

Activity 10: Lifecycle Of A Star

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

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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 _____!

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
Million
Neutron
Nuclear Fusion
Pressure
Protostar
Pulsars
Red giant
Stars
Sun
Supernova
Surface
White

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? _____

1. We are made from the leftovers from _____.

2. _____ are an open cluster of stars that spreads across 30 light years in space.

3. Stars are made up of _____ and _____.

4. Our sun is in the _____ stage of its life cycle.

5. _____ pulls the atoms together.

6. The life cycle of a star is _____ years.

7. Our star orbits the center of our galaxy about once every _____ years.

8. A teaspoon of material from a neutron star can weigh about _____.

9. The core of a star is _____.

10. List the correct order of a star's life cycle.

11. What is a supernova?

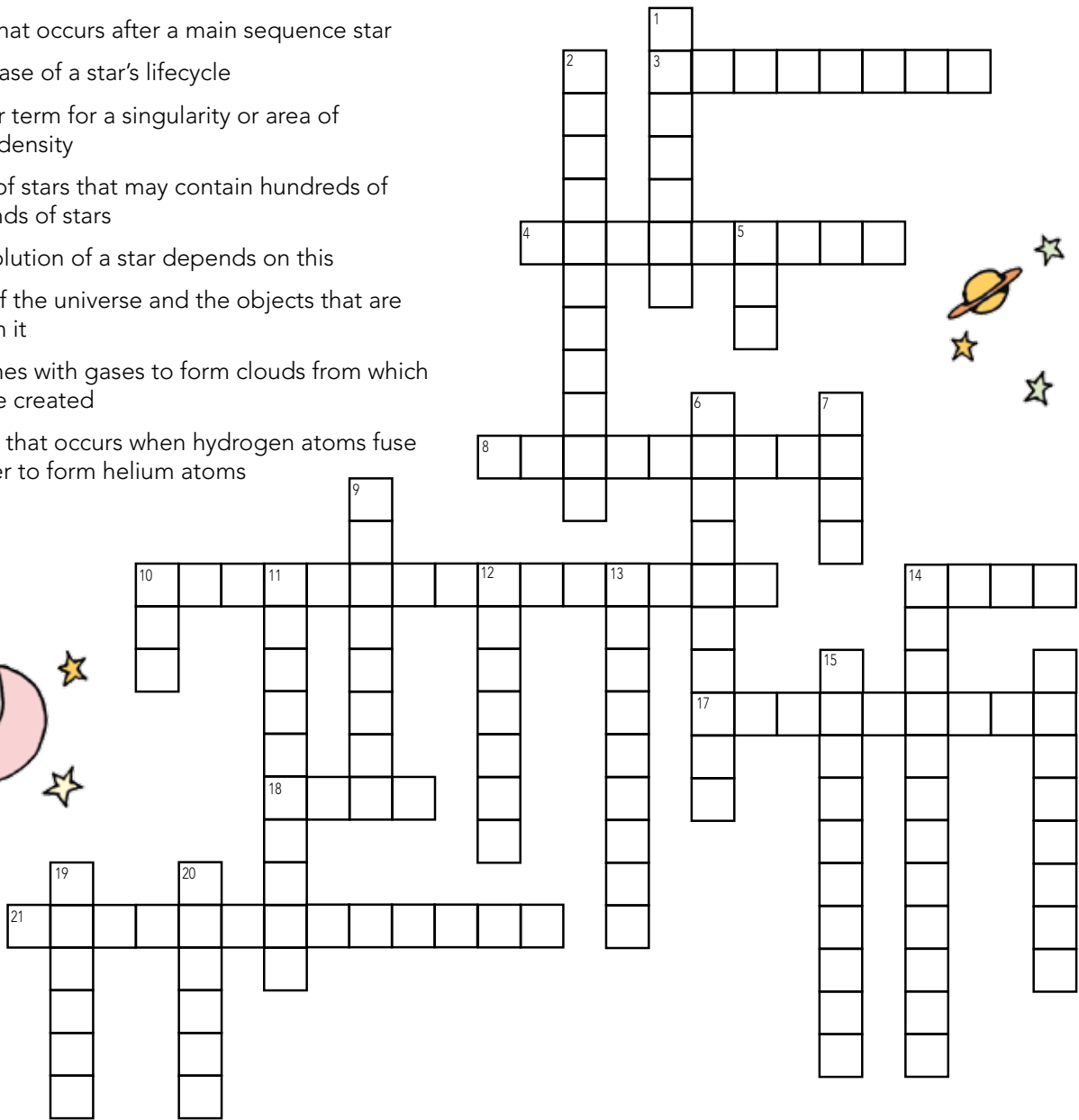
12. What does a supernova become?

13. What is a pulsar?

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 left over from a supernova
- 5 Star that provides the earth with the energy it needs
- 6 Phase of the 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 proto star will turn into this type of star
- 15 Formed as a white dwarf loses its energy: smaller than black dwarf star
- 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