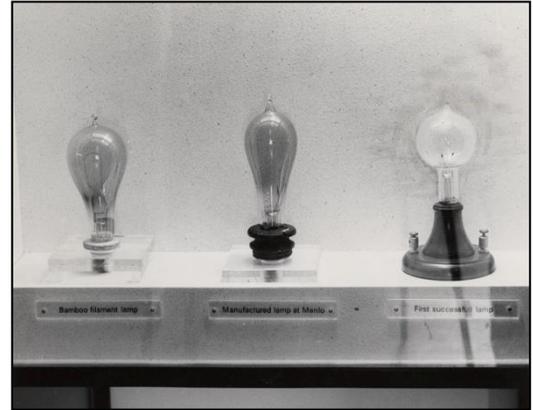


IT HAPPENED HERE NEW JERSEY

Thomas Edison: The Wizard of Menlo Park

Target Age: Elementary /Middle
School
Time Period: 20th Century
Featured County: Essex
NJ 350th Theme: Innovation



Courtesy of New Jersey State Archives; Department of State.

Common Core States Standards for English Language Arts:

W.CCR.3- Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.

W.CCR.4- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

SL.CCR.1- Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

New Jersey Core Curriculum Content Standards:

Social Studies: 6.1.12.B.5.b, 6.1.12.C.5.c, 6.1.12.D.5.a

FOCUS QUESTION:

Thomas Edison once suggested that “genius is 1 percent inspiration and 99 percent perspiration.” With over one thousand patents to his name, Edison easily fits this description. He was renowned for his hard work and for persistence. “I have not failed,” he argues, “I’ve just found 10,000 ways that won’t work.” What impact did Edison’s attitude have on his ability to be an innovator? What lessons can we take away from Edison’s attitude and work ethic?

BACKGROUND:

Thomas Alva Edison was one of the most famous and prolific inventors of all time, responsible for such innovations as the incandescent light bulb, the phonograph, and the motion picture as well as improving the telegraph and telephone. In his 84 years, he acquired an astounding 1,093 patents, an average of a week over the life of his career.

Edison was born in Ohio, grew up in Michigan and worked in several Midwestern cities as a telegraph operator. He then moved to Boston where he invented an electric vote recorder. As an adult, Edison

moved to New Jersey because of his work with the telegraph industry. In fact, while he is best known for his work with light, his earliest inventions were connected to the telegraph, including an improved stock ticker and a way to send four messages on a single wire.

In 1878, Edison built his famous laboratory in Menlo Park, where he invented the phonograph and electric light. Edison soon became known as the “Wizard of Menlo Park” because of the miraculous nature of his inventions which so radically changed how people lived. In 1887, he built a new, larger laboratory in West Orange, New Jersey. The facility included a machine shop, phonograph and photograph departments, a library, and additional buildings for metallurgy and chemistry.

At his laboratories in Menlo Park and West Orange Edison created the first research and development laboratories where he and his teams of researchers helped to create so many inventions we still use today. Imagine life without being able to turn on the lights, watch a movie, or make a telephone call. These are only three of the hundreds of every day actions that his work has made possible.

ACTIVITY:

Ask students to think about light bulbs. Consider setting the stage by turning off all electric lights; this will be an immediate and dramatic change in the classroom environment (if your classroom has no natural light, make sure students are seated when you throw the switch!). Prompt the discussion by asking what happens when it gets dark. When and where do we use light bulbs? Encourage them to think about how electric light is used inside and outside, every day, and for special occasions:

- street lights
- table lamps
- lighted business signs
- decorative lights
- refrigerator lights
- holiday lights

Students can either work in small groups to compile their lists, or take turns writing answers on the board.

Now ask students to consider how houses and cities were lit before light bulbs (such as sunshine, candles, oil lamps, etc.). Edison perfected the light bulb in the 1870s. How did life change as a result? What kinds of activities are possible in the dark now that would not have been possible earlier? Does this change over the year as days become longer or shorter (students might research when the sun rises and sets during different seasons?). You might also ask students to remember if they have ever experienced life without electric power, perhaps during a power outage or storm. Many might recount their experiences during Hurricane Sandy.

If time permits, have students write a brief one paragraph response to the following question to share with class: “If you didn’t have electricity for one day, how would your life change?”

This same kind of activity can be done by substituting recorded sound for the light bulb. In this case, students would compile lists of how often they hear recorded sound. Most people do not listen to records anymore, but any music (whether on a CD, iPod, or radio) was originally recorded. There are many other examples of daily recorded sound as well, including televisions, video clips on iPods, iPads, and computers, the automated voices in GPS devices (“turn right in a quarter mile!”), elevators (“second

floor”), books on tape or CD, and publically broadcast announcements. Even the “please wait while we connect your call” message on automated telephones is recorded sound.

To extend this activity, divide students into small groups and ask them to consider the impact of more inventions from the last ten years (smart phone, iPod, iPad, etc). After they have generated their lists, ask them to choose the one innovation that they consider important to their daily lives and answer the following questions (they may need to do some research):

- a. Who invented it?
- b. How is this invention used?
- c. Does each student have one? Why or why not?
- d. Now consider the light bulb- how does their innovation compare in importance and impact? Can the inventor be compared to Edison?

FOLLOW-UP:

Thomas Edison is almost as famous for his quotations about hard work as he is for his inventions. Ask the class to consider the five statements provided below (this can either be done as a group or each small group could consider one quotation). What do these statements reveal about Edison and his work ethic?

“Negative results are just what I want. They’re just as valuable to me as positive results. I can never find the thing that does the work best until I find the ones that don’t do it.”

“What is genius? Why, genius is simply hard work, stick-to-it-ive-ness and common sense.”

“There’s an old saying, ‘If at first you don’t succeed, try, try again.’ But most of us don’t try again. We try something new, something that seems easier.”

“Imagination supplies the ideas, and the technical knowledge helps to carry them out.”

“We sometimes learn a lot from our failures if we have put into the effort the best thought and work we are capable of.”

WANT TO LEARN MORE?

Places You Can Visit

Thomas Edison National Historical Park: <http://www.nps.gov/edis/index.htm>

The Thomas Edison Center at Menlo Park: <http://www.menloparkmuseum.org/>

The Edison Memorial Tower and Museum: <http://www.menloparkmuseum.org/commemorative-history>

More Classroom Activities

National Historical Park, Teacher Resources:

<http://www.nps.gov/edis/forteachers/curriculummaterials.htm>

National Education Association: <http://www.nea.org/tools/lessons/thomas-alva-edison-grades-k-5.html>

Thomas Edison's 31 Greatest Inventions (include full transcripts of patents for specific inventions, better for older learners): <http://www.businessinsider.com/thomas-edison-inventions-light-bulb-and-30-more?op=1>

Ten Inventions by Thomas Edison (that you've never heard of): <http://science.howstuffworks.com/10-inventions-thomas-edison.htm#page=5>

For More Information

"Edison's Miracle of Light," PBS American Experience Documentary:
<http://www.pbs.org/wgbh/amex/edison/>

Robert Friedel and Paul Israel, *Edison's Electric Light: The Art of Invention* (Baltimore: Johns Hopkins University Press, 2010); revised edition of *Edison's Electric Light: Biography of an Invention* (New Brunswick, NJ.: Rutgers University Press, 1986).

"Inventing Entertainment," Motion Picture and Sound Recordings, Edison Companies, Library of Congress: <http://memory.loc.gov/ammem/edhtml/edhome.html>

Thomas Edison Papers, Rutgers University: <http://edison.rutgers.edu/>

CREDIT INFORMATION:

In Classroom Activity:

Pg. 1: Image of Edison light bulb, Edison 004. New Jersey State Archives, Department of State.

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