

Learning to Communicate

Objective:

Students will work collaboratively to figure out how to send and receive messages using a real telegraph. They must develop a process (steps) for communication and refine it through trial and error.

Setup:

1. **Introduce the Problem** – Present the telegraph and challenge students to develop a system to send and receive messages.
 2. **Provide Limited Background** – Give a brief historical context but avoid explaining Morse code or the mechanics in detail.
 3. **Encourage Group Brainstorming** – Let students work in teams to hypothesize how it might work.
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Hints & Scaffolding:

(Only provide these when students get stuck)

Level 1 Hints (Minimal Guidance)

- "Think about how simple signals could be turned into letters or words."
- "What happens when you press the key? What do you hear or feel?"
- "How could you make a long sound different from a short one?"

Level 2 Hints (More Direct)

- "Morse code uses two types of signals: a short one and a long one."
- "Try coming up with a simple system with just a few words first."
- "You might need a way to separate letters or words. How could you do that?"

Level 3 Hints (Almost There)

- "A short press is called a 'dot' and a long press is called a 'dash.'"
- "Try using Morse code to send your names."

- "How would you let someone know a word has ended?"
 - "Try practicing common letters like E (dot) and T (dash) first."
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Guiding Student Problem-Solving Process

1. **Explore the Device** – What does pressing the key do? What does releasing it do?
 2. **Experiment with Different Signals** – Can they create distinguishable signals?
 3. **Develop a Code** – Encourage them to research or create a system for encoding messages.
 4. **Test and Improve** – Have teams try sending and decoding each other's messages.
 5. **Refine Communication Rules** – What problems arise? How do they resolve them?
 6. **Apply to Morse Code** – Introduce historical Morse code if students haven't already found it.
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Assessment & Reflection:

- What worked well?
- What challenges did they face?
- How did they refine their process?
- How does this compare to early communication methods?