International Morse Code

In 1835 Samuel F.B Morse, while a professor at New York University proved that signals could be transmitted by wire.

What is called Morse code today is actually a bit different from what Samuel Morse created. Letters have been added and it is now called “International Morse Code”. The is always changing, for example the “@” symbol was added in 2004.

By using electric burst, the code can be sent using sounds or light. In this lesson we’ll be using a switch and a light to demonstrate the Morse Code System.

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Super Engineers

→ Electronic Messages

Simple Circuits
A simple circuit consists of three elements:

- A source of electricity (battery)
- A path or conductor on which the electricity flow (wire)
- And an electrical resistor (bulb) which requires electricity to work

1. The flow of Electricity is from the high potential (+) terminal of the battery through the bulb (lighting it up), and back to the negative (-) terminal.

2. You can make a switch by just disconnecting one of the wires and alternately touching it and removing it from the metal case of the bulb.


Battery

(I = Current)

Bulb
1. Design a working circuit using a battery and a bulb on paper
2. Build your working circuit using a battery, wires and a bulb
3. Next, add a switch in such a way that the switch turns the bulb on & off

Did you know?
“Electric Messages” in International Morse Code is:
-. .-. -. -. -. /
-- . ... -. -. . --. . ... -----.

1. Devise a “secret” message to send to another student group.
2. Practice “sending” the message using International Morse code until you are confident the other team will understand. (hint: press the switch for a short time for a dot (·), hold it longer to display the dash (—).

Questions:
1. What did the other team’s message say?
2. Did you have any problems understanding the other team’s message? If so what?
3. What did your team’s message say?
4. Did the other team understand your message? If not, what went wrong?
Super Engineers

Electronic Messages.
Organisers Handy Hints

1. **Background Information**
   - Explores the concepts of electrical communications, the impact of the Morse code and the use of simple circuits.
   - Covers curriculum areas include:
     - Science KS1, 2 & 3 Sc4: Physical Processes – Electricity.
     - Science KS1, 2 & 3: Scientific Enquiry.

2. **Resources**
   - Student Activity Cards
   - One set of materials for each team:
     - Wire
     - Battery Holder and D size battery
     - Socket and 1.5 volt bulb
     - Large piece of cardboard

3. **Procedure**
   1. Distribute the activity cards to students. These may be read out in class or used as reading material for homework.
   2. Split students into teams (at least 2 teams).
   3. Provide each student team with the required material and ask them to build a working circuit with battery, wire and bulb.
   4. Next, ask the students to add a switch in such a way that it will turn the bulb on and off (disconnect wire).
   5. Review the International Morse Code and ask the groups to devise a “secret” message to send to another group using the code system. (Tip: Kip it simple!)
   6. Ask the groups to practice their codes a few times.
   7. Then ask each team to decipher each other’s codes.
   8. Ask each group to present their experience with the project.

   *(Time needed one to two 45 min sessions)*

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