

Watch the *Lifecycle of a Star* movie at BrainPOP - <http://www.brainpop.com/> - to complete this page.

1. Stars change during their lifetime, which can be \_\_\_\_\_ of years long. They start out as diffuse clouds of \_\_\_\_\_ and \_\_\_\_\_ drifting through space. \_\_\_\_\_ pulls the clouds together causing clumps to form. If the clump is large enough, the \_\_\_\_\_ caused by gravity inside a \_\_\_\_\_ begins to generate \_\_\_\_\_.

2. The heat and pressure builds until \_\_\_\_\_ reactions begin to take place inside the core. Gravity pulls \_\_\_\_\_ atoms together, smashing and fusing them into heavier \_\_\_\_\_ atoms. This process generates an enormous amount of \_\_\_\_\_ and the star ignites entering its \_\_\_\_\_.

3. Our \_\_\_\_\_ is a main sequence star about halfway through its \_\_\_\_\_ billion year long main sequence. Eventually our sun will use up all of its hydrogen and the \_\_\_\_\_ will be so hot the star will expand to many times its current size to become a \_\_\_\_\_.

4. A red giant star has a \_\_\_\_\_ that has cooled and glows red. It burns helium and fuses it into heavier \_\_\_\_\_. Since these reactions are not as powerful as burning hydrogen, the star starts to \_\_\_\_\_ after about 10 \_\_\_\_\_ years.

5. What happens after this point depends on the \_\_\_\_\_ of the star. A star the size of our sun will enter its \_\_\_\_\_ phase, which means it \_\_\_\_\_ and \_\_\_\_\_ and it loses its outer layers in the process. The star's mass is lost until it collapses into a \_\_\_\_\_ dwarf, which will lose energy and become a \_\_\_\_\_ or \_\_\_\_\_ dwarf.

6. Stars bigger than our sun will collapse so quickly they explode into a \_\_\_\_\_. New \_\_\_\_\_ can form from the gas and dust left from the explosion. The core that is leftover after a supernova may form a \_\_\_\_\_ star. Some neutron stars, called \_\_\_\_\_, spin rapidly and give off pulses of radio waves.

7. If the leftover core was above a certain mass, it will continue to collapse in on itself and form a \_\_\_\_\_ area called a singularity or \_\_\_\_\_. Its gravity is so powerful that nothing within its range can escape it - not even \_\_\_\_\_!

8. Try the Movie Quiz to find the answers for each question.

How do clusters of stars form? \_\_\_\_\_

Where is our sun in its life cycle? \_\_\_\_\_

How many stars make up a globular cluster? \_\_\_\_\_

How long does a star remain a main sequence star? \_\_\_\_\_

What are the phases of a star's life cycle in the proper order? \_\_\_\_\_

What is a supernova? \_\_\_\_\_

What does a supernova become? \_\_\_\_\_

What gases make up a main sequence star? \_\_\_\_\_

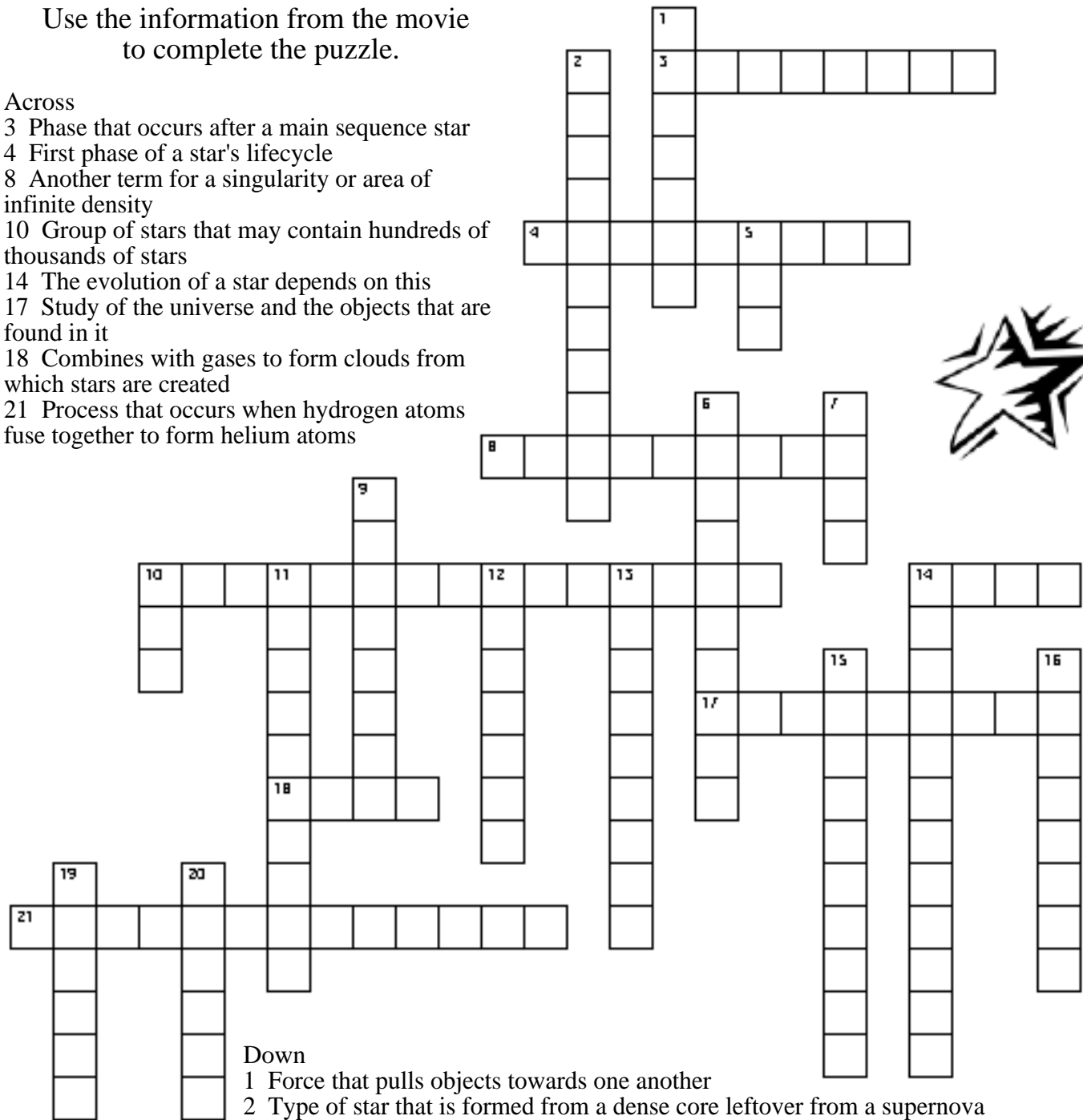
**Word Bank**

10  
100  
1000  
Billions  
Black  
Black hole  
Brown  
Cepheid  
Collapse  
Contracts  
Core  
Dense  
Dust  
Elements  
Energy  
Expands  
Gas  
Gravity  
Heat  
Helium  
Hydrogen  
Light  
Main sequence  
Mass  
Million  
Neutron  
Nuclear Fusion  
Pressure  
Protostar  
Pulsars  
Red giant  
Stars  
Sun  
Supernova  
Surface  
White

Use the information from the movie  
to complete the puzzle.

Across

- 3 Phase that occurs after a main sequence star
- 4 First phase of a star's lifecycle
- 8 Another term for a singularity or area of infinite density
- 10 Group of stars that may contain hundreds of thousands of stars
- 14 The evolution of a star depends on this
- 17 Study of the universe and the objects that are found in it
- 18 Combines with gases to form clouds from which stars are created
- 21 Process that occurs when hydrogen atoms fuse together to form helium atoms



Down

- 1 Force that pulls objects towards one another
- 2 Type of star that is formed from a dense core leftover from a supernova
- 5 Star that provides Earth with the energy it needs
- 6 Phase of a star's life cycle that occurs after the cepheid phase
- 7 Generated by the pressure caused by gravity inside a protostar
- 9 A star's lifecycle can be \_\_\_ of years long.
- 10 State of matter with no definite shape or volume
- 11 Dense, cold, "dead" star formed from a white dwarf that has lost its energy
- 12 Phase of a star's lifecycle in which it expands and contracts and loses its outer layers
- 13 Formed from an explosion that occurs as a star collapses quickly
- 14 A protostar will turn into this type of star
- 15 Formed as a white dwarf loses its energy; smaller than black dwarf stars
- 16 One of the elements found in a main sequence star; has an atomic number of 1
- 19 A neutron star that spins rapidly and gives off pulses of radio waves
- 20 Element found in a main sequence star; has an atomic number of 2

