



Virtual Learning

# Aerospace Engineering

**The Sun**

May 4, 2020



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## Lesson: May 4, 2020

### **Objective/Learning Target:**

Students will learn about the Sun by exploring various aspects of it.



## **Bell Work:**

Describe the role engineers play in learning about space and the Sun.



## Let's Get Started:

### Watch Videos:

- [Sun 101 | National Geographic](#)
- [The Sun: Crash Course Astronomy #10](#)



Different types of engineers are involved in the field of Aerospace. Aerospace engineers design and build airplanes and spacecraft. Other types of engineers, such as electrical and mechanical engineers, design, test and install systems for space bound equipment and ships. Engineers make telescopes, imaging systems, satellites, and other equipment to view the Sun. Engineers also design solar panels and other solar-powered.



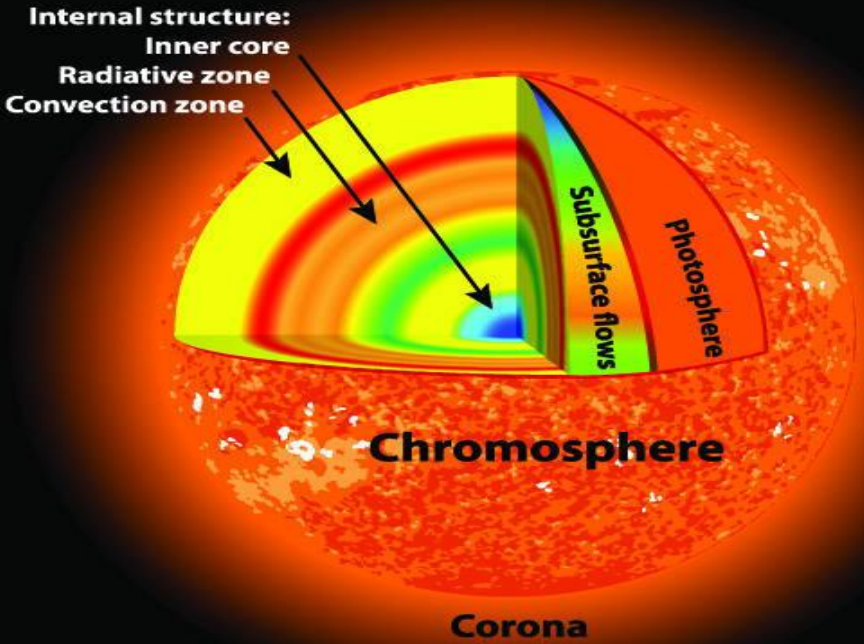
Engineers play a major role in gathering information about space, and the Sun. NASA employs several types of engineers such as aerospace engineers, aeronautical engineers, mechanical engineers, electrical engineers, civil engineers and chemical engineers. These engineers work together to design and build different types components of spacecraft. These include robotic arms, computer systems, and other vital parts of spacecraft. It also includes designing and building the launch pad to deciding what kind and how much of fuel to use.

The Sun is a giant, hot, explosive mass that IS the center of our solar system. One million Earths can fit inside the sun. The Sun supplies all of the Earth's energy, and without it, Earth would be colder and darker than Pluto. The temperature of the Sun is about 14 million degrees Celsius at its center. NASA watches the Sun very closely for things such as sunspots, solar flares, and coronal mass ejections (CMEs). Even though the sun is over 92 million miles away, these events can affect Earth through radiation.

The Sun's atmosphere is made up of three layers: the photosphere, chromosphere, and corona. The visible layer that can be seen is the photosphere. The next layer is the chromosphere, which is hotter than the photosphere but cooler than the corona. The corona is the hottest and outermost layer of the atmosphere. It is over 1 million degrees Celsius. Humans can only see the corona with the naked eye during a solar eclipse.



# SUN SUBSURFACE



Most of the energy on Earth comes from the Sun. It is either by its solar radiation or its gravitational pull on Earth. Fossil fuels come from plants and animals that used the Sun's energy to live millions of years ago. New technologies allow us to utilize the Sun's energy directly with solar panels designed and constructed by engineers.



# The Sun Understanding

1. What do engineers and scientists use to view and learn about the Sun?
2. How big is the Sun?
3. How far away is the Sun from the Earth?
4. How long does it take light to travel from the Sun to the Earth?
5. What produces the extreme temperatures of the sun?
6. How old is the sun?