

Timing in Morse Code

Sending Morse Code to each other is fun, but it is important to get the timing of the dots, dashes and spaces correct.



About 30 minutes per class



Kit List

Ideally you would use a buzzer but with a class this is not practical. Therefore, send the messages using light. Each child will need:

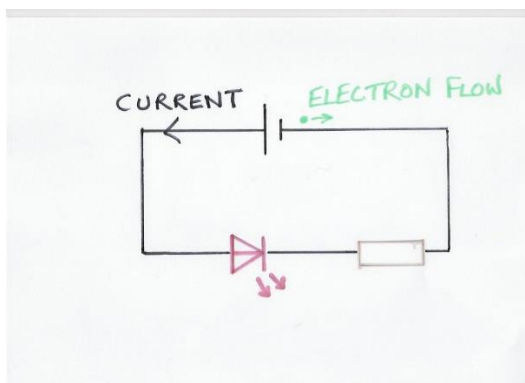
- An LED and a resistor of about 100 ohms or an incandescent bulb
- A battery
- Connecting wires
- A switch
- Morse Code sheet
- Two BBC Micro:bits

Contact your local amateur radio club to ask for an experienced Morse Code operator for a demonstration. They will show the difference between a straight Morse key and a butterfly key. Search for your local club at: <https://rsgb.org/club-finder>



Instructions

1. Connect the circuit with the switch in series with the bulb and battery.



The timing of dots and dashes is very important to avoid confusion. The length of a dot is one time unit, which can be anything from a millisecond to a second. Let's say we choose a quarter of a second.

2. A dash is three time units or three quarters of a second. Each child should demonstrate a dot and then a dash, before sending any message.

The time between the dots and dashes of a letter is one time unit. Therefore, the letter 'S' will be three dots and two time units, making five time units or one and a quarter seconds. The time between letters is three time units and the time between words is seven time units.

3. Start with a single letter and send it to your partner.
4. Now send a two-letter word.
5. How long should the message 'to me' take? We have one dash for the letter 'T', three time units for the interval, dash, dash, dash, seven time units between the words, dash, dash, three time units for the interval, dot.
 $(3) + 3 + (3 + 1 + 3 + 1 + 3) + 7 + (3 + 1 + 3) + 3 + (1) = 35$
That makes a total of 35 time units or 8 and 3/4 seconds.
6. When you feel you are ready, send a short message.

Next Steps

See how fast an experienced amateur radio enthusiast can send Morse Code. Twenty words a minute is typical. You can listen to Morse Code being sent over the radio by going to a WebSDR website. (<http://www.websdr.org/>)

Find out how the ship Titanic sent a Morse Code distress signal, resulting in many lives being saved. (<https://en.wikipedia.org/wiki/CQD>)

BBC Micro:bits can be used to send Morse Code. (<https://rsgb.services//public/events/230805 Morse Texting updated.pdf>)



Find out how the Royal Navy sends Morse Code. (<https://www.nmrn.org.uk/events/morse-code-masterpieces>)