| a. | They are very destructive. |
| b. | They can bring water to dry worlds. |
| c. | They only occurred as the solar system formed. |
| d. | They can help us do remote geology. |

\_\_\_\_ 4. Which of these planets does NOT have any moons?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Mercury | c. | Uranus |
| b. | Mars | d. | None of the above |

\_\_\_\_ 5. What is the most current theory for the formation of Earth’s moon?

|  |  |
| --- | --- |
| a. | The moon formed from a collision between another body and the Earth. |
| b. | The moon was captured by the Earth. |
| c. | The moon formed at the same time as the Earth. |
| d. | The moon formed by spinning off from the Earth early in its history. |

\_\_\_\_ 6. Liquid water cannot exist on the surface of Mars because

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the temperature is too hot. | c. | the gravity of Mars is too weak. |
| b. | liquid water once existed there. | d. | the atmospheric pressure is too low. |

\_\_\_\_ 7. Which of the following planets is NOT a terrestrial planet?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Mercury | c. | Earth |
| b. | Mars | d. | Pluto |

\_\_\_\_ 8. All of the gas giants have ring systems.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | true | b. | false |

\_\_\_\_ 9. A comet’s ion tail consists of

|  |  |  |  |
| --- | --- | --- | --- |
| a. | dust. | c. | light rays. |
| b. | electrically charged particles of gas. | d. | comet nuclei. |

\_\_\_\_ 10. Which of the following celestial bodies is most likely to have many craters?

|  |  |
| --- | --- |
| a. | a giant gaseous planet |
| b. | a white dwarf star |
| c. | a terrestrial planet with no atmosphere |
| d. | a terrestrial planet with a thick atmosphere |

\_\_\_\_ 11. Annular solar eclipses occur because

|  |  |
| --- | --- |
| a. | the moon reflects more sunlight than the Earth does. |
| b. | the Earth's shadow is too small to completely cover the moon. |
| c. | the moon is too far away from the Earth to completely hide the sun. |
| d. | All of the above |

\_\_\_\_ 12. An astronomical unit (AU) is the average distance

|  |  |  |  |
| --- | --- | --- | --- |
| a. | between Mercury and the sun. | c. | light travels in 1 minute. |
| b. | between Mercury and Pluto. | d. | between Earth and the sun. |

\_\_\_\_ 13. Which of these is the best clue that Pluto is NOT a gaseous planet?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the size of its orbit | c. | its distance from the sun |
| b. | its density | d. | its proximity to the Oort cloud |

\_\_\_\_ 14. Which of the following gases traps the most heat in the atmosphere of Venus?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | carbon dioxide | c. | nitrogen |
| b. | oxygen | d. | argon |

\_\_\_\_ 15. Distances between stars are usually measured in

|  |  |  |  |
| --- | --- | --- | --- |
| a. | light-minutes. | c. | light-days. |
| b. | light-hours. | d. | light-years. |

Below is a diagram of the orbits of the inner planets. Examine the diagram and answer the questions that follow.



\_\_\_\_ 16. Which line indicates Earth's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A** | c. | **C** |
| b. | **B** | d. | **D** |

\_\_\_\_ 17. Which line indicates Mercury's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A** | c. | **C** |
| b. | **B** | d. | **D** |

\_\_\_\_ 18. Which line indicates the orbit of Venus?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A** | c. | **C** |
| b. | **B** | d. | **D** |

\_\_\_\_ 19. Which line indicates the orbit of Mars?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A** | c. | **C** |
| b. | **B** | d. | **D** |

Below is a diagram of the orbits of the outer planets. Examine the diagram and answer the questions that follow.



\_\_\_\_ 20. Which line indicates Jupiter's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A** | c. | **C** |
| b. | **B** | d. | **D** |

\_\_\_\_ 21. Which line indicates the orbit of Uranus?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **B** | c. | **D** |
| b. | **C** | d. | **E** |

\_\_\_\_ 22. Which line indicates Saturn's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **B** | c. | **D** |
| b. | **C** | d. | **E** |

\_\_\_\_ 23. Which line indicates Pluto's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **B** | c. | **D** |
| b. | **C** | d. | **E** |

\_\_\_\_ 24. Which line indicates Neptune's orbit?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **B** | c. | **D** |
| b. | **C** | d. | **E** |

\_\_\_\_ 25. Which outer planet is made of mostly ice instead of gas?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Saturn | c. | Neptune |
| b. | Uranus | d. | Pluto |

\_\_\_\_ 26. The amount of time it takes for an object to spin on its axis once is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | period of revolution. | c. | retrograde rotation. |
| b. | period of rotation. | d. | prograde rotation. |

\_\_\_\_ 27. The amount of time it takes for an object to orbit around the sun once is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | prograde rotation. | c. | retrograde rotation. |
| b. | period of rotation. | d. | period of revolution. |

\_\_\_\_ 28. Spinning in a counterclockwise direction is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | prograde rotation. | c. | period of rotation. |
| b. | retrograde rotation. | d. | period of revolution. |

\_\_\_\_ 29. Spinning in a clockwise direction is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | period of revolution. | c. | retrograde rotation. |
| b. | period of rotation. | d. | prograde rotation. |

\_\_\_\_ 30. On Mercury, you would weigh only 38 percent of what you weigh here on Earth. If you weighed 60 kg here on Earth, how much would you weigh on Mercury?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1.6 kg | c. | 38 kg |
| b. | 22.8 kg | d. | 60 kg |

\_\_\_\_ 31. Which of the following is the same for all nine planets?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | direction of rotation | c. | direction of revolution |
| b. | period of rotation | d. | period of revolution |

\_\_\_\_ 32. For all nine planets, a year is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 365 days. | c. | one period of rotation. |
| b. | one period of revolution. | d. | Both (a) and (b) |

\_\_\_\_ 33. For all nine planets, a day is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 24 hours. | c. | one period of revolution. |
| b. | one period of rotation. | d. | Both (a) and (b) |

Examine the table below and answer the question that follows.

|  |
| --- |
| **Mercury Statistics** |
| Distance from sun | **3.2** light minutes |
| Period of rotation | **58** days **16** hours |
| Period of revolution | **88** days |

\_\_\_\_ 34. How many sunrises and sunsets would you see if you were to spend one Mercurian year

on Mercury?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | one | c. | 88 |
| b. | 59 | d. | 365 |

\_\_\_\_ 35. Which planet is the most similar to Earth with respect to size, mass and density?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Mercury | c. | Mars |
| b. | Jupiter | d. | Venus |

\_\_\_\_ 36. Which planet has the densest atmosphere?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Earth | c. | Mars |
| b. | Venus | d. | Mercury |

\_\_\_\_ 37. Which planet has the hottest surface?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Earth | c. | Mars |
| b. | Mercury | d. | Venus |

\_\_\_\_ 38. Which of the following was the key to the development of life on Earth?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | liquid water | c. | the formation of the moon |
| b. | magma turning to solid rock | d. | the ozone layer |

\_\_\_\_ 39. Which inner planet is the coldest?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Earth | c. | Mars |
| b. | Mercury | d. | Venus |

\_\_\_\_ 40. Which planet has the Great Red Spot?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Jupiter | c. | Uranus |
| b. | Saturn | d. | Neptune |

\_\_\_\_ 41. The Great Red Spot is a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | moon. | c. | sun. |
| b. | storm system. | d. | volcano. |

\_\_\_\_ 42. Of all the planets in our solar system, which is the largest?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Earth | c. | Jupiter |
| b. | Saturn | d. | Mercury |

\_\_\_\_ 43. Of all the planets in our solar system, excluding Pluto, which is the smallest?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Earth | c. | Jupiter |
| b. | Saturn | d. | Mercury |

\_\_\_\_ 44. Of all the gas giants, which one has the largest rings?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Jupiter | c. | Uranus |
| b. | Saturn | d. | Neptune |

\_\_\_\_ 45. Which planet is tipped on its side?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Uranus | c. | Jupiter |
| b. | Neptune | d. | Mercury |

\_\_\_\_ 46. Saturn's rings consist of

|  |  |  |  |
| --- | --- | --- | --- |
| a. | phosphorescent gases. | c. | icy particles. |
| b. | shiny, metallic rocks. | d. | luminous auroras. |

\_\_\_\_ 47. Uranus and Neptune are much smaller than Jupiter and Saturn, and yet they have similar densities. This suggests that they

|  |  |  |  |
| --- | --- | --- | --- |
| a. | are completely made of gases. | c. | have more water in their interiors. |
| b. | have more light elements. | d. | All of the above |

\_\_\_\_ 48. Which of the following is referred to as the Blue World?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Uranus | c. | Jupiter |
| b. | Neptune | d. | Mercury |

\_\_\_\_ 49. Which of the following is the most likely cause of Uranus's unusual axis of rotation?

|  |  |
| --- | --- |
| a. | irregular magnetic poles |
| b. | Saturn's gravitational pull when it was twice its current size |
| c. | a perpendicular orbit to all the other planets' orbits |
| d. | the impact from a collision with a massive object early in its history |

\_\_\_\_ 50. Which of the following moons is the largest relative to its planet?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Charon | c. | Io |
| b. | Tethys | d. | Luna |

\_\_\_\_ 51. Which moon orbits Earth?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Charon | c. | Io |
| b. | Tethys | d. | Luna |

\_\_\_\_ 52. Earth's moon has a lower percentage of heavy elements than the Earth does. Therefore, the moon \_\_\_\_ than the Earth.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | has less mass | c. | is less dense |
| b. | has less volume | d. | is more dense |

\_\_\_\_ 53. The composition of the Earth's moon is similar to that of Earth's

|  |  |  |  |
| --- | --- | --- | --- |
| a. | crust. | c. | inner core. |
| b. | mantle. | d. | outer core. |

\_\_\_\_ 54. Which statement best explains maria?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Maria is the moon's nickname. | c. | Maria are the moon's lava plains. |
| b. | Maria are the moon's craters. | d. | Maria is moon dust. |

\_\_\_\_ 55. Which of the following best describes our moon?

|  |  |
| --- | --- |
| a. | On Earth, we always see the same side of the moon. |
| b. | The moon's period of rotation and period of revolution are identical. |
| c. | The relative positions of the moon, sun, and Earth determine which phase the moon is in. |
| d. | All of the above |

\_\_\_\_ 56. Which of the following statements is TRUE?

|  |  |
| --- | --- |
| a. | During an annular eclipse, the solar corona is visible. |
| b. | A solar eclipse can be viewed from only a few locations on Earth. |
| c. | Annular eclipses occur because the moon's orbit is not completely circular. |
| d. | All of the above |

\_\_\_\_ 57. During a lunar eclipse, the moon can look

|  |  |  |  |
| --- | --- | --- | --- |
| a. | red. | c. | black. |
| b. | blue. | d. | green. |

\_\_\_\_ 58. The moons Phobos and Deimos orbit

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Venus. | c. | Jupiter. |
| b. | Mars. | d. | Saturn. |

\_\_\_\_ 59. Which planet has the most moons?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Jupiter | c. | Uranus |
| b. | Neptune | d. | Saturn |

\_\_\_\_ 60. Which of Jupiter's four largest moons is the most volcanically active?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Europa | c. | Io |
| b. | Ganymede | d. | Europa |

\_\_\_\_ 61. The little moon, Miranda, that orbits Uranus is very unusual because it

|  |  |
| --- | --- |
| a. | has an extremely thick atmosphere. |
| b. | may have broken apart in the past and then come together again. |
| c. | revolves around the planet in retrograde. |
| d. | has an extremely dark surface that reflects very little light. |

\_\_\_\_ 62. Neptune's moon, Triton, is unusual because it

|  |  |
| --- | --- |
| a. | has an extremely thick atmosphere. |
| b. | may have broken apart in the past and then come together again. |
| c. | revolves around the planet in retrograde. |
| d. | has an extremely dark surface that reflects very little light. |

\_\_\_\_ 63. Which statement best describes Pluto and its moon, Charon?

|  |  |
| --- | --- |
| a. | They both have the same period of rotation. |
| b. | They both have the same period of revolution. |
| c. | Charon's period of rotation is the same as Pluto's period of revolution. |
| d. | Charon's period of revolution is the same as Pluto's period of rotation. |

\_\_\_\_ 64. Which of the following statements about comets is TRUE?

|  |  |
| --- | --- |
| a. | They originate from the cold, outer solar system. |
| b. | They are probably leftovers from the process of planet formation. |
| c. | They may help scientists piece together the history of the solar system. |
| d. | All of the above |

\_\_\_\_ 65. What's the difference between the orbit of a planet and the orbit of a comet?

|  |  |
| --- | --- |
| a. | A comet's orbit is highly elliptical and a planet's orbit is more circular. |
| b. | A planet's orbit is highly elliptical and a comet's orbit is more circular. |
| c. | A comet orbits clockwise around the sun and a planet orbits counterclockwise. |
| d. | A planet orbits clockwise around the sun and a comet orbits counterclockwise. |

\_\_\_\_ 66. A comet's ion tail always extends

|  |  |  |  |
| --- | --- | --- | --- |
| a. | towards the sun. | c. | towards the planet that its passing. |
| b. | away from the sun. | d. | away from the planet that its passing. |

\_\_\_\_ 67. Stony, metallic, and stony-iron are the three major types of

|  |  |  |  |
| --- | --- | --- | --- |
| a. | planets. | c. | moons. |
| b. | comets. | d. | meteorites. |

\_\_\_\_ 68. Objects smaller than \_\_\_\_ across usually burn up in Earth's atmosphere and do not pose a risk to Earth's surface.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10 m | c. | 100 km |
| b. | 10 km | d. | 1000 km |

\_\_\_\_ 69. An impact large enough to cause a global catastrophe—such as the extinction of the dinosaur—is estimated to occur once every \_\_\_\_ years on average.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 1,000 to 2,000 | c. | 1 million to 2 million |
| b. | 30,000 to 50,000 | d. | 30 million to 50 million |

**Completion**

*Complete each sentence or statement.*

 70. A naturally formed planetary satellite is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (comet or moon)

 71. As Earth's moon waxes, the sunlit fraction we see from Earth becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (larger or smaller)

 72. When the moon is waning, the sunlit fraction is becoming \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (larger or smaller)

 73. If you lived on the far side of the moon, you would never see the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Earth or sun)

 74. The two moons of Mars are believed to be captured \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (comets or asteroids)

 75. The four largest moons of Jupiter were discovered by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Kepler or Galileo)

 76. Two moons with atmospheres are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 77. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are small bodies of ice and cosmic dust. (Comets or Planets)

 78. Most asteroids in our solar system are found between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Mars/Jupiter or Earth/Mercury)

 79. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an asteroid that has a small companion. (Ida or Ceres)

 80. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are meteoroids that fall to Earth. (Meteorites or Meteors)

 81. The average distance between the sun and the Earth is 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(light-minute or AU)

 82. A small rock in space is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (meteorite, meteor, or meteoroid)

 83. The time it takes for the Earth to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around the sun is one year. (rotate or revolve)

 84. Most lunar craters are the result of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (volcanoes or impacts)

 85. Unlike most planets, Venus has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rotation, which means that it spins in a clockwise direction. (prograde or retrograde)

 86. A meteoroid is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ only after it has struck the ground on Earth. (meteorite or meteor)

 87. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are natural or artificial bodies that orbit larger celestial bodies, such as planets. (Satellites or Eclipses)

 88. The inner planets of our solar system are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (gas giants or terrestrial planets)

 89. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are also referred to as "dirty snowballs." (Comets or Asteroids)

 90. The distance light travels in one minute is called one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 91. The weight you experience on Earth is due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 92. The spin of an object on its axis is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 93. The motion of a body as it orbits another body is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 94. Carbon dioxide traps thermal energy from sunlight in a process called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect.

 95. The outer planets of our solar system—except for Pluto—are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 96. The different appearances of the moon due to its changing position are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 97. When the moon is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the sunlit fraction seen from Earth is getting larger.

 98. When the moon is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the sunlit fraction seen from Earth is getting smaller.

 99. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs when the shadow of one celestial body falls on another.

 100. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eclipse occurs when the Earth comes between the sun and the moon, and the shadow of the Earth falls on the moon.

 101. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eclipse occurs when the moon comes between the Earth and the sun, and the shadow of the moon falls on the Earth.

 102. The solid center of a comet is called its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 103. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ belt is a disk-shaped region that extends outward from the orbit of Neptune and from which comets may come.

 104. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cloud is a spherical region far beyond the orbit of Pluto that surrounds our solar system and from which comets may come.

 105. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are small, rocky bodies in orbit around the sun.

 106. Most asteroids orbit the sun in a wide region between the orbits of Mars and Jupiter, called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 107. The bright streak of light caused by a meteoroid or comet dust burning up in the atmosphere is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 108. Meteor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur when the Earth passes through the dusty debris left behind in the orbit of a comet.

 109. The distance from the sun to the Earth is one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit.

**Short Answer**

For each pair of terms, explain the difference in their meanings.

 110. satellite/moon

 111. meteor/meteorite

 112. asteroid/comet

 113. terrestrial planet/gas giant

 114. Kuiper belt/Oort cloud

 115. What three characteristics do the inner planets have in common?

 116. List three differences and three similarities between Venus and Earth.

 117. Mercury is closest to the sun, yet Venus has a higher surface temperature. Explain why this is so.

 118. How are the gas giants different from the terrestrial planets?

 119. What is so unusual about Uranus's axis of rotation?

 120. What conclusion can you draw about a planet's properties just by knowing how far it is from the sun?

 121. Why is the word surface not included in the statistics for the gas giants?

 122. What evidence suggests that Earth's moon formed form a giant impact?

 123. Why do we always see the same side of the moon?

 124. How are lunar eclipses different from solar eclipses?

 125. How does knowing the age of a lunar rock help astronomers estimate the age of the surface of a planet with no atmosphere?

 126. What makes Io the most volcanically active body in the solar system?

 127. Why is Saturn's moon Titan of so much interest to scientists studying the origins of life on Earth?

 128. What two properties of Neptune's moon Triton make it unusual?

 129. Charon always stays in the same place in Pluto's sky, but the moon always moves across Earth's sky. What causes this difference?

 130. Why is the study of comets, asteroids, and meteoroids important in understanding the formation of the solar system?

 131. Why do a comet's two tails often point in different directions?

 132. Describe one reason asteroids may become a natural resource in the future.

 133. Do you think the government should spend money on programs to search for asteroids and comets with Earth-crossing orbits? Discuss why.

 134. Which planets have retrograde rotation?

 135. Which planet has the lowest density?

 136. Which planet has the greatest number of moons?

 137. Which planet has the shortest period of rotation?

 138. Which planet has the largest known volcano?

 139. Do solar eclipses occur at the full moon or at the new moon? Explain why.

 140. How do we know there are small meteoroids and dust in space?

 141. Use the following terms to create a concept map: *solar system, terrestrial planets, gas giants, moons, comets, asteroids, meteoroids.*

 142. Even though we haven’t yet retrieved any rock samples from Mercury’s surface for radiometric dating, we know that the surface of Mercury is much older than that of Earth. How do we know this?

 143. Where in the solar system might we search for life, and why?

 144. Is the far side of the moon always dark? Explain your answer.

 145. If we could somehow bring Europa as close to the sun as the Earth is, 1 AU, what do you think would happen?

 146. Suppose you have an object that weighs 200 N (45 lbs.) on Earth. How much would that same object weigh on each of the other terrestrial planets?

The graph below shows density versus mass for Earth, Uranus, and Neptune. Mass is given in Earth masses—the mass of Earth equals one. The relative volumes for the planets are shown by the size of each circle.



 147. Which planet is denser, Uranus or Neptune? How can you tell?

 148. You can see that although Earth has the smallest mass, it has the highest density. How can Earth be the densest of the three when Uranus and Neptune have so much more mass?

 149. In general, how are the inner planets different from the outer planets?

 150. Describe the difference between a solar eclipse and a lunar eclipse.

 151. Describe the current theory of how the Earth's moon formed.

 152. Light travels about 300,000 km/s in space. Jupiter is about 780,000,000 km from the sun. How many minutes does it take light from the sun to reach Jupiter? Show your work.

 153.

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| **Data for Earth and a New Planet** |
|  | **Earth** | **New Planet** |
| Nearest distance to parent star (AU) | 0.983 | 1.013 |
| Farthest distance from parent star (AU) | 1.017 | 1.033 |
| Orbital period (Earth year) | 1.000 | 1.035 |
| Rotational period (hour) | 23.9 | 72.4 |
| Tilt of axis (degree) | 23 | 0 |
| Direction of rotation | east to west | west to east |

Suppose that a planet was discovered in another solar system. Using the data above, describe two ways you would expect this planet to be different from Earth, and explain the causes of these differences.

 154. Look at the chart below. Label each lunar phase with the correct phase name.



 155. Use the following terms to complete the concept map below: *comets, small bodies, moons, star, planets, satellites, asteroids.*

