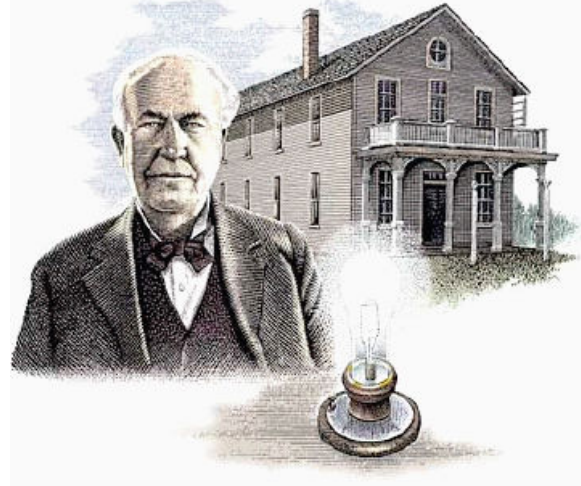


**THOMAS EDISON:
INVENTOR, LECTURER, AND PRANKSTER
CURRICULUM GUIDE**

Applause! Series
CIVIC CENTER OF GREATER DES MOINES
NOVEMBER 16-18, 2009

INTRODUCTION

Try to imagine your life without the electric light, recorded music, or motion pictures. Indeed, it is difficult to envision a world without the inventions of Thomas Alva Edison (1847-1931). In the production *Thomas Edison: Inventor, Lecturer, and Prankster*, students will learn about the life and work of one of America's greatest inventors. Facts about Edison are presented along with four life lessons that will encourage students to continue to explore the world around them.



THE FOUR LESSONS OF THOMAS EDISON

The Value of Hard Work

Edison's most famous quote is, "Genius is one percent inspiration and ninety-nine percent perspiration." Edison only slept an average of four hours each night. He often worked in seventy-two hour stretches to perfect an invention. Edison also believed in playing hard. His employees were treated to impromptu sing-alongs, poetry contests, and pranks to break the tension of difficult work sessions. Each of his labs had a pipe-organ for singing during breaks.

The Value of Mistakes

Edison believed that there was no such thing as a mistake as long as you learned from it. He said, "If I find 10,000 ways something won't work, I haven't failed; I am not discouraged, because every wrong attempt discarded is just one more step forward."

The Value of Viewing a Problem from a Different Perspective

Edison's resourcefulness made him a success. He faced challenges with a positive attitude and often found creative ways to overcome problems. One example of this approach relates to Edison's hearing. Although Edison was almost deaf, he found that by biting the sounding horn of his phonograph he could, "listen through his jawbone," and hear sound qualities other people could not.

The Value of Enjoying One's Work

Edison took pride in his work, which was truly a life-long passion. From the age of seven he had a laboratory for experiments. Edison died when he was 84 years old. He continued inventing until the last days before his death. He still holds the record for the greatest number of U.S. patents ever awarded to an individual – 1,093. His final patents were awarded after his death.

EXAMPLES OF THOMAS EDISON'S INVENTIONS

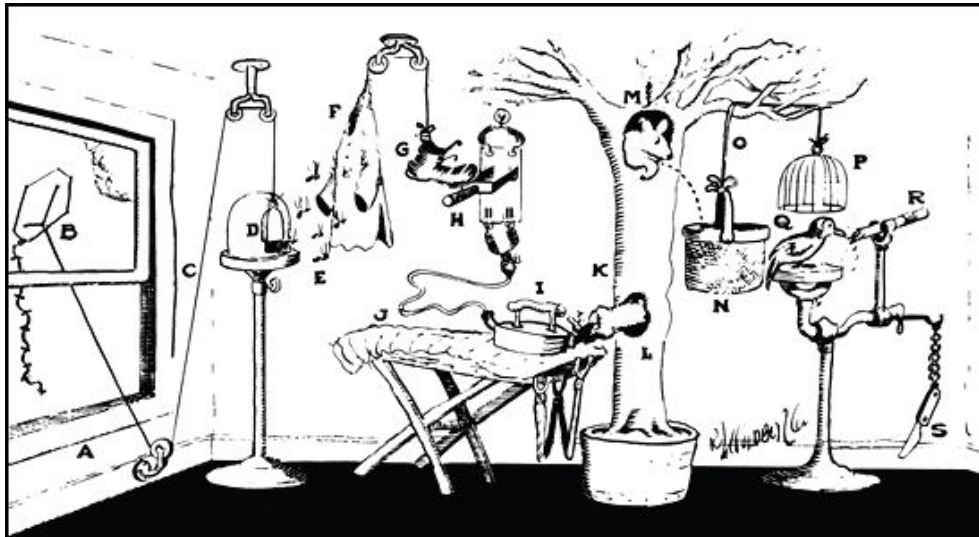
Here are a few of Thomas Edison's 1,093 inventions:

Printing telegraph Mimeograph machine Motion picture camera	Phonograph Talking dolls Electric railway	Light bulb Light switches Light sockets
Electric meters Insulated wire Dynamo generators Telephone improvements	Vacuum pumps Fluoroscope Fluorescent lamp Wax paper	Carbon transmitter Storage battery Miner's lamps Magnetic ore separator

RUBE GOLDBERG

Rube Goldberg (1883-1970) was a very popular sports and editorial cartoonist. His most famous cartoons were of intricate inventions to accomplish simple tasks. His inventions were never practical, efficient, or possible, but they were always entertaining.

Share the following Goldberg invention with your class:



Open window (A) and fly kite (B). String (C) lifts small door (D) allowing moths (E) to escape and eat red flannel shirt (F). As weight of shirt becomes less, shoe (G) steps on switch, (H) which heats electric iron (I) and burns hole in pants (J). Smoke (K) enters hole in tree (L), smoking out opossum (M) which jumps into basket (N), pulling rope (O) and lifting cage (P), allowing woodpecker (Q) to chew wood from pencil (R), exposing lead. Emergency knife (S) is always handy in case opossum or the woodpecker gets sick and can't work.

ACTIVITY: CREATE A SILLY INVENTION

Have students create their own inventions in the style of Rube Goldberg. Examples include a machine to sharpen a pencil or turn on the water fountain. Students may enjoy creating a machine using body movements of the whole class. Remind your students to start with a task and work backwards.

MORSE CODE

Thomas Edison roamed the Midwest as a tramp telegrapher for several years. Below is the Morse Code that he used to communicate messages to other telegraphers:

A . _	H	O _ _ _	U . . _
B _	I . .	P . _ _ .	V . . . _
C _ . . .	J . _ _ _	Q _ . . _	W . _ _
D _ . .	K _ . _	R . _ .	X _ . . _
E .	L . _ . .	S . . .	Y _ . _ _
F	M _ _	T _	Z _ . . .
G _ _ .	N _ .		

ACTIVITY: DECOING MESSAGES

Have your students use the Morse Code key above to decode the message below. They should write the appropriate alphabet letter under the corresponding Morse Code symbol.

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    _ _      . _      . _ .      _ . _ _      . . . .      . _      _ . .
    _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _
    . _      _ _ _ _   . _ . .      . .      _      _      . _ . .      .
    _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _
    . _ . .      . _      _ _      _ . . .
    _ _ _ _   _ _ _ _   _ _ _ _   _ _ _ _
  
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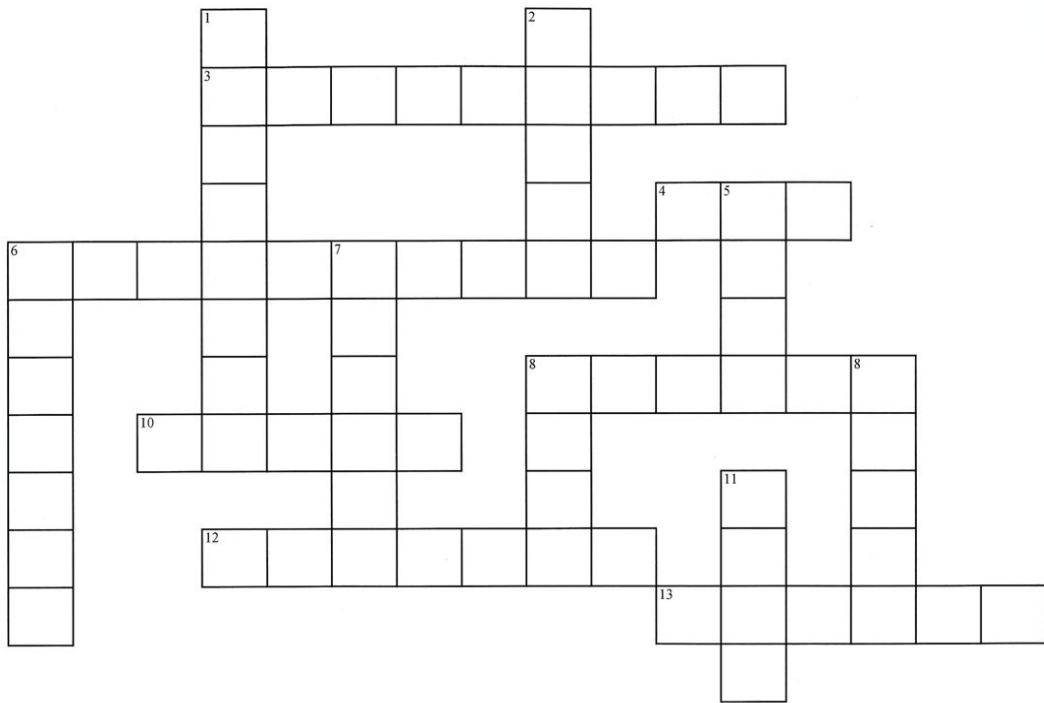
DISCUSSION QUESTIONS

1. When the History Channel was choosing the most important invention of the millennium, they selected Guttenberg's printing press because it enabled people to share knowledge and inventions throughout the world. What do you think was the greatest invention ever and why? Was it the greatest invention for the world or just for you?
2. An invention does not have to be a machine. Any new solution to a problem is an invention. Can you think of a problem that you have solved in a unique way?
3. Imagine how the world would be different if Edison had not invented recorded sound. There would be no answering machines, CDs, or radio. All of the movies we watch would be silent. Now imagine how the world would be different if there were no light bulbs. Think of the machines that use light bulbs. How would this affect our daily routines?

POST-SHOW ACTIVITY: CROSSWORD PUZZLE

Below are clues taken from the show *Thomas Edison*. Have students use the clues to complete the crossword puzzle.

ACROSS	DOWN
3. Where were the first movies made?	1. I am the world's greatest _____.
4. What lit city homes before electric light bulbs?	2. I worked as a "_____ telegrapher" for several years.
6. What was my favorite invention?	5. What is my middle name?
8. I was called "The _____ of Menlo Park."	6. I have more of these than anyone else in the world!
10. I was a "candy butcher" on a _____.	7. _____ = 1 percent inspiration + 99 percent perspiration.
12. It's not a _____ as long as you learn from it!	8. _____ hard and play hard!
13. What is my last name?	9. I put small phonographs into talking _____.
	11. Telegraphers talk by using Morse _____.



CLASSROOM RESOURCES

www.nps.gov/edis/home.htm

www.tomedison.org

www.thomasedison.com

<http://americanhistory.si.edu/edison/index.htm>

BOOKS

Thomas Edison: Young Inventor (Childhood of Famous Americans Series) by Sue Guthridge, 1986. (Stories about Thomas Edison when he was a boy. Ages 7-13.)

The Thomas Edison Book of Easy and Incredible Experiments by James G. Cook, 1988. (20 experiments using electricity and magnetism. Ages 10-18 years.)

A Picture Book of Thomas Alva Edison by David Adler, 1999. (Picture book offering timeline of inventor's life. Ages 5-13.)

Support for Civic Center Education and Community Engagement programs provided by:

Alliant Energy, American Republic Insurance Company, Bradford and Sally Austin, Bank of America, Citigroup Foundation, Continental Western Group, EMC Insurance Companies, Jules and Judy Gray, Greater Des Moines Community Foundation, John Deere Des Moines Operations, Richard and Deborah McConnell, Pioneer Hi-Bred - a DuPont business, Polk County, Prairie Meadows Community Betterment Grant, Target, U.S. Bank, Wells Fargo & Co., Willis Auto Campus/Lexus of North America, and the more than 200 individual donors.

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Based on the study guide "Thomas Edison: Inventor, Lecturer, and Prankster" by Theaterworks/USA.