

Chapter 26 Exploring the Universe

## Section 26.3 Life Cycles of Stars

(pages 840–844)

*This section explains how stars form, their adult stages, and how they die.*

### Reading Strategy (page 840)

**Sequencing** Copy the flowchart on a separate sheet of paper. As you read, extend and complete it to show how a low-mass star evolves. 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.

Evolution of a Low-Mass Star



### How Stars Form (pages 840–841)

1. A large cloud of dust and gas spread out over a large volume of space is called a(n) \_\_\_\_\_.
2. Circle the letter of each sentence that is true about a protostar.
  - a. Nuclear fusion is taking place within it.
  - b. It has enough mass to form a star.
  - c. Its internal pressure and temperature continue to rise as it contracts.
  - d. It is a contracting cloud of dust and gas.
3. Describe how a star is formed. \_\_\_\_\_  
\_\_\_\_\_

### Adult Stars (page 841)

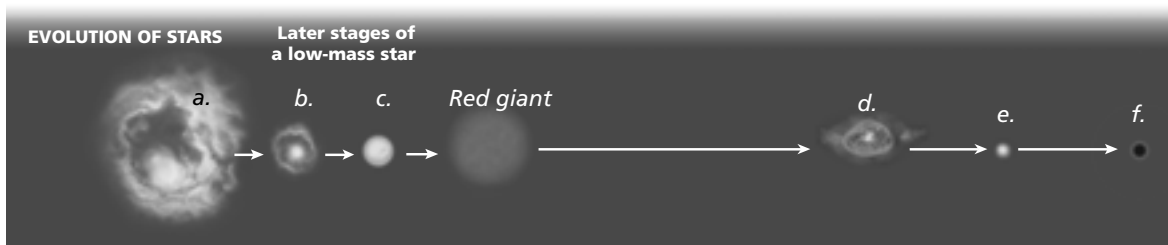
4. A star's \_\_\_\_\_ determines the star's place on the main sequence and how long it will stay there.
5. Circle the letter of each true sentence about adult main-sequence stars.
  - a. High-mass stars become the bluest and brightest main-sequence stars.
  - b. Low-mass stars are usually short-lived.
  - c. Yellow stars like the sun are in the middle of the main sequence.
  - d. Red stars are the hottest and brightest of all visible stars.

### The Death of a Star (pages 842–844)

6. The core of a star starts to shrink when the core begins to run out of \_\_\_\_\_.

**Chapter 26 Exploring the Universe**

7. Name three possible end stages of a star.  
 a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_
8. Is the following sentence true or false? The final stages of a star’s life depend on its mass. \_\_\_\_\_
9. Circle the letter of each sentence that is true about the death of low-mass and medium-mass stars.
  - a. The dying stars are called planetary nebulas.
  - b. They remain in the giant stage until their supplies of helium and hydrogen are gone and there are no other elements to fuse.
  - c. The energy coming from the stars’ interiors decreases and the stars eventually collapse.
  - d. The cores of the stars shrink and only their atmospheres remain.
10. The glowing cloud of gas that surrounds a dying low- or medium-mass star is called a(n) \_\_\_\_\_.
11. List the stages in the evolution of a low-mass star shown in the diagram below.



- |          |          |
|----------|----------|
| a. _____ | b. _____ |
| c. _____ | d. _____ |
| e. _____ | f. _____ |

12. Is the following sentence true or false? A high-mass star dies quickly because it consumes fuel rapidly. \_\_\_\_\_
13. An explosion so brilliant that a dying high-mass star becomes more brilliant than an entire galaxy is called a(n) \_\_\_\_\_.

Match each final stage of a high-mass star to its correct description.

Description	Final Stage of a High-Mass Star
_____ 14. Surface gravity so great that nothing can escape from it	a. pulsar
_____ 15. A spinning neutron star that gives off strong pulses of radio waves	b. black hole
_____ 16. The remnant of a high-mass star that has exploded as a supernova, which begins to spin more and more rapidly as it contracts	c. neutron star