VE Day Electrical communications

For this investigation you are going to try out your skills of silent messaging that was used to send information during the wars.
One of the most common codes to use is **Morse Code**. This represents the whole alphabet using dots (short taps) and dashes (longer taps).

You can use Morse code in a number of ways. It works with sound as well as light (investigation 1). You're going to use it with an electrical circuit, and send a simple message from one side of the room to the other.

Resources: thin coated electrical wire
Battery (or science name – cell)
Switch (you can make one from paperclips or foil)
Bulb or buzzer

- This time you are going to make a simple circuit using bulb/buzzer battery and wires. Make the switch on one side and the bulb on the other. If you don't have an electrical kit then you can plan this investigation to try once we get back to school.
- Make a switch (or use a ready-made one if you have a kit) and test in the circuit.
- Think up a simple message to send to someone else and write it down.
- Use the Morse code sheet on next page to find the correct pattern for each letter.
- Practice your message sending skills by turning the switch on and off to light the bulb or sound the buzzer.
- Try out on another member of your family.
- Can they understand your message?
- Can you make the wires longer and get the message to someone in another room?

SAFETY:
Wires and batteries can get hot after use, please do not leave attached for long periods.
Take care when touching connection points with your hands as it may be hotter than you think.
Make sure no one trips over longer wires if sending them across a room.
Only use one cell (battery) as more power can create more heat and danger.

Remember to send me your pictures or experiences of how it went.

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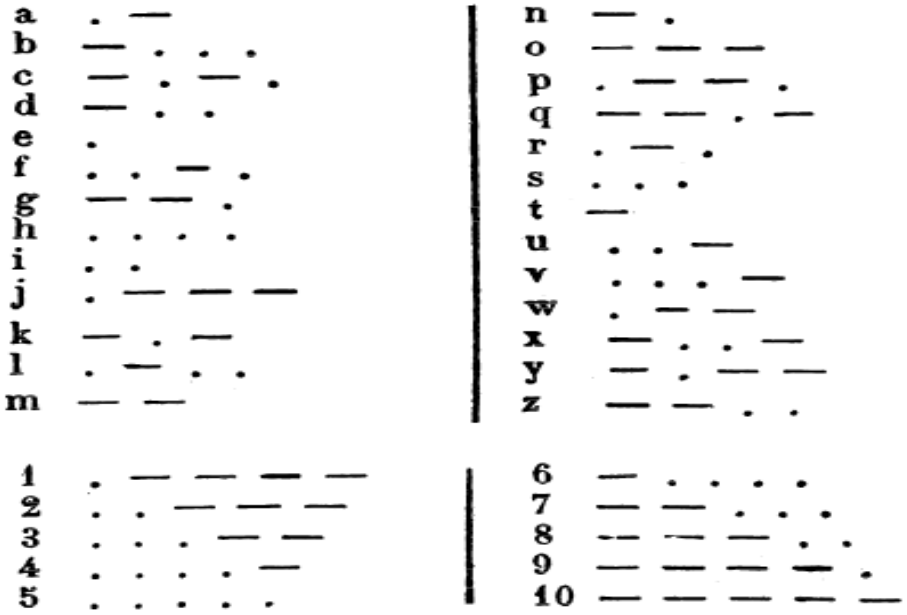
Flashing lights – Morse code



Talking points:

Want a further challenge?

- Can you create a way to get a message around a corner?
- Can you use other materials to create a clearer phone line?
- Can you get a message to someone upstairs when you are downstairs using a simple electric circuit?

https://ssec.si.edu/stemvisions-blog/morse-code-day-messages-wire

https://science.howstuffworks.com/innovation/inventions/morse-code.htm

The science behind it:

Have you ever wondered what happens when you flip a switch to turn on a light, TV, vacuum cleaner or computer? What does flipping that switch accomplish? In all of these cases, you are completing an electric circuit, allowing a current, or flow of electrons, through the wires.

An electric circuit is in many ways similar to your circulatory system. Your blood vessels, arteries, veins and capillaries are like the wires in a circuit. The blood vessels carry the flow of blood through your body. The wires in a circuit carry the electric current to various parts of an electrical or electronic system.

Your heart is the pump that drives the blood circulation in the body. It provides the force or pressure for blood to circulate. The blood circulating through the body supplies various organs, like your muscles, brain and digestive system. A battery or generator produces voltage -- the force that drives current through the circuit.

Take the simple case of an electric light. Two wires connect to the light. For electrons to do their job in producing light, there must be a complete circuit so they can flow through the light bulb and then back out.

The diagram below shows a simple circuit of a flashlight with a battery at one end and a flashlight bulb at the other end. When the switch is off, a complete circuit will not exist, and there will be no current. When the switch is on, there will be a complete circuit and a flow of current resulting in the flashbulb emitting light.