

**Content Practice A** **Chapter 22.4 Review** LESSON 4

### Galaxies and the Universe

**Directions:** On the line before each definition, write the letter of the term that matches it correctly. Each term is used only once.

- |   |                             |
|---|-----------------------------|
| _____ 1. includes a region called the central bulge                           | <b>A.</b> galaxy            |
| _____ 2. wavelength of light or sound depends on the position of the observer | <b>B.</b> gravity           |
| _____ 3. can form from the gravitational pull of neighboring galaxies         | <b>C.</b> dark matter       |
| _____ 4. spiral galaxy that contains our solar system                         | <b>D.</b> spiral galaxy     |
| _____ 5. the light emitted from galaxies as the universe expands              | <b>E.</b> elliptical galaxy |
| _____ 6. cluster of galaxies that contains the Milky Way                      | <b>F.</b> irregular galaxy  |
| _____ 7. force that might explain the accelerating expansion of the universe  | <b>G.</b> cluster           |
| _____ 8. 90 percent of the universe's mass                                    | <b>H.</b> Milky Way         |
| _____ 9. explains the origin of the universe                                  | <b>I.</b> Big Bang theory   |
| _____ 10. huge collection of stars; the Milky Way, for example                | <b>J.</b> Doppler shift     |
| _____ 11. shaped like a sphere or a football                                  | <b>K.</b> red-shifted       |
| _____ 12. group of galaxies   | <b>L.</b> dark energy       |
| _____ 13. the force that holds galaxies together                              | <b>M.</b> Local Group       |

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**Key Concept Builder** **LESSON 4**

## Galaxies and the Universe

**Key Concept** What are the major types of galaxies?

**Directions:** *On the line before each statement, write SP if the statement describes spiral galaxies, EL if the statement describes elliptical galaxies, or IR if the statement describes irregular galaxies.*

- \_\_\_\_\_ 1. contain spiral arms that begin at a central disk
- \_\_\_\_\_ 2. A spherical halo surrounds the disk.
- \_\_\_\_\_ 3. might have formed by the gravitational merging of two or more spiral galaxies
- \_\_\_\_\_ 4. The Milky Way is an example.
- \_\_\_\_\_ 5. have a higher percentage of old, red stars than spiral galaxies have
- \_\_\_\_\_ 6. contain little or no gas or dust
- \_\_\_\_\_ 7. The halo consists of globular clusters and older, redder stars.
- \_\_\_\_\_ 8. contain many young stars
- \_\_\_\_\_ 9. form from the gravitational pull of neighboring galaxies
- \_\_\_\_\_ 10. have areas of intense star formation

**Key Concept Builder** 

**LESSON 4**

**Galaxies and the Universe**

**Key Concept** What are the major types of galaxies?

**Directions:** On the line before each statement, write T if the statement is true or F if the statement is false. If the statement is false, change the underlined word(s) to make it true. Write your changes on the lines provided.

- \_\_\_\_\_ 1. A huge collection of stars is called a supernova. \_\_\_\_\_
- \_\_\_\_\_ 2. A galaxy contains stars, stellar remnants, gas, dust, and black holes.  
\_\_\_\_\_
- \_\_\_\_\_ 3. Galaxies can change over time. They rotate, gravitationally interact, and can merge. \_\_\_\_\_
- \_\_\_\_\_ 4. The universe contains hundreds of billions of galaxies, and each galaxy can contain hundreds of billions of stars. \_\_\_\_\_
- \_\_\_\_\_ 5. Most of the matter in galaxies is elliptical and emits no light at any wavelength. \_\_\_\_\_
- \_\_\_\_\_ 6. Galaxies are described by their apparent mass—spiral, elliptical, and irregular.  
\_\_\_\_\_
- \_\_\_\_\_ 7. Spiral galaxies are thicker near the center. This region is called the central bulge. \_\_\_\_\_
- \_\_\_\_\_ 8. Elliptical galaxies may have been formed by the merging of two or more spiral galaxies. \_\_\_\_\_
- \_\_\_\_\_ 9. Galaxies shaped like a sphere, or a football, are classified as spiral.  
\_\_\_\_\_
- \_\_\_\_\_ 10. Irregular galaxies contain many young stars and have areas of intense star formation. \_\_\_\_\_
- \_\_\_\_\_ 11. Irregular galaxies can result from the nuclear pull of neighboring galaxies.  
\_\_\_\_\_
- \_\_\_\_\_ 12. Galaxies are held together by gravity in groups called spirals.  
\_\_\_\_\_

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**Lesson Quiz A**

**LESSON 4**

**Galaxies and the Universe**

**Multiple Choice**

**Directions:** On the line before each question or statement, write the letter of the correct answer.

- \_\_\_\_\_ 1. Scientists estimate that more than 90 percent of the universe is composed of
  - A. galaxies.
  - B. dark matter.
  - C. dark energy.
  
- \_\_\_\_\_ 2. Which type of galaxy has many old, red stars?
  - A. spiral
  - B. irregular
  - C. elliptical
  
- \_\_\_\_\_ 3. The universe began from a single point according to the \_\_\_\_\_ theory.
  - A. Big Bang
  - B. Supercluster
  - C. Doppler Shift
  
- \_\_\_\_\_ 4. The more red-shifted a galaxy is, the
  - A. more red stars it has.
  - B. faster it moves away from Earth.
  - C. less dark matter it is likely to contain.

**Completion**

**Directions:** On each line, write the term from the word bank that correctly completes each sentence. Each term is used only once.

central bulge      elliptical      irregular      Milky Way      spiral

- 5. Our solar system is in a(n) \_\_\_\_\_ galaxy called the \_\_\_\_\_.
- 6. A galaxy that is shaped like a football is a(n) \_\_\_\_\_ galaxy.
- 7. A(n) \_\_\_\_\_ galaxy has no regular shape.
- 8. The arms in a spiral galaxy extend from the \_\_\_\_\_.

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