



The following essay describes solar storms. The words that belong in the missing blanks can be found by solving the ten number sentences.

Look in the Word Bank and match the calculated number to the correct answer.

Fill-in the blank with the word you found to complete the essay and answer a question about solar storms!

Our sun is a very predictable star. Each day it rises and sets as the world turns upon its axis, and warms the Earth making life possible. But the sun is also a stormy star. It produces 1)\_\_\_\_\_ and incredible explosions of 2)\_\_\_\_\_ almost every day. Sometimes, its entire surface is speckled by 3)\_\_\_\_\_ that come and go every 11 years. In 2013, the sun was at the peak of its maximum stormy activity. This means that many more flares and explosions of gas were happening compared to other times in the 11-year cycle. Solar flares are bursts of intense 4)\_\_\_\_\_ light that can cause problems for radio communication on Earth. They also heat up the 5)\_\_\_\_\_ and cause it to expand into space. About 1000 of these flares were detected during the first 8 months of 2013.

Occasionally the sun ejects billion-ton clouds of 6)\_\_\_\_\_ called 7)\_\_\_\_\_ or CMEs. Traveling at over a million miles an hour, they can reach Earth in only a few 8)\_\_\_\_\_. When they arrive, they cause problems for satellites and our electric power grid, but they also cause beautiful 9)\_\_\_\_\_ in the northern and southern skies. Most CMEs are not directed towards earth and are completely 10)\_\_\_\_\_.

So, even though the sun looks the same every day, it really is a very stormy star that can sometimes create unpleasant surprises for us here on Earth!

## Word Bank

-5 asteroids	+48 heat	-17 X-rays
-44 aurora	+1 ocean	+3 harmless
-15 ultraviolet	+5 days	+44 rainbows
-27 energy	0 atmosphere	-5 months
-40 rocks	-48 gas	+24 sunspots
-6 harmful	+3 plasma	-3 coronal mass ejections
-2 flares	+20 comets	-7 prominences

### Solve these problems to get the Word Bank number key.

- |                             |   |                              |   |
|-----------------------------|---|------------------------------|---|
| 1) $1+(1-3)-(5-8)+(-6+2)$   | = | 6) $-2(+2(-3(+2(-3+1))))$    | = |
| 2) $8(3-2)-2(3-8)+5(-6-3)$  | = | 7) $-8/2+(3+2)/(8-3)$        | = |
| 3) $(1-3)(-5+2)(8-6)(3-1)$  | = | 8) $-7+23-6-(-10)+(-3)(4+1)$ | = |
| 4) $3(2-6)+(-8+4)-(4-3)$    | = | 9) $12/(-1/4)+(-36)/(-9)$    | = |
| 5) $5(-3+2)-2(6-2)-(+7-20)$ | = | 10) $(-4)2+21/3+4$           | = |

Solve these problems to get the Word Bank number key.

- |    |                          |   |     |     |                           |   |     |
|----|--------------------------|---|-----|-----|---------------------------|---|-----|
| 1) | $1+(1-3)-(5-8)+(-6+2)$   | = | -2  | 6)  | $-2(+2(-3(+2(-3+1))))$    | = | -48 |
| 2) | $8(3-2)-2(3-8)+5(-6-3)$  | = | -27 | 7)  | $-8/2+(3+2)/(8-3)$        | = | -3  |
| 3) | $(1-3)(-5+2)(8-6)(3-1)$  | = | +24 | 8)  | $-7+23-6-(-10)+(-3)(4+1)$ | = | +5  |
| 4) | $3(2-6)+(-8+4)-(4-3)$    | = | -17 | 9)  | $12/(-1/4)+(-36)/(-9)$    | = | -44 |
| 5) | $5(-3+2)-2(6-2)-(+7-20)$ | = | 0   | 10) | $(-4)^2+21/3+4$           | = | +3  |

The words are

- Line 1 = -2 = flares
- Line 2 = -27 = energy
- Line 3 = +24 = sunspots
- Line 4 = -17 = X-ray
- Line 5 = 0 = atmosphere
- Line 6 = -48 = gas
- Line 7 = -3 = coronal mass ejections
- Line 8 = +5 = days
- Line 9 = -44 = aurora
- Line 10 = +3 = harmless

Our sun is a very predictable star. Each day it rises and sets as the world turns upon its axis, and warms the Earth making life possible. But the sun is also a stormy star. It produces 1) **flares** and incredible explosions of 2) **energy** almost every day. Sometimes, its entire surface is speckled by 3) **sunspots** that come and go every 11 years. In 2013, the sun was at the peak of its maximum stormy activity. This means that many more flares and explosions of gas were happening compared to other times in the 11-year cycle. Solar flares are bursts of intense 4) **X-ray** light that can cause problems for radio communication on Earth. They also heat up the 5) **atmosphere** and cause it to expand into space. About 1000 of these flares were detected during the first 8 months of 2013.

Occasionally the sun ejects billion-ton clouds of 6) **gas** called 7) **coronal mass ejections** or CMEs. Traveling at over a million miles an hour, they can reach Earth in only a few 8) **days**. When they arrive, they cause problems for satellites and our electric power grid, but they also cause beautiful 9) **aurora** in the northern and southern skies. Most CMEs are not directed towards earth and are completely 10) **harmless**.

So, even though the sun looks the same every day, it really is a very stormy star that can sometimes create unpleasant surprises for us here on Earth!