

DISCOVER AMERICA

Course 19 - Teacher Guide



Morse's Telegraph and Edison's Electric Light

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Key Themes

- Creative Liberty
- Innovation
- Experimentation to Improve Quality of Life
- Perseverance
- Resourcefulness

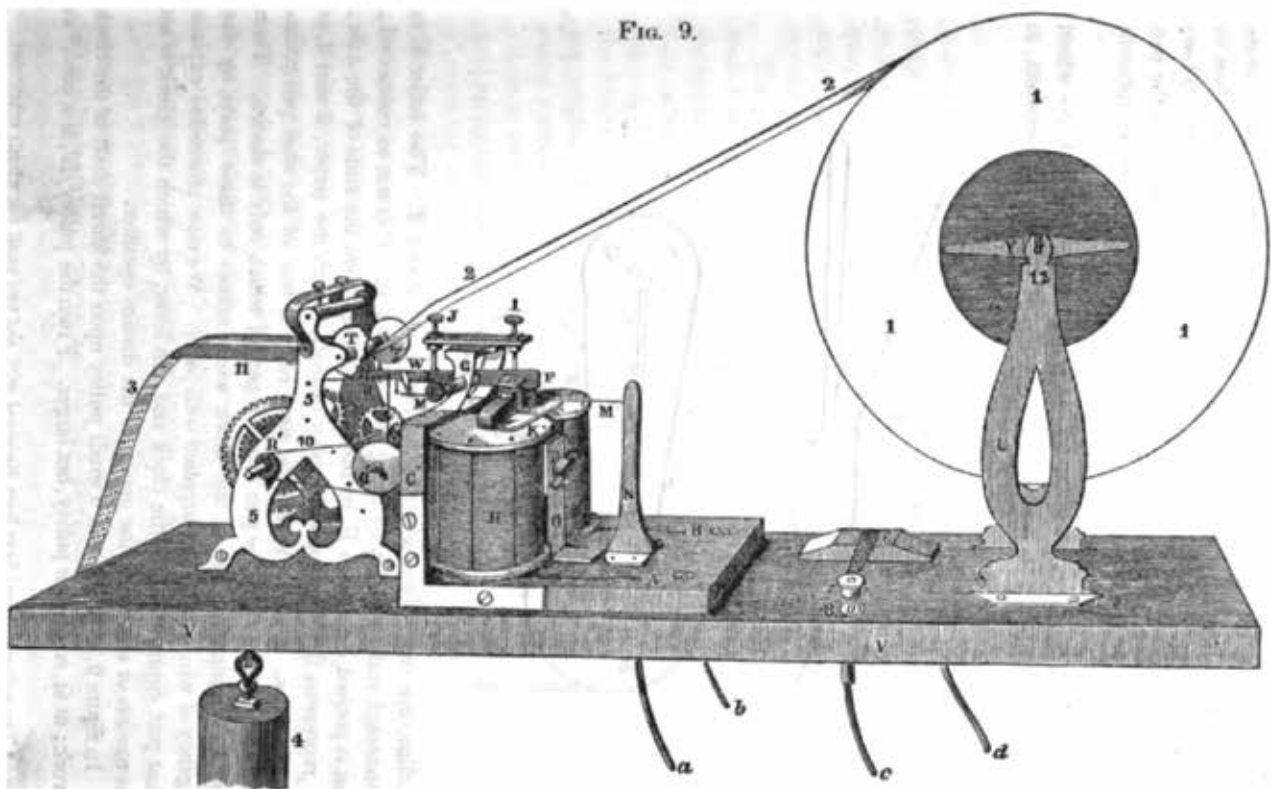
Core Values

- Community
- Life
- Faith
- Liberty

Learning Objectives

Students will be able to:

- Define resourcefulness.
- Identify the importance and impact of communication.
- Evaluate the importance of enhancing or upgrading existing items.
- List two scientific advancements that influenced life over the centuries.



Morse & Edison - Third Grade

Key Terms

- 01 **entrepreneur:** someone who decides to create or run a business.
- 02 **filament:** the part of a lightbulb that lights up when an electrical current heats it.
- 03 **Morse code:** a communication language that uses a system of dots and dashes to represent numbers and letters.
- 04 **patent:** an exclusive right given to an inventor to prevent others from making or selling their invention for a certain period of time.
- 05 **telegraph:** a device that uses wire to transmit messages over long distances.
- 06 **transmit:** to send.
- 07 **vibration:** the rapid back and forth movement of an object.
- 08 **incandescent:** something that lights up when it is heated.
- 09 **resourcefulness:** the ability to meet challenges in a variety of ways.

Morse & Edison - Third Grade

Introduction

TELL Students

Today, we're going to learn about an amazing inventor named Thomas Edison. Thomas Edison did something incredible that changed the way we use light in our homes.

You know those bright light bulbs you have at home? Well, a long time ago, they weren't as good as the ones we have today. They didn't shine for very long, and they were quite expensive. That's where Thomas Edison comes in.

Thomas Edison wanted to make a better light bulb, one that could shine for a long time and that was affordable for everyone. So, he worked really hard with his innovative team. He experimented with a lot of different materials to improve the light bulb.

After trying many things, he finally found the right material that made the light bulb last a long time. It was called a "carbonized bamboo filament," which is a fancy way of saying a special kind of string that glows when electricity passes through it. [Show Stock Image Filament].

When Edison and his team used this new filament in their light bulbs, it was a huge success! The light bulbs stayed lit for a long time, and people had brighter and safer light in their homes without using smelly gas lamps or candles. [Show Stock Image Gas Lamp].

Because of Thomas Edison's hard work and clever thinking, we have the light bulbs we use today, and we can read, play, and do our homework comfortably in well-lit rooms. Edison changed the world and made our lives much better!

ASK Students

What does innovative mean?

How did Thomas Edison improve life for us today?

WATCH

Star Spangled Adventures Cartoon
Ep. 19: Thomas Edison



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Lesson Guide

ASK Students

What is a filament? How does the light bulb work? How did Thomas Edison persevere, or overcome, when things were difficult?

TELL Students

Though he received little formal education, Edison became one of history's most well-known and successful inventors, patenting a record-setting 1,093 inventions throughout his life. (This is approximately equivalent to one patent every 11 days.) One day in 1888, he wrote down 112 ideas!

ASK Students

What is a patent? Why do you think Thomas Edison wrote down his ideas?

TELL Students

Thomas Edison was born in 1847 and had a sense of curiosity from a young age. When he was 13, he began selling snacks to railroad passengers, selling copies of the Detroit Free Press, and printing his newspaper while on the moving train! His paper grew and sold 400 copies per week. As a young boy, Edison was both an inventor and an entrepreneur. An entrepreneur is someone who decides to create or run a business. But what set him apart was his approach to invention. He didn't try to find a new problem to solve. Instead, he looked at what solutions had already been created and found ways to improve them. Edison referred to this as "perfecting" rather than inventing. He took things that were already made and worked to make them better or less expensive.

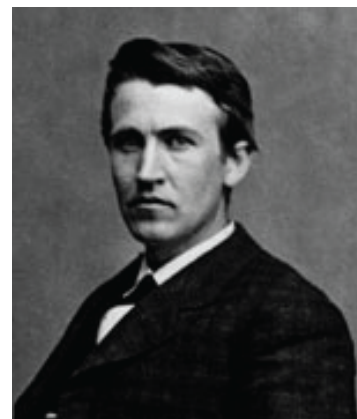
WATCH

Learn More with Liberty Video: Finding Resources for Inventing



ASK Students

What is "perfecting?" How was Thomas Edison resourceful?



Thomas Edison

Morse & Edison - Third Grade

Lesson Guide

TELL Students

Is it resourceful to drive to your friend's home to ask them a question? Or, is it more resourceful to call and ask them a question? It is more resourceful and much faster to call your friend. It is essential to understand that communication today is much more convenient than it was in the past.

Communicating with someone far away used to be difficult and time-consuming. Before telephones were available, a device called a telegraph was used to communicate over long distances. A telegraph is an electrical device that uses wire to send messages. It prints out a message that can be read a long distance away. This was a better way to communicate than sending letters or traveling a long distance to deliver a message. Let's learn about a man who took the telegraph and improved it! His name is Samuel Morse. Morse didn't invent the telegraph. But, he improved older models so that people could use them efficiently.

ASK Students

How does a telegraph work? Who improved the telegraph? Why is communication important?

TELL Students

Samuel Morse was born in Charlestown, Massachusetts, on April 27, 1791. He went to Yale University and began his professional career not as an inventor but as a painter. In 1832, Morse became interested in telegraphy after overhearing a conversation on a ship. At the time, telegraph machines used multiple wires (one used 26, and another model used 5). Morse thought he could get the number of wires down to just one. He used old gears and clocks to improve the telegraph transmitter. He also developed Morse code to transmit messages using numbers and letters as a 'code' made up of dots and dashes. A dot was quick and short, while a dash was long.

An inventor named Samuel Morse made the telegraph easier and cheaper to use. A telegraph is a machine that sends sounds that represent letters and numbers to communicate with someone from a distance. Morse developed a code of dots (short sounds) and dashes (long sounds) to correlate with numbers and letters and called it Morse code.

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Lesson Guide

ASK Students

What inspired Samuel Morse to become interested in telegraphy? What is Morse code?

TELL Students

Eventually, operators could listen to the clicks and beeps and translate the coded messages. Printing marks on paper was no longer necessary. On May 24, 1844, the first official telegraph was sent by Samuel Morse. The message was, "What hath God wrought!" This is a reference to Numbers 23:23 in the Bible.

Morse & Edison – Third Grade

Inventor Scavenger Hunt

Objective: To introduce third graders to Thomas Edison and Samuel Morse through an interactive and engaging scavenger hunt.

Materials Needed:

1. Clues and riddles related to Thomas Edison and Samuel Morse.
2. Visual aids (images or diagrams of their inventions).
3. Small prizes or rewards (stickers, small toys, or certificates).

Preparation:

- Create clues or riddles that lead students to various locations or objects related to Thomas Edison and Samuel Morse. Please see the examples below. Hide visual aids and clues in different locations around the classroom or school (ensure they are age-appropriate and safe to access).
- Find a place where you can see light. Look around, and you might find your next clue.
- Go to the classroom library, and look for a book about inventors. Your clue is hidden inside.

Introduction:

- Gather the students and briefly discuss what they have learned about Thomas Edison and Samuel Morse, including their inventions and importance.
- Divide the class into teams of 3-4 students.

Scavenger Hunt:

- Provide each team with the first clue, and let them begin the hunt.
- As teams find clues and visual aids related to the inventors, they should discuss the inventor's achievements.
- Encourage students to work together and solve the riddles to progress through the scavenger hunt.

Presentation and Discussion:

- Once all teams have completed the scavenger hunt, gather the class together.
- Ask each team to present what they learned about Thomas Edison and Samuel Morse during the activity.
- Facilitate a discussion by asking questions like, "What did you find most interesting about these inventors?"

Reflection and Rewards:

- Reflect on the scavenger hunt activity and its educational value with the class.
- Reward the winning group with small prizes, certificates, or stickers.

Optional Extension Activity: Inventor Show and Tell (Homework):

- Assign homework for students to research and create a short presentation about Thomas Edison or Samuel Morse, showcasing their inventions and impact. They can present their findings to the class on a designated day.

Morse & Edison – Third Grade

Samuel Morse Review

Label the four corners of the room as A, B, C, D. Read the questions below and explain to the students that they will need to pick the correct answer of A, B, C, or D, by moving to the respective corner.

1. Samuel Morse graduated from what university?

a Harvard University

b Yale University

c Boston University

d Princeton University

2. Samuel Morse improved the telegraph transmitter with the following items:

a Metal wire and spindles

b Wind-up motor and bells

c Homemade batteries and old clock gears

d Weights and belts

3. What made Samuel Morse's system better than other models:

a the long-distance

b the number of messages sent

c better communication

d the Morse code he developed was faster and more accurate

4. The first successful telegraph message that Samuel Morse sent said:

a "What hath God wrought!"

b "What hath you done!"

c "Where have you gone?"

d "Can you hear me now?"

Morse & Edison - Third Grade

Resource List

National Council Standards for Social Studies

"The study of how people organize for the production, distribution, and consumption of goods and services." (NCSS, 1921)

"The study of people, places, and environments." (NCSS, 1921)

"The study of the past and its legacy." (NCSS, 1921)

"The study of relationships among science, technology, and society." (NCSS, 1921)

"The study of individual development and identity will help students to describe factors important to the development of personal identity." (NCSS, 1921)

https://www.pbs.org/wgbh/theymadeamerica/whomade/morse_hi.html

<https://lemelson.mit.edu/resources/samuel-morse>

<https://www.nga.gov/collection/artist-info.1737.html>

<https://lemelson.mit.edu/resources/samuel-morse>

<https://www.nga.gov/collection/artist-info.1737.html>

<https://history.house.gov/Exhibitions-and-Publications/Electronic-Technology/Telegraph/>

<https://lemelson.mit.edu/resources/samuel-morse>

<https://www.history.com/topics/inventions/telegraph>

<https://www.history.com/this-day-in-history/what-hath-god-wrought>

<https://lemelson.mit.edu/resources/samuel-morse>

https://www.pbs.org/wgbh/theymadeamerica/whomade/morse_hi.html

<https://www.history.com/topics/inventions/telegraph>

<https://www.newyorker.com/magazine/2019/10/28/the-real-nature-of-thomas-edisons-genius>

<https://www.energy.gov/articles/history-light-bulb>

<https://www.newyorker.com/magazine/2019/10/28/the-real-nature-of-thomas-edisons-genius>

<https://www.energy.gov/articles/history-light-bulb>

<https://www.newyorker.com/magazine/2019/10/28/the-real-nature-of-thomas-edisons-genius>

<https://www.energy.gov/articles/history-light-bulb>

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