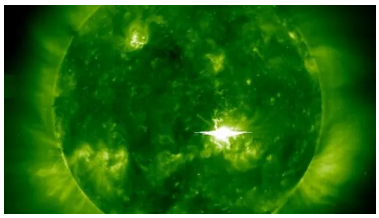
From Sun to Earth
Space Weather Prediction Center

Name _____ Class _____

Space weather originates from the Sun. It comes in many forms, such as bursts of energy from the Sun called solar flares, large explosions of solar material into space called coronal mass ejections, and the continuous flow of particles from the Sun called the solar wind. Space weather can cause impacts here on Earth, such as GPS accuracy errors or disruptions and electric power provision disruptions to name a few.

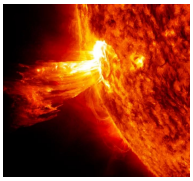
In this activity you will use your creativity to demonstrate space weather. Follow the directions below. You can show your teacher how you demonstrated space weather by taking photographs/video, describing or drawing what you did.

Solar Flares
The light in a solar flare travels at the speed of light. That takes 8 minutes to travel 150 million kilometers from the Sun to the Earth.



How can you show light flaring from the Sun to Earth?

Coronal Mass Ejections
Coronal mass ejections send plasma and magnetic energy away from the sun. This mass generally takes 2-4 days to travel from the Sun to the Earth.



What can you make to show a mass of plasma? It should be smaller than the Sun, but larger than Earth. Now show the coronal mass ejection moving from the Sun to Earth.

Solar Wind
Solar wind is a constant stream of plasma and particles coming from the sun. The speed of solar wind around earth is usually about 300 km/s. However, it can sometimes increase to over twice as fast.

How can you demonstrate solar wind traveling from the sun to earth? Can you make it faster or slower?

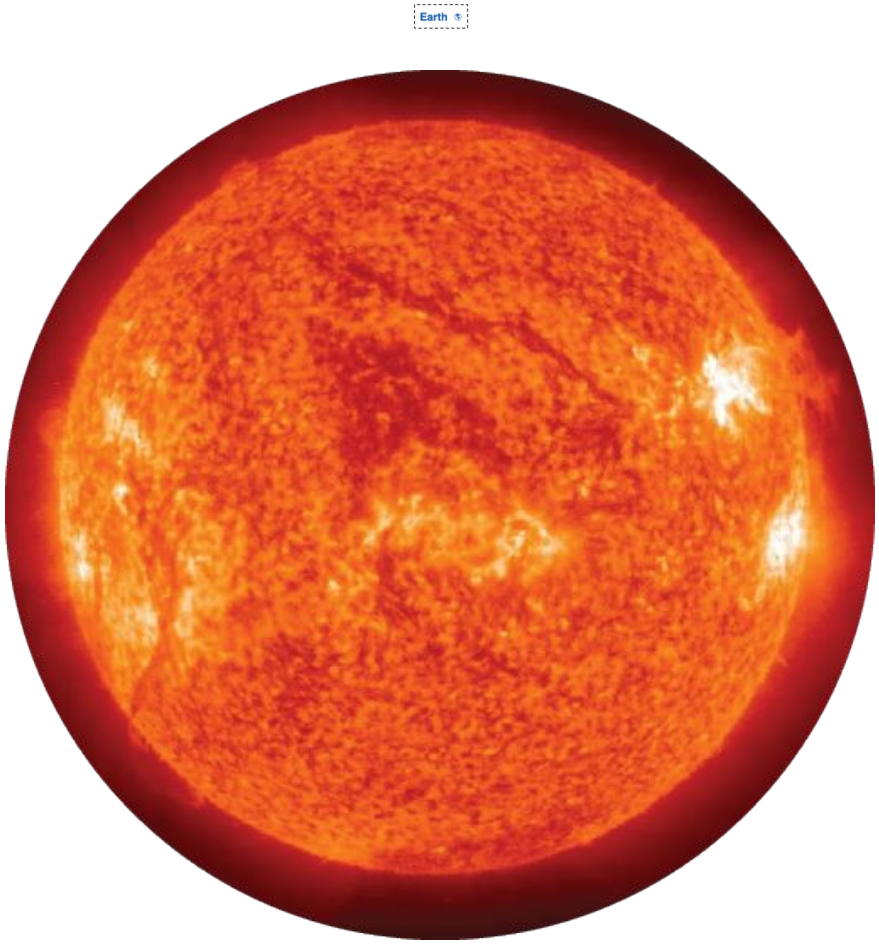
Set It Up
The diameter of earth is 12,742,000 meters (12,742 km). The diameter of the sun is 1,392,700,000 meters (1,392,700 km). The distance between them is 150,120,000,000 meters (150,120,000 km). Of course you need to use smaller numbers. You can use the sun and earth images in Option 1 or Option 2, or create your own. Here are measurements you can use:

Option 1 - Here we have divided all measurements by 14 billion. The sun is 9.9 cm in diameter, earth is .09 cm in diameter and the distance between is 10.7 meters.

Option 2 - Here we have divided all measurements by 9 billion. The sun is 15.5 cm in diameter, earth is .14 cm in diameter, the distance between them is 16.9 meters.

Option 1

For this option make sure the sun and earth are 10.7 meters apart (35 feet).



Option 2

For this option make sure the sun and earth are 16.7 meters apart (55 feet).