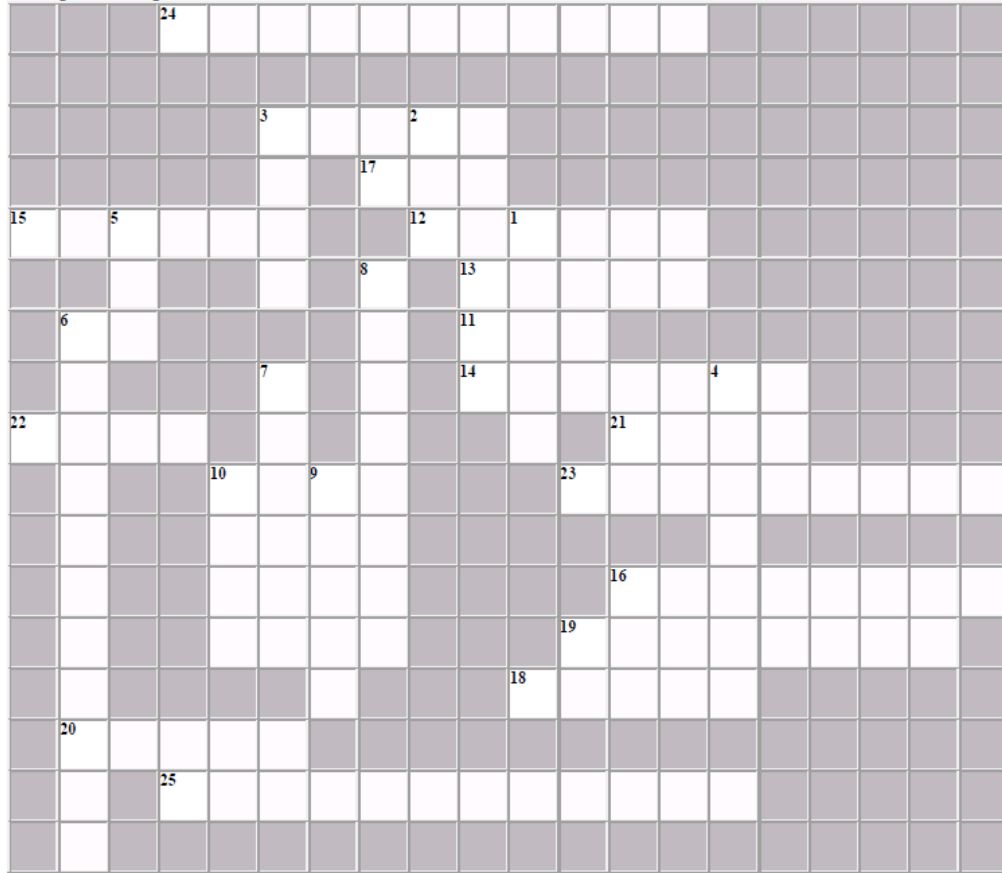


Name _____

Date _____

The Sun and Stars

Complete the puzzle.



- | | | | |
|-------------|---------|--------------|-------------|
| black | gas | nebula | flare |
| eclipse | ten | white | wind |
| fusion | sunspot | apparent | red |
| sun | eight | absolute | photosphere |
| earth | blue | core | magnitude |
| temperature | spiral | spectroscope | universe |
| waves | size | | |

Across

3. A red giant that uses all its fuel will begin to collapse into a ____ dwarf. At this stage of a star's life cycle the star will give out very little light.
11. The sun is a huge ball of ____.
12. A star may form from this cloud of gas and dust in space.
13. A solar ____ is a sudden burst of energy or radiation from the sun.
14. The corona of the sun can only be seen during an ____.
15. The joining together of two or more atoms to form another atom. This powers the sun and other stars.
16. The ____ magnitude of a star is a measure of how bright a star seems to be when viewed from Earth.
17. A ____ giant is an old star of average size that has begun to expand and cool as its fuel has begun to run out.
18. Sunlight takes ____ minutes to reach Earth.
19. The ____ magnitude of a star is a measure of the actual brightness of a star. This measurement does not depend on the distance of the star from Earth.
20. The sun is about 93 million miles away from this planet.
21. ____ stars are stars with the hottest surface temperature.
22. The ____, the radiation zone, the photosphere, the convection zone, and the corona make up the layers of the sun.
23. A measure of the brightness of a star.
24. The color of a star is determined by its ____.
25. An instrument used by astronomers to study the light given off by stars.

Down

1. The final stage of a star's life cycle is a ____ dwarf, when the star will stop giving off any light.
2. Scientists believe that a star like the sun will shine for approximately ____ billion years.
3. A solar ____ is a fast-moving stream of charged particles that flows from the sun's corona and is released into space.
4. A dark area on the sun that is caused by magnetic storms.
5. The star at the center of the solar system.
6. This is the surface of the sun.
7. The Milky Way is known as a ____ galaxy.
8. Scientists estimate that the ____ may have as many as 200 billion stars.
9. Energy released from the sun travels through space in ____.
10. The four characteristics of stars include its ____, brightness, color, and temperature.

Brain POP ACTIVITY

IDENTIFY IT

Identify the stellar stage described in each statement. Then check off each stage that is a part of our own sun's life cycle.

1. A rapidly-spinning neutron star that sends out radio waves

2. An area of infinite density that traps even light

3. Clouds of gas and dust that sometimes clump together to form stars

4. A star that has shed its outer layers, which become a big cloud of gas and dust

5. The explosion created by a rapidly-collapsing star

6. A star that expands after exhausting its hydrogen fuel

THINK ABOUT IT

The life cycle of stars may be boiled down into a tug of war—lasting billions of years—between two basic forces. In your own words, describe these forces, and identify which of the two eventually “wins” the battle.

.....

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Brain POP Life Cycle of Stars

Name: _____
 Date: _____
 Class: _____

1. Which term best describes a stellar nursery?
 A. A flaming ball of gas
 B. A cloud of gas and dust
 C. A cloud of thousands of small, young stars
 D. A star system with planets and moons

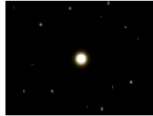
2.  In the movie, Tim refers to baby stars as “protostars.” What can you infer about the prefix “proto-?”
 A. It means “last” or “after”
 B. It means “infinite” or “everlasting”
 C. It means “first” or “before”
 D. It means “large” or “huge”

3. Place the following stages in the life of a low-mass star, like the sun, in order: A) Red giant; B) White dwarf; C) Main sequence star
 A. C, A, B
 B. A, C, B
 C. B, A, C
 D. B, C, A

4. Which of the following describes the process of nuclear fusion, as it occurs inside our sun?
 A. Hydrogen and oxygen atoms combine to make water molecules
 B. Helium atoms split apart to form hydrogen atoms
 C. Water molecules break apart into hydrogen and oxygen atoms
 D. Hydrogen atoms combine to make helium atoms

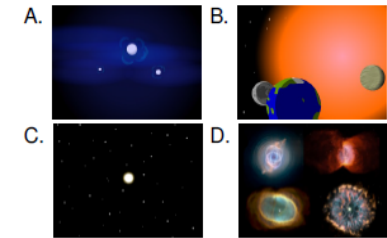
5. What effect does gravity have on stars?
 A. It allows stars to break free of their galaxies
 B. It helps break helium atoms apart inside of stars
 C. It forms stars from clouds of gas and dust, and causes them to ignite
 D. It causes stars to swell from white dwarfs to red giants

6. What is a supernova?
 A. A type of black hole
 B. An incredibly dense but small star
 C. A star that is large and not dense
 D. The explosion of a large star

7.  How does a white dwarf compare to our sun as it exists now?
 A. It has a similar mass, but is much denser
 B. It has a larger mass, but is less dense
 C. It has more mass, and is more dense
 D. It has less mass, and is less dense

8. What will a star that's 1,000 times as massive as the sun ultimately become?
 A. A white dwarf
 B. A black hole
 C. A planetary nebula
 D. A red giant

9. Which of the following depicts a planetary nebula?



10. How is a neutron star different from a regular star?
 A. It emits electromagnetic pulses
 B. It has an almost infinite density
 C. It burns brighter than a galaxy with a billion stars
 D. It has less mass and greater gravity

Graded Quiz Score

_____ / 10 points