

OUR STAR - THE SUN

ENERGY FROM THE SUN

Almost all energy on earth comes from our local star, the Sun. Plants use energy from the sun through "photosynthesis". Plants convert SOLAR ENERGY from the Sun's light into food energy. Animals get food energy from the sun when they eat the plants. People get the energy they need to live from the food they eat. This food includes plants and animals.

Fossil fuels are formed when organisms that lived long ago died and decayed. When we use these fuels to power machines, run cars, create electricity, or heat our homes, we use energy from the sun. Click on this button to see the different effects of Solar Energy.

The Effects of Solar Energy on Earth

http://www.observe.ivv.nasa.gov/nasa/exhibits/sun/sun_3.html

Temperature at the center of the sun is about 15 million degrees C. (27 million degrees F.). Because of the enormously high pressure and temperature of the sun, small particles of hydrogen heat up and smash into each other. The hydrogen particles fuse together to form larger particles, producing helium. This process, called FUSION, produces energy.

Energy from the sun, Solar Energy, travels from the sun in waves. There are different types of waves: visible light, infrared waves, ultraviolet waves, radio waves and X-rays. These waves carry different amounts of energy from the sun. Click on this button to see current images of the sun taken from space.

The Sun From Space

<http://www.lmsal.com/YPOP/ProjectionRoom/latest.html>

EXPLORING THE SUN

The Sun is the largest object in the solar system. It is so enormous that it can hold about 1 million Earths. The diameter of the sun is 870,000 miles. That is 109

times larger than the Earth's. The average distance from the Earth to the Sun is 93,000,000 miles. It takes light eight and a half minutes to travel from the Sun to the Earth. Click on this button to find some interesting facts about the sun.

Sun Facts

http://www.observe.ivv.nasa.gov/nasa/exhibits/sun/sun_2.html

Scientists have discovered that the sun is made up of several layers of gases. The center layer of the sun is the CORE. Even though the Core is about 25% of the sun's radius, the core contains most of the sun's mass. The temperature at the Core is about 27,000,000 degrees F. Energy from the Core moves outward and passes through the RADIATION ZONE and heats this layer. Energy continues to move to the sun's outer layer, the CONVECTION ZONE. Finally, the energy reaches the PHOTOSPHERE, the surface of the sun. The sun's temperature is about 10,000 degrees F. at the surface. The sun's atmosphere, the CORONA, extends about 600,000 miles from the surface. Click this button to learn more about the layers of the sun.

How the Sun Works

http://www.observe.ivv.nasa.gov/nasa/exhibits/sun/sun_6.html

To learn more about the structure of the sun and to find additional links, click this button.

The Structure of the Sun

<http://www.seds.org/nineplanets/nineplanets/sol.html>

Solar Cycle

Solar Activity

<http://helios.gsfc.nasa.gov/scycle.html>

SOLAR MAXIMUM is the term for an increase in solar activity which takes place every 11 years. SOLAR MINIMUM is the lowest point of sunspot activity during the solar cycle.

EXPLORING THE SUN'S FEATURES

Sunspots

<http://science.msfc.nasa.gov/ssl/pad/solar/feature1.htm#Sunspots>

The sun has several features which are visible at its surface. One of the most obvious are dark spots, called

SUNSPOTS. Sunspots are cooler regions of the sun which are caused by complicated interactions with the Sun's magnetic field.

Solar Flares (link)

<http://science.msfc.nasa.gov/ssl/pad/solar/flares.htm>

SOLAR FLARES are tremendous explosions on the surface of the Sun. In a matter of just a few minutes, they heat material to many millions of degrees and release as much energy as a billion megatons of TNT. Solar Flares occur near sunspots.

Solar Wind

http://science.msfc.nasa.gov/ssl/pad/solar/sun_wind.htm

The SOLAR WIND streams off the Sun in all directions at speeds of about 1 million miles per hour. The source of the solar wind is the Sun's hot corona. The temperature of the corona is so high that the Sun's gravity cannot hold on to it. Although we understand why this happens, we do not understand the details about how and where the coronal gases are accelerated to these high velocities. We do know that solar wind is related to coronal heating.

Solar Eclipse

http://www.hermit.org/Eclipse/why_solar.html

All SOLAR ECLIPSES involve the Moon passing between the Earth and the Sun. The moon's shadow is cast on the Earth. The type of eclipse which can be seen depends on whether the Moon passes directly or partly between the Earth and the Sun. Where you are on Earth when you observe an eclipse determines the type of eclipse you will see.

Internet Weblinks

www.bhs.bboed.org/public/curricul/science/NASA_Sun/SunWebResources.html

Sun Portfolio Project

http://www.bhs.bboed.org/public/curricul/science/NASA_Sun/SUNPORT.html