

Chapter 3 Study Guide

Write the term that matches each definition:

Terms: apparent magnitude absolute magnitude light-year nebula protostar
red giant white dwarf black dwarf supernova neutron star black hole
galaxy universe

a huge collection of stars

an extremely dense, invisible object in space whose gravity is so great that not even light can escape it

a unit of measurement representing the distance that light travels in one year

a huge cloud of gas and dust found in space

the remains of a massive star that has exploded in a supernova

a very large, old reddish star that has greatly expanded and cooled as its fuel has begun to run out

a concentration of matter found in space that is the beginning of a star

the measure of a star's brightness, based on the amount of light it actually gives off

an exploding star

the sum of everything that exists

a very small, dying star that gives off very little light

the cool, dark body that is the final stage in the life cycle of a low-mass star

the measure of a star's brightness as seen from Earth

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Choose or write the correct answer to each question.

14. What does a star's color tell astronomers?
 - A. the age of the star
 - B. the temperature of the star
 - C. the distance between Earth and the star
 - D. Color does not give astronomers any information about the star.

15. How do all stars produce energy?
 - A. They burn gasoline.
 - B. They are electrical.
 - C. They convert hydrogen to helium through nuclear reactions.
 - D. They convert uranium to hydrogen through nuclear fission.

16. What holds a star together?
 - A. inertia
 - B. solar power
 - C. nuclear reactions
 - D. gravity

17. What is the term for the *apparent* movement of a star in relation to Earth because of Earth's changing position?
 - A. parallax
 - B. parallel
 - C. exlax
 - D. light-year

18. If you look at two stars that actually give off the same amount of light, but the first appears brighter than the second star from Earth, what conclusion can you draw?
 - A. The first star must be giving off more light than the second star.
 - B. The second star must be closer to Earth than the first star.
 - C. The second star must be giving off more light than the first star.
 - D. The first star must be closer to Earth than the second star.

19. Which type of star is the Sun?
 - A. very highly massive
 - B. highly massive
 - C. average, low-mass
 - D. no one can tell

20. How big is a typical neutron star?
 - A. 9.5 trillion km in diameter
 - B. 186,000 miles in diameter
 - C. less than 12 miles in diameter
 - D. nobody knows

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21. How might a black hole be detected?
- A. A black hole might be detected if material from a nearby star is pulled into it.
 - B. A black hole might be detected if you have a very powerful telescope.
 - C. Black holes cannot be detected at all.
 - D. A black hole might be detected if you look for a dark spot in space.
22. What is the most common type of galaxy, as classified by shape?
- A. spiral
 - B. irregular
 - C. elliptical
 - D. smudge
23. What type of galaxy, as classified by shape, is the Milky Way?
- A. spiral
 - B. irregular
 - C. elliptical
 - D. smudge
24. How many galaxies are there in the universe?
- A. exactly 100 billion
 - B. no one has any idea at all
 - C. as many as 100 billion
 - D. more than 200 trillion
25. Why is the Milky Way galaxy called the "milky way"?
- A. It looks like a milky-white band in the sky when viewed from Earth.
 - B. It is named after a popular candy bar.
 - C. An ancient Roman ruler named it after his favorite drink.
 - D. It looks like the path a milk cow might take through the sky.
26. What is true about the universe?
- A. There is no limit to the edge of the universe.
 - B. The universe is contracting.
 - C. The universe is expanding.
 - D. The universe's edge may be seen from Earth.
27. Who discovered that the universe's galaxies are moving apart?
- A. Ptolemy
 - B. Edwin Hubble
 - C. Galileo
 - D. Cesar Augustus

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Identify each type of galaxy. Spell correctly!

1. _____

2. _____

3. _____

Number the order of events in the lifecycle of an average-mass star.

_____ red giant

_____ black dwarf

_____ nebula

_____ white dwarf

_____ protostar

_____ developed star

Use the chart to answer each question.

1. Name one star that is between $5,000^{\circ}$ - $6,000^{\circ}\text{C}$ _____

2. What color is the Sun? _____

3. What temperature range are blue-white stars? _____

4. How hot is Betelgeuse? _____

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Complete your "long address" on this form: