

Facts on the Sun:

Distance from Sun to Earth is 149,500,000 Km's (93 Million miles)

It takes 8.4 minutes for light to travel from the Sun to Earth

If the world's fastest land animal was to cover the same distance, it would take the cheetah over 151 years at 70 miles per hour

The Sun's temperature is 5800°c ~ Water boils at 100°c

Solar Energy Timeline

<p>INCLUDEPICTURE "http:// www.newton.mec.edu/ Brown/TE/HOT/ TIMELINES/SOLAR/ images/17002.gif" * MERGEFORMATINET</p>	<p>1700</p>	<p>Antoine LaVoisier built a solar furnace that could melt platinum (3236°F, 1780°C).</p>
<p>Antoine Cesar Becquerel observed that shining light on an electrode submerged in a conductive solution would create an electric current (called the photoelectric effect).</p>	<p>1839</p>	<p>INCLUDEPICTURE "http:// www.newton.mec.edu/ Brown/TE/HOT/ TIMELINES/SOLAR/ images/1839.gif" * MERGEFORMATINET</p>
<p>INCLUDEPICTURE "http:// www.newton.mec.edu/ Brown/TE/HOT/ TIMELINES/SOLAR/ images/1883.gif" * MERGEFORMATINET</p>	<p>1883</p>	<p>New Yorker Charles Fritts built the world's first solar electric module by coating the semiconductor selenium with an ultrathin, nearly transparent layer of gold. He believed that his photoelectric plate would soon compete with Edison's newly installed coal fired electrical generating plants. Fritts devices were very inefficient, transforming less than 1 percent of the absorbed light into electrical energy</p>

<p>Phillip Lenard investigated the photoelectric effect and cathode rays (the stream of electrons emitted from the cathode in a vacuum tube". In 1900 Lenard, a German physicist, studying the electrical charges liberated from a metal surface when it was illuminated, concluded that these charges were identical to the electrons observed in cathode rays.</p>	<p>1900</p>	<p>INCLUDEPICTURE "http:// www.newton.mec.edu/ Brown/TE/HOT/ TIMELINES/SOLAR/ images/1900.jpg" * MERGEFORMATINET</p>
<p>INCLUDEPICTURE "http:// www.newton.mec.edu/ Brown/TE/HOT/ TIMELINES/SOLAR/ images/1916.jpg" * MERGEFORMATINET</p>	<p>1916</p>	<p>An effect had been noticed early on that when light of a high enough frequency is shined on a metal, the metal will eject electrons. This one effect and all of its subtle clues led Albert Einstein in 1905 to propose that light behaves as a particle like wave packet called a photon. The majority of prominent physicists strongly opposed this notion for a period of about 10 years. It wasn't until 1915 when Robert Millikan (initially trying to disprove Einstein's theory) ended up verifying it completely, and convinced the rest of the physics world.</p>

Dr. Jan Czochralski discovers a way to grow single crystal silicon by accident but with careful observation. One evening he left aside a crucible with molten tin. Later that evening, instead of dipping his pen in the inkpot, he dipped it in the crucible and withdrew it quickly observing a thin thread of solidified metal hanging at the tip of the pen. His method was forgotten for years until 1950 when an increasing demand for semiconductor electronic materials forced Bell Labs to apply the "Czochralski method" for growing large single

crystals on an industrial scale.

HYPERLINK "http://www.techfak.uni-kiel.de/matwis/amat/elmat_en/kap_5/advanced/t5_1_4.html" [A Biography](#)

1918	INCLUDEPICTURE " http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/SOLAR/images/1918.jpg " * MERGEFORMATINET
INCLUDEPICTURE " http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/SOLAR/images/1921.jpg " * MERGEFORMATINET	1921 Albert Einstein received the Nobel Prize for his theories explaining the photoelectric effect. Albert Einstein, in 1905, announced the Photoelectric Effect. He noted that light shining on certain metals like cesium (Cs) will knock some electrons from that metal. Einstein said that light is not only a wave, but also a particle. These particles, called photons, are related to the electrons they produce by the equation: $E = h * n$ (Planck's constant)

Russell Ohl invents a silicon solar cell. When Ohl shined light on the crystal rod, energy from the light kicked sluggish electrons out of their resting places and gave them the boost they needed to travel around the crystal. But due to the barrier, there was only one way they could travel. All those electrons moving in a single direction became an electric current. Ohl's crystal was the ancestor of modern day solar cells, which take energy from the sun and convert it into electricity.

Picture HYPERLINK "<http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/SOLAR/images/1941.gif>" [1](#), HYPERLINK "<http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/SOLAR/images/1941.gif>" [2](#), HYPERLINK "<http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/SOLAR/images/1941.gif>" [3](#),

HYPERLINK "<http://www.pbs.org/transistor/science/events/pnjunc.html>" [PBS: Silicon P-N Junction](#)

HYPERLINK "<http://www.pbs.org/transistor/album1/ohl/>" [PBS: Biography](#)

1941

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TIMELINES/SOLAR/images/1941.jpg" *
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INCLUDEPICTURE "http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/
SOLAR/images/1973.jpg" * MERGEFORMATINET OPEC Energy Crisis causes
U.S. to reexamine use of renewable energy sources; federal and state tax credits result in
rapid growth for a new solar industry.

Picture HYPERLINK "http://www.newton.mec.edu/Brown/TE/HOT/TIMELINES/
SOLAR/images/1973.gif" [1](#), HYPERLINK "http://www.newton.mec.edu/Brown/TE/
HOT/TIMELINES/SOLAR/images/19732.gif" [2](#)

Tax credits for residential
solar systems ended

1986

| HYPERLINK "http://www.newton.mec.edu/brown/te/HOT/hot_links.html" [H.O.T.](#) |
HYPERLINK "http://www.newton.mec.edu/Brown/TE/te.html" [TECH ED](#) |
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93,000,000 Miles

8.4 Minutes Sunlight to Earth

If you think that planet Earth is a big place. Think again,
The Sun is 100 times bigger