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Our Sun

Sure, you're glad the sun rises every morning, without it life on Earth would not exist. But, what do you really know about our closest star? For example, the sun makes up over 99% of the mass of our solar system. It is about halfway through its multi-billion year lifespan. Scientists have learned much about the sun simply through studying it—and other stars—with telescopes and probes, but many mysteries still exist. Use this webquest to find out what we already know about the sun, so you're not caught in the dark.

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Find It!

Use the World Book search tool to find the answers to the questions below. Since this activity is about the sun, it is recommended you start by searching the key word "sun." Write the answer below each question.

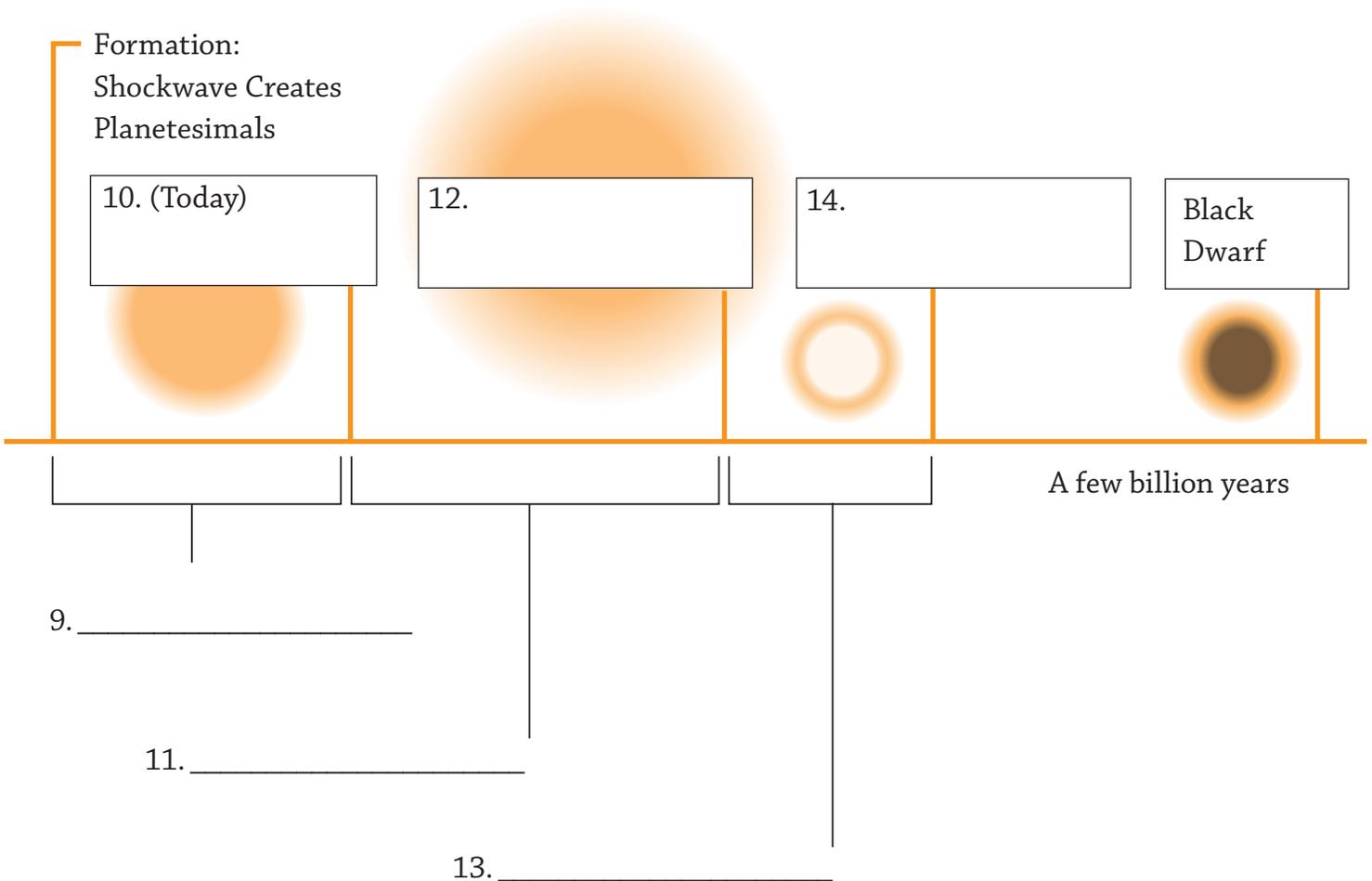
- In the late 1800's, American astronomer George Ellery Hale developed an instrument called the _____ to photograph the sun in different colors of the spectrum.
- The sun is made up mostly of atoms of the chemical element _____.
- A typical _____ (3 words) leaves the sun at a speed of about _____ miles (_____ kilometers) per second.
- Where on the surface of the sun do sunspots form?
- The flow of coronal gas from the sun into space is known as the _____ (2 words).

6. The sun emits energy in the form of _____ two most common forms the sun emits are _____ (2 words) and _____ (2 words), which we feel as heat.
7. How long does it take for the sun to make a complete rotation on its axis?
8. What are two reasons a spinning cloud of dust and gas might become denser the surrounding parts?

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Timeline

Just like us, the sun and other stars go through different changes during their lifetimes. In the spaces below, fill in the number of years (numbers 9, 11, and 13) and each stage in the sun's life cycle (numbers 10, 12, and 14). The numbers might be approximate, like "a few million years."

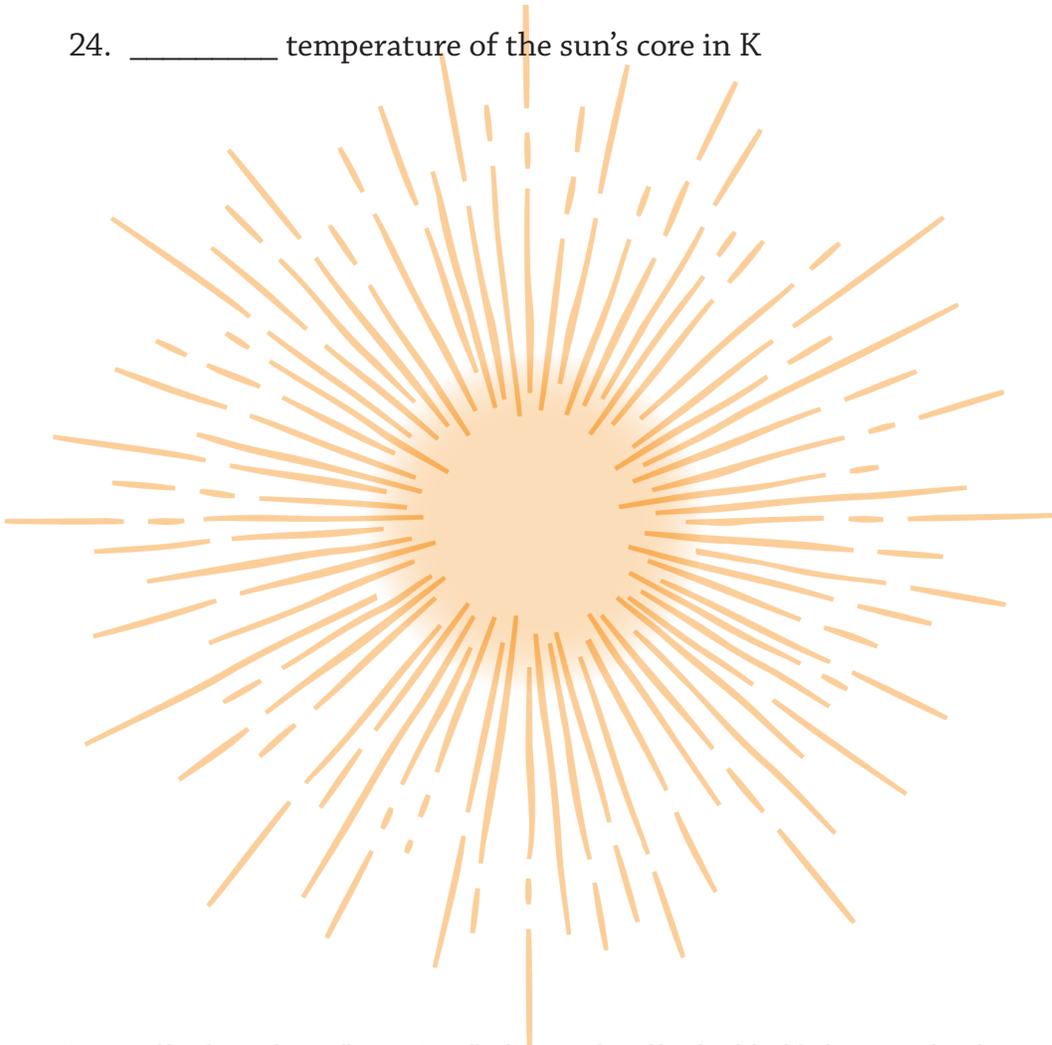


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Match It!

Take a look at the “Sun” article and match the measurements of the sun below with the correct numbers on the right.

- | | |
|--|----------------------|
| 15. _____ average distance between sun and Earth in miles | A. 11 |
| 16. _____ distance of sun from the center of galaxy in light-years | B. 15 |
| 17. _____ temperature of the sun’s surface in F | C. 10,000 |
| 18. _____ age of the sun in years | D. 25,000 |
| 19. _____ average lifetime of spicules in minutes | E. 432,000 |
| 20. _____ duration of sunspot cycle in years | F. 15 million |
| 21. _____ mass of sun in tons | G. 93 million |
| 22. _____ radius of sun in miles | H. 240 million |
| 23. _____ time for sun to revolve around galactic center in years | I. 4.6 billion |
| 24. _____ temperature of the sun’s core in K | J. 2.2×10^7 |



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What's the Word?

Find the vocabulary words hidden within the puzzle by reading the definitions below. You may use context clues to determine the meaning of each word. You may also double-click on the word to access the online dictionary.

S B S Z A S Z S T G T G S X Y
P H O T O S P H E R E U Y G H
J N R D X Y X E Z F N E O N Y
A N O R O C A U C S L L F I D
N L R I V C J M P T O A N V R
B O O L Z P H O S M R O R L O
P H O T O N T A S A I U Z E G
Q E O G M B D I D S L J M K E
B E U D W Q E D U F F P M Y N
B M I L F S C F V Y I A V J E
C D X J O D I M J L S X T U R
A I T I A K X Y C S R C Y T D
L L L Z I F C M V C M O D J C
W E H R J S A W Y B E R C N S
H E P V U J V R Q P Z E Z W W

25. a band or range of energy of a particular kind: _____
26. the center of the sun, where nuclear fusion reactions produce the sun's energy: _____
27. the highest part of the solar atmosphere: _____
28. a dark, often roughly circular feature on the sun's surface: _____
29. a substance similar to a gas that consists of positive ions and electrons moving about independently: _____
30. an atom that has lost or gained one or more electrons: _____
31. the unit in which astronomers measure the temperature of the sun and other stars:

32. the amount of matter in an object: _____

33. a process that produces energy in the sun's core: _____
34. the most common element in the sun: _____
35. a sudden brightening of a part of the sun's atmosphere: _____
36. the study of the vibrations inside the sun: _____
37. a "packet" of electromagnetic radiation: _____
38. the lowest layer of the solar atmosphere, which sends out the light that we see:

39. the edge of the sun: _____

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The Sun and Other Stars. Chicago: World Book, 2013. Explore the Solar System. *World eBook*. Web. 1 Dec. 2015.
<<http://www.worldbookonline.com/wb/ebooks/mall/instt/catalog/urn:ISBN:978-0-7166-1892-8/detail.do>>.