

SECTION 8-4

SECTION SUMMARY

Star Systems and Galaxies

Guide for Reading

- ◆ What is a star system?
- ◆ What are the three types of galaxies?

Our solar system has only one star, the sun. **But more than half of all stars are members of groups of two or more stars, called star systems.** Star systems with two stars are called double stars or **binary stars**. Those with three stars are called triple stars.

Astronomers can sometimes find a binary star even if only one of the stars in the pair can be seen from Earth. The darker star in the pair may pass in front of the other star and block the light from the other star. A system in which one star blocks the light from another is called an **eclipsing binary**. Often astronomers can tell that there is a second star in a system by observing the effects of its gravity.

Astronomers have found planets revolving around stars by using a method like the one they use to find binary stars. All the planets found beyond our solar system so far are very large. A small planet would be difficult to find because it would have little gravitational pull on the star it revolved around. Astronomers are trying new ways to use telescopes to see planets directly. To see a planet directly, they must shield their view of the planet from the glare of the star.

Some scientists think that life may exist on planets revolving around other stars. A few astronomers are using radio telescopes to search for signals that could not come from natural sources. Such a signal might be evidence of extraterrestrial civilizations.

The Milky Way is the galaxy in which our solar system is located. Like other galaxies, it has single stars, double stars, star systems, and lots of gas and dust between the stars. The Milky Way Galaxy looks milky or hazy because stars are too close together for your eyes to see them individually. The dark blotches in the Milky Way are clouds of dust that block light from behind them.

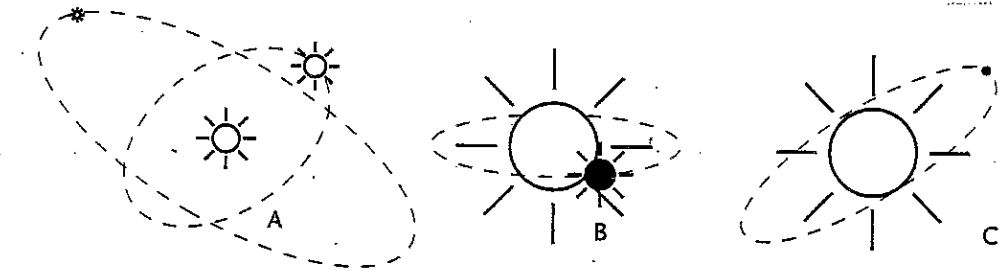
Astronomers have classified galaxies into three main categories: spiral galaxies, elliptical galaxies, and irregular galaxies. A **spiral galaxy** is a galaxy with arms that spiral outward, like a pinwheel. **Elliptical galaxies** look like flattened balls. They contain billions of stars but have little gas and dust between stars. Some galaxies do not have regular shapes, so they are known as **irregular galaxies**.

SECTION 8-4 REVIEW AND REINFORCE

Star Systems and Galaxies

◆ Understanding Main Ideas

The figure below shows three star systems as they might be seen from Earth. Ellipses indicate orbits. Answer the questions in the spaces provided.



1. Which star system is an eclipsing binary? _____
2. What kind of star system is A? _____
3. The dim, tiny, but heavy star in C is not visible from Earth. How could astronomers infer that it exists?

◆ Building Vocabulary

Write a definition for each of the following terms on the lines below.

4. star system _____

5. binary star _____

6. eclipsing binary _____

7. spiral galaxy _____

8. elliptical galaxy _____

9. irregular galaxy _____
