

# SUMMER OF WORK AND LEARNING

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## THOMAS ALVA EDISON

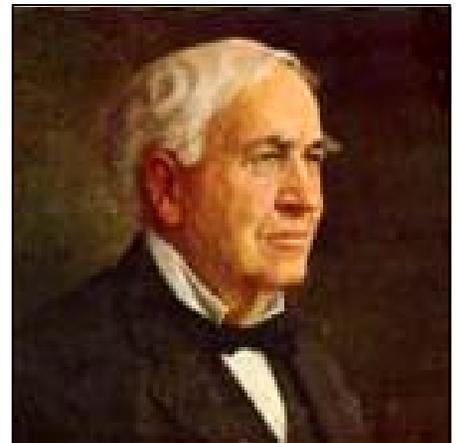
Thomas Alva Edison was born on February 11, 1847, in Milan, Ohio. He was the youngest of seven children born to Nancy and Samuel Edison.

Edison attended public school for a short amount of time, but was taken out of school by his mother after his teachers complained that he asked too many questions.

Edison was then schooled at home by his mother in his father's library. After a few years, his thirst for knowledge exceeded what his parents could teach him, so they took him to the public library.

Every day, he would go to a different shelf at the library and start reading books from the bottom to the top.

At the age of 12, Edison got his first job at a local railroad station selling newspapers, snacks, and his own paper. His greatest hobby was studying chemistry and conducting chemical experiments while at work. Unfortunately, one of his experiments led to a fire at the train station. A conductor at the station was so outraged that he struck Edison on the side of his head, causing a severe loss of hearing.



## EDISON IN BROCKTON

Many people know Thomas Edison as the inventor of the first practical and lasting electric light bulb, *but*, are not aware that he spent about two years in Brockton developing his three wire electricity distribution system. Edison sited his three-wire prototype at the heart of Brockton

with his generating plant on School Street near City Hall in what is now the headquarters for the Metro South Chamber of Commerce. The three-wire power feeder system allows electricity to safely flow from a central generating station to our homes, industry, etc.

Edison chose Brockton to

be the place for his model for the world because it was one of the most progressive cities in the nation. Unfortunately, Brockton's role in showcasing the world's first underground electrical generation and distribution system is not widely known, and, underappreciated.

Many people who live in

### Activity Of The Week

Have you ever wondered how it would feel to have electricity in your mouth? Well, you're in luck because this activity will give you the opportunity of a life time.

#### Materials:

- Wintergreen Lifesavers
- Mirror
- Dark Room

#### Procedure:

Put the wintergreen lifesavers in your mouth and chew with your mouth open in a dark room in front of a mirror.

#### What should happen:

The wintergreen lifesavers should give off a lightning affect in your mouth creating the allusion that electricity is actually forming inside of your mouth.

## THOMAS ALVA EDISON (CONTINUED)

Regardless of his disability, Edison made multiple contributions to society and mankind.

In 1863, at the age of 16, Edison successfully designed his first genuine invention; the automatic repeater. The automatic repeater transmitted telegraph signals between stations allowing virtually anyone to translate codes at their own pace and convenience.

In 1877, Edison invented the first phonograph, a music player used for silent movies and also his favorite invention. The thought of bringing movies to life moved Edison. In 1879 Edison invented the first commercially practical electric light bulb.



Thomas Alva Edison at 12

Edison also invented or improved upon many other things  
Inventions such as :

- Cement
- Rubber
- Electric Pen
- Electric Vote Recorder
- Monograph
- Paraffin Paper
- Carbon Telephone Transmitter
- Motion Picture Camera
- Fluoroscope
- Fluorescent Electric Lamp

During his lifetime, Edison received over a thousand patents for various inventions and improvements to existing devices and systems.

## EDISON IN BROCKTON (CONTINUED)

Brockton are unaware of the work that Edison did here, and its significance for the world.

On October 1, 1883, with the words "**Let there be light**", Edison threw the switch that sent electricity to various buildings in Brockton and heralded the mod-

ern era in the generation of electric power for the world. The model that he built in Brockton in 1883

Is fundamentally the same as it is today on a world-wide scale. The City of Brockton was the site for the start of this historic achievement.

*"I never perfected an invention that I did not think about in terms of the service it might give others..."* -Thomas Edison

## EDISON AND ENERGY CONSERVATION

Before energy conservation became headline news, Thomas Edison foresaw that conserving energy would help us in the long run. We now realize that he was right and that conserving energy is of utmost importance to us. One of Edison's ideas was to build a windmill to power a cluster of four to six homes. In 1911, he built a prototype of such a system in New Jersey to demonstrate that this could work. Edison also created special batteries to power

his idea of the electric car (seen at the right). Unfortunately, his ideas were not widely supported. However, after 100 years, we are now starting to realize how important Edison's ideas about energy conservation were. Edison believed that "someday, man will harness the rise and fall of the tides, imprison the power of the sun, and release atomic power." Fortunately, we are starting to work towards this goal today through the use of solar and wind technologies.



Edison and the electric car.

## ENERGY CONSERVATION TODAY

Many people are now researching ways to conserve energy since fossil fuels are starting to run out and are very costly. Many steps are being taken to pursue alternatives to our present sources of energy. Companies and schools are finding ways to conserve energy and save money. For example, The City of Brockton has replaced many of its old inefficient building systems with new computerized, energy efficient heating systems complete with energy management systems (EMS) to help control heating and cooling costs. Though these systems cost a lot of money, it has also more than paid for itself and saved Brockton millions of dollars. Equipment can now be controlled and monitored

from anywhere in the world through the internet. Some classrooms also contain sensors that shut off lights that are not being used in order to save electricity.

Brockton is not the only city taking steps towards energy conservation. The town of Hull is also making progress towards energy conservation. They have already built two wind turbines to harness the power of the wind instead of relying on fossil fuels. These turbines are already providing fifteen percent of the town's electricity. With four more wind turbines, they will be able to power 100% of the town's electricity. Currently the

town is looking into an offshore wind farm.

The need for energy conservation and the increased use of renewable energies, is of great importance not only for our environment but our future.



Alternatives for energy that are environmentally safe.

## RENEWABLE ENERGY

Thomas Alva Edison once said **"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that"**.

Edison was right, fossil fuels will not last forever so we should try to take advantage of other sources of

**"Someday, man will harness the rise and fall of the tides, imprison the power of the sun, and release atomic power."** -Edison

energy that will not run out such as solar and wind energy.

Wind and solar power are sources of renewable energy that are infinite. Wind turbines are used to harness wind energy while solar panels are used to harness energy from the sun. A typical wind tur-

bine is about 240 feet tall and produces 1.5 million kilowatts per hour each year. This can power about 250 homes, streetlights, and traffic lights. Solar energy can power homes and the energy can also be stored in case of sunless days. In the long run, renewable energy will not only cost us less money, but might possibly save our lives.

## EFFECTS OF GLOBAL WARMING

Time is running out and the time to respond to drastic climate change is now. Fossil fuels are hurting our environment and health and we need to save our planet by using renewable energy.

There are many documented short term and long term negative effects caused by global pollution. One example is acid rain.

Acid rain is a form of precipitation that contains a high level of acid forming chemicals. The acid rain is getting into rivers in China and it is making people sick. These fossil fuels are hurting wildlife, people and children, as they create sulfur dioxide, a form of pollution that causes a steady increase in temperature around the earth. In China, sulfur

dioxide pollution is presumed to have contributed to the premature death of thousands of people in the past year.



**SUMMER OF WORK AND LEARNING:**

**THE ENVIRONMENTAL TEAM**

“The Answer my friend...”



The Summer of Work And Learning Program gives high school students the opportunity to gain experience in fields of interest to them. These students not only get to explore various work sites to get a glimpse into the professional world, they also learn to make a connection between their work sites and their academics.

*We thank the Sheehan Family Foundation for the funding that sustained the Environmental Team in the summer of 2008, enabling the creation of this report.*



**YOU DECIDE!**

One hundred and eight million people are born everyday, causing an increase in the demand for energy. Fossil fuels, the primary source for energy, are not only running out, but are also harmful to the environment and people’s health. As a result, many people are considering the possibilities of clean and renewable energy such as solar and wind power. However, these new technologies used to harness this type of energy are not always well received.

Solar and Wind Energy

Solar and wind energy are both sources of renewable energy. Solar energy is the use of the sun’s light in structures such as homes and buildings. Active solar systems such as solar panels or solar powered turbines collect the sun’s heat, store it, and distribute the warmth when needed. Wind energy, on the other hand, is a process by which the wind is used to generate mechanical power or electricity. Technologies such as

wind turbines then convert the kinetic energy of the wind into mechanical energy that can be used for household tasks.



People who support renewable energy argue that it will help reduce the amount of pollution both in the air and in the water. Since the amount of pollution in the air will decrease, then the effects of asthma and deaths due to lung and heart related diseases will also decrease.

The decrease of pollutants in the air will also slow down global warming while the decrease of pollutants in water will help save plant and animal life. Using renewable energy will also conserve fossil fuels for future generations.

People who are against renewable energy argue that it will cost too much to get the technology needed. They also feel that animals such as birds and marine life will be hurt by the turbines. Land owners are also afraid that wind farms take up too much land, change landscapes and may also lower property value. And some people question what will happened when the conditions are not right, and the sun is not out or there is no wind. **What Do You Think?**

**Which world do you want?** A clean world with renewable energy or a polluted world?