**The Sun**

**Learning Target:** Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy in the form of radiation.

**Success Criteria:**

* Create a model to show the structure of the sun.
* Describe how helium and energy is created through fusion processes in the sun using hydrogen as its fuel source.
* Explain that the sun (like all stars) has a lifespan based on initial mass and that our sun’s life span is about 10 billion years.
* Using a model, predict how the relative proportions of hydrogen to helium change as the sun ages.

**Vocabulary:**

* **Radiation**: heat transfer by electromagnetic waves
* **Solar flare**: a magnetic storm on the Sun which is a very hot, bright spot that usually occurs near sunspots
* **Solar prominence**: arc of gas that erupts from the surface of the Sun which can loop hundreds of thousands of miles into space; can last for several months; sends solar material and radiation into space
* **Sunspots:** dark spots on the surface of the sun that are caused by intense magnetic activity that disrupts convection forming areas of reduced surface temperature

**Literacy:** *The Sun*

**Activities:**

Poster of the Sun

Sun Timeline

**Homework:**

1. The main source of energy for our planet is/are
   1. The sun
   2. The earth’s core
   3. Greenhouse gases
   4. Cosmic background radiation
2. Extremely large explosions on the sun that can lead to geomagnetic storms on Earth are called \_\_\_\_.
   1. Sunspots
   2. Solar flares
   3. The Northern Lights
   4. Ultraviolet radiation
3. What is another name for the surface of the sun?
   1. Biosphere
   2. Chromosphere
   3. Lithosphere
   4. Photosphere
4. A \_\_\_\_ star has a greater temperature than a \_\_\_\_ star.
   1. Blue, red
   2. Red, blue
   3. Red, yellow
   4. Yellow, blue
5. A bright, looping projection which extends from the surface of the sun is called a \_\_\_\_.
   1. Corona
   2. Solar wind
   3. Photosphere
   4. Solar prominence.
6. Which of these reactions is responsible for energy radiating from stars, including the Sun?
   1. Nuclear fusion
   2. Nuclear fission
   3. Exothermic
   4. Endothermic
7. Our sun is composed primarily of
   1. Carbon
   2. Helium
   3. Hydrogen
   4. Uranium
8. The luminosity of a star, as viewed from Earth, has an inverse relationship to the \_\_\_\_ of the star.
   1. Age
   2. Color
   3. Distance
   4. Mass
9. Sunspots are areas of the sun that produce a magnetic field 2500 times the strength of the magnetic field produced by Earth. When sunspots are at their maximum, which of these would be MOST affected on Earth?
   1. Gravity
   2. Temperature
   3. Electronics
   4. Earth’s rotation