

Objective Concepts (gravity, climate, solar system, hydrogen, helium, elements, ultraviolet rays, cluster, galaxy, Milky Way Galaxy); Sight words (surface, core, dangerous, causes, amount, glowing, tiny, twinkling)



Vocabulary	
surface	amount
core	glowing
dangerous	tiny
causes	twinkling

The Sun and the Stars

By: Sue Peterson

Scientists know many things about the Sun. They know how old it is. The Sun is more than 4½ billion years old. That would be too many candles to put on a birthday cake!



They also know the Sun's size. The Sun may seem small, but that is because it is so far away. It is about 93 million miles (150 million kilometers) away from the Earth. The Sun is so large that the diameter of the Sun is

109 times the Earth's diameter. The Sun also weighs as much as 333,000 Earths.

The Sun is made up of gases: 75% hydrogen and 25% helium. Hydrogen is the simplest and lightest of all of the known elements. When you combine hydrogen with oxygen, you get water. You probably know what helium is. It is the gas that can be put into balloons to make them stay in the air and float.

Scientists also know the temperature of the Sun. The surface of the Sun is about 10,000 degrees Fahrenheit (5,600 degrees Celsius). That might sound hot, but the Sun's core is even hotter. The core is the central region where the temperature reaches about 27 million degrees Fahrenheit (15 million Celsius).

The Sun is the center of our Solar System. Besides the Sun, the Solar System is made up of the planets,



moons, asteroid belt, comets, meteors, and other objects.

The Earth and other planets revolve around the Sun.

The Sun is very important. Without it, there would be only darkness and our planet would be very cold and be without liquid water. Our planet would also be without people, animals, and plants because these things need sunlight and water to live.

The Sun also gives out dangerous ultraviolet light which causes sunburn and may cause cancer. That is why you need to be careful of the Sun and wear sunscreen and clothing to protect yourself from its rays.

Scientists have learned many things about the Sun. They study the Sun using special tools or instruments such as telescopes. One thing they do is to look at the amount of light from the Sun and the effect of the Sun's light on the Earth's climate.

The Sun is actually a star. It is the closest star to the Earth. Scientists also study other stars, huge balls of glowing gas in the sky. There are over 200 billion stars in

the sky. Some are much larger than the Sun and others are smaller than the Earth. They all look tiny because they are so far away from the Earth. This distance is measured in light-years, not in miles or kilometers. (One light-year is equal to the distance that light travels in one year. This is about six trillion miles or ten trillion kilometers!)

Stars look like they are twinkling because when we see them, we are looking at them through thick layers of turbulent (moving) air in the Earth's atmosphere. That is why the words are written in the song: *Twinkle, Twinkle, Little Star*.

Stars have lifetimes of billions of years. They are held together by their own gravity. Over half of the stars in the sky are in groups of two. They orbit around the same center point and across from each other. There are also larger groups of stars called clusters. These clusters of stars make up galaxies. Our Solar System is located in the Milky Way Galaxy.



Practice

Language Work

A. Fill in the blank and spell.

surface s _ _ _ f a c _ _ _____

core c _ _ _ e _____

causes c _ _ _ s e s _____

amount a m _ _ _ n t _____

tiny t _ _ n _ _ _____

B. Use each word in a sentence. Underline the word used.

dangerous _____

glowing _____

twinkling _____

C. Matching. Draw lines between the words and what they mean.

- | | |
|---------------------|--|
| 1. gravity | a. the kind of weather a place has |
| 2. climate | b. the Sun and everything that revolves around it |
| 3. solar system | c. a force which tries to pull two objects toward each other |
| 4. hydrogen | d. the central region |
| 5. helium | e. the simplest and lightest of known elements |
| 6. elements | f. an element in air that can be used to inflate balloons |
| 7. core | g. a number of things together |
| 8. ultraviolet rays | h. simple substances from what things are made |
| 9. cluster | i. light from the Sun that can harm |

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. What is **one comparison** the author makes about the size of the Sun?
 a. There is darkness without the Sun.
 b. The diameter of the Sun is 109 times the Earth's diameter.
 c. Scientists study the Sun with special tools.
 d. The Sun is 93 millions miles away.
2. What is the **main idea** of this text?
 a. The Sun and stars are fun to look at.
 b. The Sun and stars are far away.
 c. The Sun and stars are larger than you think.
 d. The Sun and stars are described so you can learn more about them.

3. What does the text say about the size of stars?

- a. They are all the same size.
- b. They are all small and you can see them twinkle.
- c. Some stars are larger than the Sun and others are smaller than the Earth.
- d. They are all smaller than the Sun.

Definitions (Write the meaning of each word as it is used in the text.)

1. surface

2. glowing

3. twinkling

Extended Response (Answer in complete sentences.)

1. Why do you think the author included a section on the Sun and another section on stars in the same text?

2. Why do scientists feel it is important to study the Sun?

3. Why does the Sun look so small, but it is really large?

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

The Sun and the Stars

Matching

1(c); 2(a); 3(b); 4(e); 5(f); 6(h); 7(d); 8(i); 9(g)

Multiple-Choice Questions

1. b
2. d
3. c

Extended Response (Accept reasonable answers.)

1. They have similar features and they are both part of the solar system. They are both in the sky. And the Sun is a star.
2. Free expression
3. The sun is very far away. (Various facts are listed in the text about the size, etc.)