Chapter 2 Study Guide

Write the term that matches each definition:

Terms: gas giants, solar system, moons, satellite, geocentric model, trajectory, Big Bang Theory, diameter, dense, heliocentric model, theory, terrestrial planets

_____ a curved path that a spacecraft takes because it is affected by the gravity of the planets it passes

_____ planets that are Earth-like

_____ natural objects that revolve in an orbit around a planet

_____ Earth-centered model of the solar system

_____ a star and the objects that revolve around it

_____ an explanation of how the universe came to be, that most scientists think is best based on the evidence we have so far

_____ Sun-centered model of the solar system

_____ matter that is packed tightly together

_____ an idea or explanation that is based on observations

_____ the distance from one edge of a circle or sphere to the other, when measured through the center of the circle or sphere

_____ any object, natural or human-made, that revolves in an orbit around a planet

_____ very large planets made up of substances that would be gases on Earth

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Choose or write the correct answer to each question.

13. Why can we never see Venus at midnight from Earth?
    A. Planets do not shine with their own light, so at midnight it would be too dark to see Venus.
    B. Venus is too far away from Earth to be seen by humans.
    C. The Sun would be blocking our line of sight to Venus at midnight.
    D. The Earth would be blocking our line of sight to Venus at midnight.

14. How many known planets are in our solar system?
    A. five
    B. nine
    C. ten
    D. eight

15. Circle the objects that are part of our solar system. Circle all that apply.
    A. a star
    B. moons
    C. Polaris
    D. planets
    E. asteroids
    F. Orion
    G. comets
    H. meteorites
    I. galaxies

16. Which two planets may at times be called the farthest from the Sun?
    A. Mercury and Venus
    B. Jupiter and Neptune
    C. Neptune and Pluto
    D. Pluto and Uranus

17. Which astronomer created a geocentric model of the solar system?
    A. Ptolemy
    B. Hercules
    C. Hypatia
    D. Copernicus

18. Which scholar created a heliocentric model of the solar system?
    A. Al-Battani
    B. Copernicus
    C. Hypatia
    D. Ptolemy

19. About how many years ago did the Chinese begin recording and predicting the apparent movements of the Sun, Moon, and planets?
    A. 3000 years ago
    B. 2000 years ago
    C. 5000 years ago
    D. nobody knows

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20. What does B.C. stand for on a timeline?
    A. Before Christ
    B. Anno Domini
    C. Basic Chronometry
    D. After Christ

21. How do scientists know the Big Bang Theory is correct?
    A. It has been proven using mathematics and astronomical observations.
    B. All the evidence we have so far supports the Big Bang Theory.
    C. No one knows for certain that the Big Bang Theory is correct.
    D. We have faith that God created everything, and that is what the Big Bang Theory says.

22. Why do scientists use powerful computers to calculate a space probe's trajectory?
    A. They don't want to bother working everything out on paper.
    B. There is not enough information, so a computer creates data to make the formulas work.
    C. Scientists don't trust their calculators to be accurate enough.
    D. There are so many factors that might influence a probe's course that a computer is necessary to figure out where the probe's moving target will be when the probe gets to it.

23. What is a "gravitational assist"? Circle all that apply.
    A. A maneuver in which a probe uses gravitational pull of a planet to change its direction and speed.
    B. A maneuver that is used to slow an object as it falls through Earth's atmosphere.
    C. A maneuver that positions a space probe "behind" a moving planet and lets the planet's gravity pull it along, then fling it in a new direction.
    D. A maneuver that can increase a probe's speed without using fuel.

24. Which planet in our solar system has the largest diameter?
    A. Earth
    B. Saturn
    C. Jupiter
    D. Sun

25. Which planet most closely resembles the Earth?
    A. Mercury
    B. Mars
    C. Venus
    D. Saturn

26. Which planet is the only one in our solar system on which life is known to presently exist?
    A. Earth
    B. Mars
    C. Mercury
    D. None of the planets in our solar system are known to have life presently existing on them.

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27. What can be said about Mars in relation to the Earth? Circle all that are true.
    A. Its temperatures are hotter, which is why it is called the "Red Planet".
    B. Mars has four seasons, similar to those on Earth.
    C. Mars is colder than Earth.
    D. Mars is larger and more dense than Earth, which gives it more gravity than Earth.

28. Which of the planets are referred to as the four "gas giants"? Circle all that apply.
    A. Pluto
    B. Neptune
    C. Uranus
    D. Earth
    E. Mars
    F. Mercury
    G. Venus
    H. Jupiter
    I. Saturn

29. What is Jupiter's "Great Red Spot"?
    A. a volcano
    B. a huge crater
    C. a giant circular storm
    D. a moon

30. Which planet has the most known natural satellites of any planet in our solar system?
    A. Saturn
    B. Earth
    C. Jupiter
    D. Uranus

31. Which of the nine planets has the most unusual tilt?
    A. Neptune
    B. Uranus
    C. Earth
    D. Jupiter

32. Which planet in our solar system is about the same size as Earth's moon?
    A. Mercury
    B. Venus
    C. Pluto
    D. Uranus

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33. Label each of the planets shown on this model of the solar system. Spell correctly, using the planet names on question 28 to help you. (9 points)

34. Write numbers (1 meaning first) to show the order of events that scientists believe led to the creation of the universe, according to the Big Bang Theory.

_____ An extremely dense ball of matter and energy exploded.

_____ In the center, most of the matter and energy condensed to become our Sun.

_____ All of the matter and energy that ever existed started in one extremely dense ball.

_____ Around the Sun, other matter condensed to form planets.

_____ In one of the galaxies, a collection of matter began to condense and eventually formed our solar system.

_____ Parts of the material began to condense, forming galaxies.