

Chapter 25 Beyond Our Solar System

Section 25.3 The Universe

(pages 715–721)

This section describes the Milky Way galaxy and types of galaxies. It also explains how we know the universe is expanding, how the universe probably began, and how it might end.

Reading Strategy (page 715)

Outlining As you read, complete the outline of the most important ideas in this section. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

I. The Universe

A. Milky Way Galaxy

1. _____ 100,000 light-years wide and 10,000 light-years thick

2. Structure— _____

B. _____

1. Spiral Galaxy _____

2. Elliptical Galaxy _____

3. _____

4. _____ groups of galaxies

1. Red Shifts— _____

2. _____

The Milky Way Galaxy (pages 715–716)

1. Circle the letter of the type of galaxy that the Milky Way is.
- a. spiral galaxy b. elliptical galaxy c. cluster galaxy

Types of Galaxies (pages 716–718)

Match each description with its galaxy.

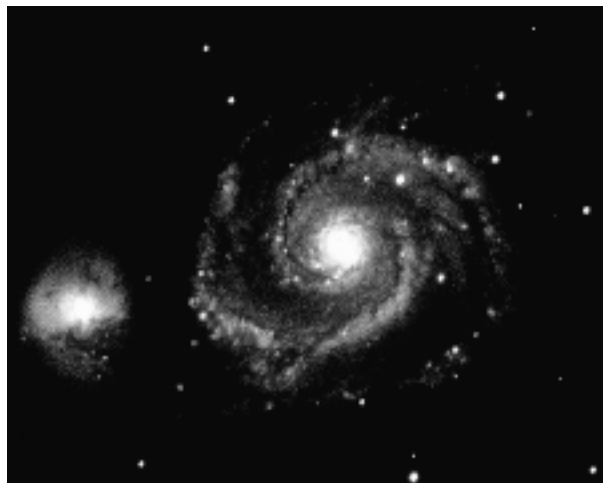
| Description | Galaxy |
|---|----------------------------|
| _____ 2. ranges in shape from round to oval; most are small | a. spiral b. elliptical |
| _____ 3. <input type="radio"/> composed mostly of young stars | c. irregular |
| _____ 4. usually disk-shaped with many variations | |

Chapter 25 Beyond Our Solar System

5. Is the following sentence true or false? The disk of the Milky Way galaxy is about 100,000 light-years wide and about 10,000 light-years thick at the nucleus. _____
6. A(n) _____ of thin gas and clusters of stars surrounds the disk of the Milky Way galaxy.
7. The larger galaxy in the photograph is a(n)

_____ galaxy.
Circle the correct answer.

- elliptical irregular
 spiral



8. Is the following sentence true or false? The larger galaxy in the photograph probably contains mostly young stars.

The Expanding Universe (pages 718–719)

9. Is the following sentence true or false? The Doppler effect can tell us whether a galaxy is moving toward or away from us.

10. Is the following sentence true or false? The red shifts of distant galaxies show that the universe is collapsing. _____

The Big Bang (pages 720–721)

11. Is the following sentence true or false? All distant galaxies are moving away from ours because our galaxy is at the center of the universe.

12. The _____ theory states that the universe began when a dense, hot, supermassive ball violently exploded.
13. Circle the letter of each item that is evidence for the big bang theory.
 - a. red shift of galaxies
 - b. supernova explosions
 - c. cosmic background radiation