Sending Messages using Morse Code

In 1844, artist and inventor Samuel F.B. Morse (1791–1872) sent the first telegraph message over wire in the United States, beginning a new communications revolution. By the second half of the 19th century, as railroads rapidly expanded west across the country, telegraph lines were constructed alongside rail lines. The telegraph sent electrical signals over wire, speeding up communications over long distances and helped the rail industry run more efficiently. But, you can't talk into a telegraph. The telegraph sent messages in the language of rhythm using Morse Code, a system named after its inventor. We're going to practice sending messages using Mr. Morse's code.

Goals

- Students will gain knowledge of the history of the railroad.

- Students will be introduced to one means of non-verbal communication used by the railroads in the 19th and early 20th centuries.

- Students will practice and experience telegraphic communication.

Vocabulary

Morse Code—an alphabet or code in which letters are represented by combinations of long and short signals of light or sound.

Telegraph—a system for transmitting messages from a distance along a wire, especially one creating signals by making and breaking an electrical connection.

Resources

- The Invention of Morse Code, Youtube, https://bit.ly/MorseCode-SM

- 6 Things You May Not Know about Samuel Morse, History Channel, https://bit.ly/HistoryMorse-SM

Lithography by Endicott & Co. (New York) & Published by H.P. Moore (Concord, New Hampshire), *Ludlow , VT. from South Hill* (detail), 1859. Hand-colored lithograph, 20 3/4 x 28 in. Museum purchase, acquired from Harry Shaw Newman, The Old Print Shop. 1951-391.26.

Standards

CCSS.ELA-LITERACY.CCRA.SL.4
Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Background/History

Railroads were very important to the development and growth of societies throughout the world. The first public railroads were built in the United Kingdom in the 1820s, and the first public railway—the Baltimore and Ohio Railroad—opened in 1830. As railroads expanded, the telegraph helped railroads manage their businesses. By 1851 there were more than 50 telegraph companies in the United States, but by 1856 Western Union became the dominant telegraph company. Western Union completed the first transcontinental telegraph line in 1861, connecting communications from the East Coast to San Francisco and serving as an important news broadcasting and wartime tool during the Civil War (1861–1865).

The railroad arrived in Vermont in 1849, providing both passenger and freight service. Railroads in Vermont contributed to greater access to urban market for products and greater ease of travel both within the state and from crowded cities, such as New York and Boston, for short-term or summer visitors to Vermont.

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Railroad Structures at the Museum

Locomotive No. 220—This steam engine was built in 1915. It was one of the last steam locomotives used by the Central Vermont Railroad. It pulled special trains carrying Presidents Calvin Coolidge, Herbert Hoover, Franklin Delano Roosevelt, and Dwight D. Eisenhower.

The *Grand Isle* private car—Built in the 1890s by the Wagner Palace Car Company (whose president was Dr. William Seward Webb, father-in-law of Museum founder Electra Havemeyer Webb). This car

is similar to the private car that the Webbs traveled in from New York City to Vermont.

Shelburne Railroad Station—This is the original station for Shelburne and the Webb Farm. It was built in 1890 for Dr. Webb and was last used for passengers in 1953. The men were traditionally separated from the women in these types of stations; men with their cigars and spittoons, etc. on one side, ladies possibly with children on the other.

Telegraph

- The telegraph and the railroad were natural partners almost from the very beginning.

- Telegraph lines were strung on right-of-way land along the railroad beds.

- Samuel F. B. Morse is credited with inventing both a telegraph machine in 1832, and Morse Code in 1844. A version of the code became one of the most widely used modes of communication towards the end of the 19th century.

- The Morse Code pairs each letter of the alphabet, as well as numbers, with a pattern of the sounds dot and dash. The dots make up the short sounds, and the dashes are the long sounds. In order to see this on paper, the dot sounds are written as a period (.), and the dash sounds are written with a dash (–). The more commonly used the letter, the shorter the pattern. For example, 'e' is the most commonly used letter in the alphabet, so it's sound is merely one dot (.). 'J', a letter used less often,, is dot dash dash dash or (. – – –).

- The telegraph uses electrical pulses to transmit coded messages through a wire to a receiver. An operator would send the message, using the telegraph machine, to an operator at the receiving end who would decode the dots and dashes.

- Telegraph operators got so skilled at deciphering the code that one operator could translate 45 words per minute!
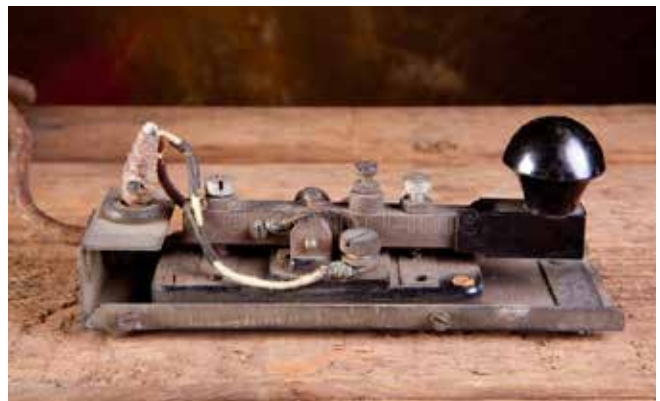
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TELEGRAPH MESSAGES ACTIVITY

There are many ways to communicate with dots and dashes. If you use your feet, a quick stomp will represent a dot, while sliding your foot on the floor from right to left will represent a dash. If you use an instrument, a quick, 1-second beep or note will be used for a dot and a 3-second long beep or note will be used for a dash. A pencil on a hard surface will work well, too. A quick tap of the pencil will be the dot, while setting the whole pencil on a surface will be the dash.

Materials

- Morse Code Alphabet worksheet and Clue Cards

Optional Materials

- A musical instrument, pencil, or other tool to recreate a dot or dash

Steps

1. You will need a partner to complete this activity.
2. Make sure each partner has an alphabet card and a message card.
3. Each partner will try to spell out the message on from the clue card using your feet, a musical instrument, a pencil or another sound making tool of your choice.
4. Once you've practiced with the messages included here, try creating and sending your own messages.

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Morse Code Alphabet

A . _	J . _ _ _	S . . .	2 . . _ _ _
B _ . . .	K _ . _	T _	3 . . . _ _
C _ . _ .	L . _ . .	U . . _	4 . . . . _
D _ . .	M _ _	V . . . _	5 . . . . .
E .	N _ .	W . _ _	6 _ . . . .
F . . _ .	O _ _ _	X _ . . _	7 _ _ . . .
G _ _ .	P . _ _ .	Y _ . _ _	8 _ _ _ . .
H	Q _ _ . _	Z _ _ . .	9 _ _ _ _ .
I . .	R . _ .	1 . _ _ _ _	0 _ _ _ _ _

For this challenge, spaces between words will be shown as the **|** symbol.

CLUE NO. 1

```
.-.. .. --. .... -  |  .- ...|
.- | ..-. . .- - .... . .-.|
.- -. -.. | - .... ..-.|
.- ... | .- | ... .... . . -
```

CLUE NO. 2

```
.. | .... --- .-.. -..|
.--. .. . -.-. . ... | ---
..-. |.--. . .- --. . .-.| - -
-- --. . - .... . .-.
```

CLUE NO. 3

-... .. --. |

-... --- --- -.- ... |

..-. ..- .-.. .-.. |

--- ..-. |

.. -. ..-. --- .-. -- .- - .. --- -.

-- -. | .- -. -.. |

.... --- -- . .-- --- .-. -.-

CLUE NO. 4

.-- .- - -.-. .... |

--- ..- - | -- -.-- |

.. -. -.- |

... - . .- -.. .. -. ...

The Morse Code Challenge : Code Translations & Answers

CODE # 1

Light as a feather thin as a sheet

Answer: Paper

CODE #2

I hold pieces of paper together

Answer: Paper Clip

CODE #3

Big book full of information and homework

Answer: Textbook

CODE #4

Watch out my ink stains

Answer: Pen