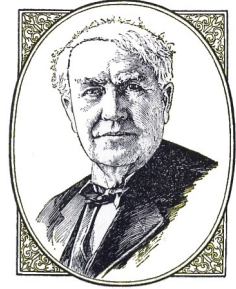


TEACHER'S GUIDE FOR

THOMAS EDISON: INVENTOR, LECTURER AND PRANKSTER

Thomas Edison was arguably one of the most influential people in all of history. He is variously credited with leading the transition from the Age of Steam to the Age of Electricity, “inventing” the Twentieth Century and developing the modern research laboratory, a cornerstone of corporate structure. Nearly eighty years after his death, he still holds the record for the greatest number of US Patents ever awarded to an individual—1,093. It’s hard to imagine a world without his gifts of electric light, recorded music and motion pictures. In Edison we find a true rags-to-riches story of a poor, self-taught boy who grew up to be the greatest inventor of his or any other age. In this assembly program about Edison’s life and work, students are presented with real-life lessons first-hand by one of New Jersey’s favorite sons.



THE FOUR BIG LESSONS OF EDISON

The life and inventions of Edison are presented in our presentation but an even greater effort has been made to present four lessons from the inventor’s life and work that the individual child can use over and over again:

The Value of Hard Work—Edison’s most famous quote is “Genius is one percent inspiration and ninety-nine percent perspiration.” This comes from a man who was known to sleep an average of four hours a night, surviving on short cat-naps throughout the day. He periodically worked for seventy-two hours stretches in order to perfect an invention. But unknown to most is his balancing ethic of playing hard. Edison employees were treated to impromptu sing-alongs, poetry contests and satirical writing to help break the tension of difficult work sessions. Edison was a great prankster. Each of his laboratories was equipped with a pipe organ for sing-a-longs. Is it chance his greatest inventions all focused on leisure?

The Value of Mistakes—Edison contended there were no such things as mistakes as long as you learned from them. This has become a spirited chant in the presentation. The pressure placed on students to succeed often blinds them to what can be learned from the attempt, perhaps making them fearful of the attempt itself. As Edison 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.” Childhood is filled with mistakes; it’s the child’s duty to accept the responsibility of finding a lesson from their failings.

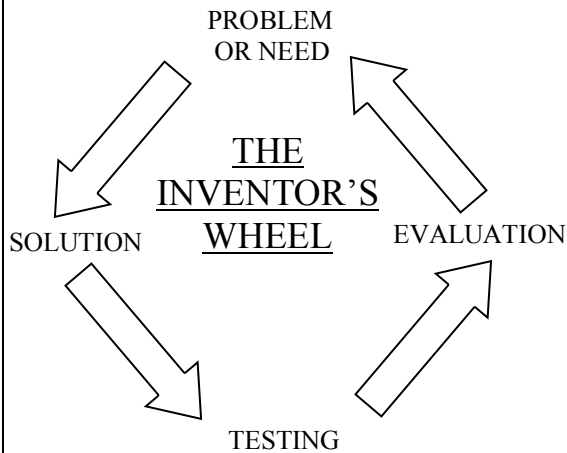
The Value of Viewing a Problem from a Different Angle—Many children are familiar with young Edison’s being kicked out of school for asking too many questions. Education at the time were a matter of learning by rote. Anathema to a creative mind like Edison’s. Luckily today students are presented with different methods of achieving a task, ref. multiplication tables vs. lattices. By looking at problems from a different angle, a child discovers the approach that parallels his talents. Another aspect of this lesson is Edison’s ability to “turn a liability into an asset.” Historians acknowledge this as perhaps the secret to Edison’s success. How could a man who was almost totally deaf perfect the phonograph?! Edison found that by biting the sounding horn of his phonograph and “listening through his jawbone,” he could “hear” sound qualities undetectable to the human ear, improving the quality of his recordings. Edison’s resourcefulness made him a success!

The Value of Enjoying One’s Work—Edison truly found his calling. He had found something that he loved to do. Something he (and the world) found important. And something he could take pride in. (A modern HR person would say, “Something you love. Something you’re good at. And something they’ll pay you for.”) Edison’s work always evolved out of what he loved to do. He loved inventing! As he said, “I always invent to obtain money to go on inventing.” From the age of seven on, Edison always had a laboratory in which to experiment. His final patents were awarded posthumously because he was inventing up until days before his death!

Looking at all this from a different angle: if you’re truly doing work you enjoy, the line between work and play blurs and mistakes are just another part of the game!

THOMAS EDISON:
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A TIP FROM THE WIZARD



Edison prided himself as an inventor, not a scientist or a discoverer. A scientist performs an experiment to see what will happen. A discovery is often an unexpected outcome. An inventor seeks to solve a specific problem or fulfill a specific need!

"I find out what the world needs, then I go ahead and try to invent it...none of my inventions came about totally by accident. They came about by hard work...I find out what the world needs, then I go ahead and try to invent it."

If your students are involved in creating their own inventions, one of their most important steps will be defining the problem or need they are trying to address. When the invention wheel seems out of kilter, try redefining the problem or need first!

PRACTICAL APPLICATIONS OF THE BIG FOUR LESSONS

One of the big four lessons we try to convey with THOMAS EDISON: Inventor, Lecturer & Prankster is the ability to look at a problem from a whole new angle. Is there a problem in your classroom that the students can try to rephrase from a new angle?

EXAMPLE: Students are late entering class after recess.

OLD SOLUTION: Just go faster!

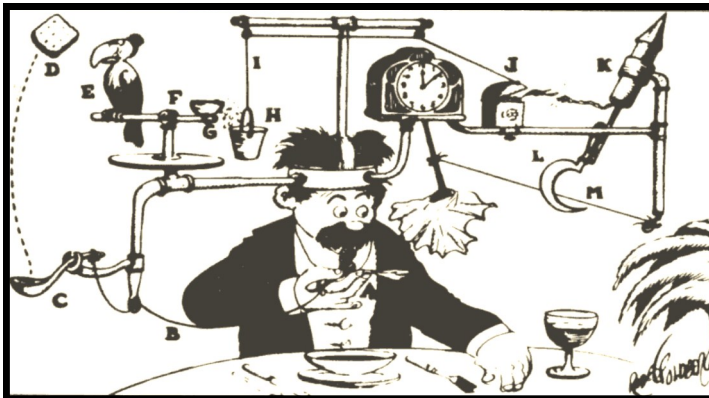
NEW ANGLE: Student lockers are too crowded to accommodate extra winter clothing.

NEW SOLUTION: Have students perform seasonal change-over several times a year.

Another lesson is enjoying your work. Explain to your students why you chose teaching as a career. What would they like to be and why?

INVENTIONS CAN BE FUN!

RUBE GOLDBERG (1883-1970) was a very popular sports and editorial cartoonist in the first half of the last century. His most famous creations were intricate inventions to accomplish simple tasks. His inventions were never practical, efficient or plausible but they were always a lot of fun. Modern college students still compete in "Goldberg Contests" to see who can invent the silliest and most complicated way to crack an egg!



Self-Operating Napkin

As you raise spoon of soup (A) to your mouth it pulls the string (B), thereby jerking ladle © which throws cracker (D) past parrot (E). Parrot jumps after cracker and perch (F) tilts, upsetting seeds (G) into pail (H). Extra weight in pail pulls cord (I) which opens and lights automatic cigar lighter (J), setting off sky-rocket (K) which causes sickle (L) to cut string (M) and allow pendulum with attached napkin to swing back and forth thereby wiping off your chin.

Have your class develop a silly invention to accomplish a simple task. An game many students enjoy is creating a machine using body movements of the whole class. (Hint: Start with task and work backwards.)

THOMAS EDISON: INVENTOR, LECTURER AND PRANKSTER

JUST SOME OF THOMAS EDISON'S 1,093 INVENTIONS

Telegraph innovations	Carbon transmitter	Dynamo generators	Magnetic ore separator
Printing telegraph (i.e. Stock-ticker)	Light bulb	Vacuum pumps	Mining equipment
Mimeograph machine	Light switches	Electric meters	Motion picture camera
Phonograph	Light sockets	Fluoroscope	Miner's lamps
Talking dolls	Electric meters	Fluorescent lamp	Storage battery
	Insulated wire	Electric railway	Synthetic carbolic acid

What if...?

Imagine how many little ways the world would be different if Edison hadn't invented recorded sound with his phonograph: No answering machines. None of your students would know what Louis Armstrong, The Beatles or Martin Luther King sounded like. We'd still be watching silent movies. No muzak in elevators. By the time Britney Spears became a superstar she'd be middle-aged.

Ask your students to consider how the world would be different if there were no Light Bulb. How would this affect our daily routines? Architecture (Buildings would be smaller to light interior rooms.)? All the machines that use bulbs—televisions, projectors, car headlights, refrigerators, light houses, airport runways, cameras, Easy-Bake Ovens, Christmas trees and Menorahs.

What do You Think?

What do you think was the greatest invention ever invented and why? Was it the greatest invention for the whole world or just for you? Possibility: Gutenberg's Printing Press. When the history channel was choosing its most important man of the millennium they chose Guttenberg. His printing press made it possible to disperse other's knowledge and inventions throughout the world. (LIFE Magazine chose Thomas Edison!)

What if...?

How might a your every day life be affected if a simple invention like the wheel had never been invented? Native American tribes lived for thousands of years without any knowledge of the wheel and yet many tribes were nomadic!

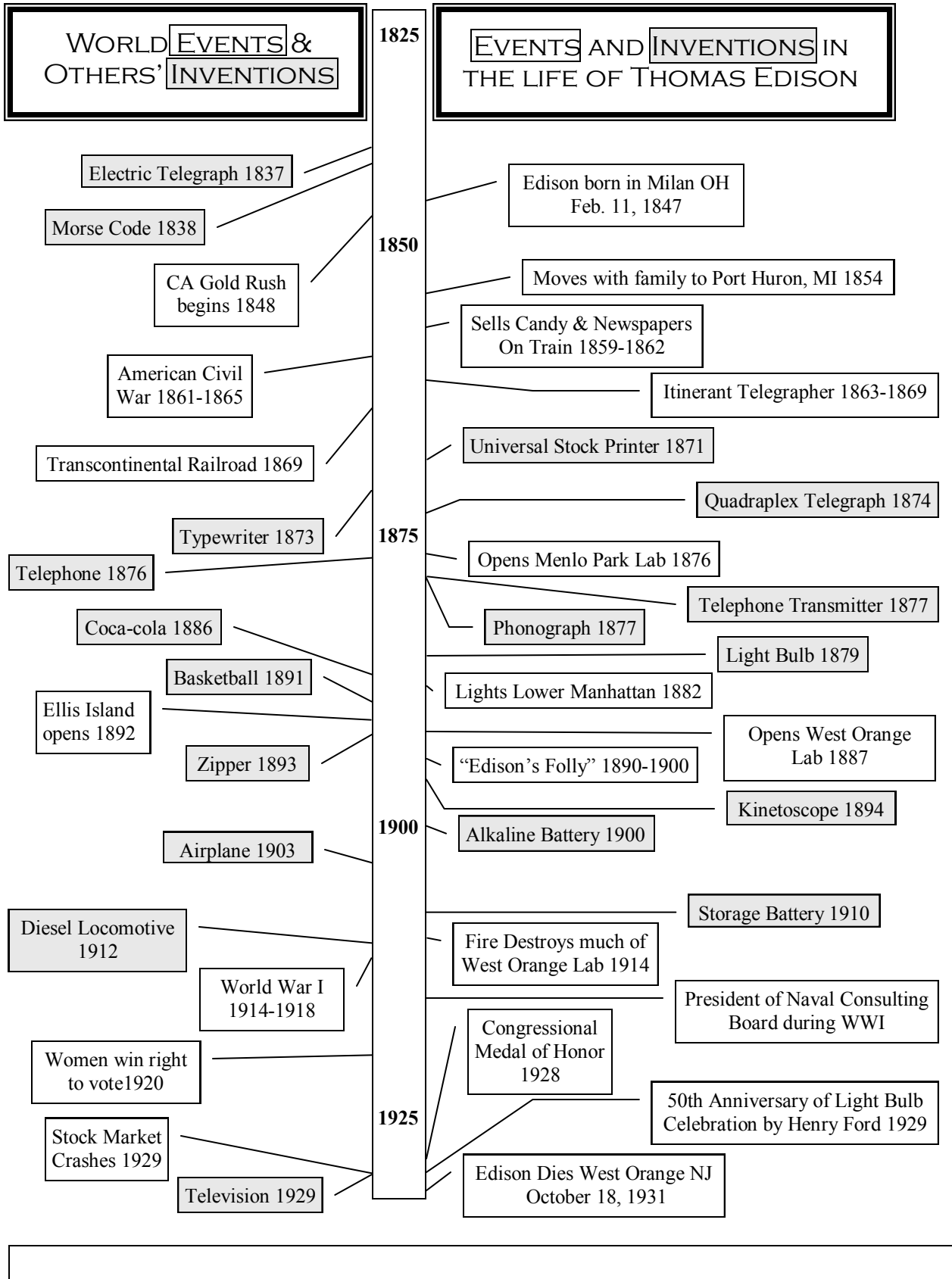
Are You an Inventor?

An invention doesn't have to be a machine! Any new solution to a problem is an invention. Can you think of a problem that you've solved in a new way recently?

The Time Line

Use the time line (following page) to discuss with your students what life was like before and after Edison's life. Why do you think Edison is sometimes called "The Man Who Invented the 20th Century?"

THOMAS EDISON:
INVENTOR, LECTURER AND PRANKSTER



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ANCILLARY WORKSHEETS will be provided for your class.

K-2 Worksheets consist of puzzles and illustrations to remind the student of Edison's inventions and philosophy. Answers to the puzzles are included somewhere in the worksheet.

3-5 Worksheets include exercises designed to help the student apply the presented lessons to their own life. There are very few right or wrong answers to these pages. Imagination is encouraged. The students responses provide springboards for classroom sharing and discussion.

FOR FURTHER READING

AGES 4-8 *There are lots of introductory books on Edison at your Public Library*

[Thomas Edison \(Lives and Times\)](#)

by Jane Shuter; Heinemann Library; ISBN: 1575722305; (October 2000)

[Thomas Alva Edison : Young Inventor \(Easy Biographies\)](#)

by Louis Sabin, George Ulrich (Illustrator) Troll Communications; ISBN: 0893758426; (January 1990)

AGES 9-12

[Thomas Edison: The Great American Inventor \(Barrons Solution Series\)](#)

By [Louise Egan](#), [Louise Betts](#) Barrons Juveniles; ISBN: 081203922X; (November 1987)

[Thomas A. Edison: Young Inventor \(Childhood of Famous Americans Series.\)](#)

by Sue Guthridge, Wallace Wook (Illustrator) Aladdin Paperbacks; ISBN: 0020418507; (May 1988)

[Black Pioneers of Science and Invention](#)

by Loius Haber Odyssey Classics (Juv); ISBN: 0152085661; Reprint edition (January 1992)

[A Picture Book of Thomas Alva Edison \(Picture Book Biography\)](#)

by David A. Adler, et al Holiday House; ISBN: 0823414140; (April 1999)

[The Thomas Edison Book of Easy and Incredible Experiments](#)

by James G. Cook, Thomas Alva Foundation Edison (Contributor); John Wiley & Sons; ISBN: 0471620904; (July 22, 1988)

GROWN-UPS

[At Work With Thomas Edison: 10 Business Lessons from America's Greatest Innovator](#) -- by Blaine McCormick, John P. Keegan; Entrepreneur Media Inc.; ISBN: 1891984357; (November 2001)

[Edison: A Life of Invention](#)

by Paul Israel John Wiley & Sons; ISBN: 0471529427; (October 1998)

[Edison: Inventing the Century](#)

by Neil Baldwin University of Chicago Press (Trd); ISBN: 0226035719 April 2001

FUN WEB SITES

www.nps.gov/edis/home.htm Edison National historic site

www.tomedison.org Edison birthplace Museum

www.thomasedison.com Thomas Edison Homepage

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

The films [Young Tom Edison](#) with Mickey Rooney and [Edison the Man](#) with Spencer Tracy, while not very accurate historically, are very entertaining!

Questions or comments? Please call PATRICK GARNER'S **HISTORY'S ALIVE!** 973.420.5268

THOMAS EDISON: INVENTOR, LECTURER & PRANKSTER

Dear Teacher and/or Cultural Arts Coordinator:

Thank you very much for inviting THOMAS EDISON: Inventor, Lecturer & Prankster into your school. I hope that your students enjoyed the show and came away with an appreciation of Mr. Edison and what lessons his life still holds for us today. (Maybe I surprised you with an Edison fact or two that you didn't know!)

In an effort to continually improve the show, I hope you'll take a few minutes to give me your feedback with this form. I know how busy your days are already, so your time is very much appreciated.

Thanks again for sharing your students with me. Hope to see you again in the future!

Yours,

Patrick Garner

347 N. Fullerton Ave., Montclair, NJ 07043

Please rate the program according to the criteria listed below. Use a rating of 1-5 points:

1 = poor

2 = fair

3 = good

4 = very good

5 = excellent

Overall presentation	_____	Performer's Interaction w/ Students	_____
Student Response	_____	Technical Quality of Program	_____
Quality of the Performance	_____	Teacher's Guide	_____
Educational Quality	_____	Students' Study Guides	_____

Suggestions for Improvement: _____

Other Comments: _____

What historical figures, topics or themes might you like to see in your school in the future? _____

School _____ Grade _____