

Activity title

Morse Code – sending messages over long distances

Time required

1-2 hours

Activity summary

Morse Code.

By the end of this activity, you will be able to:

Send a message using Morse Code.

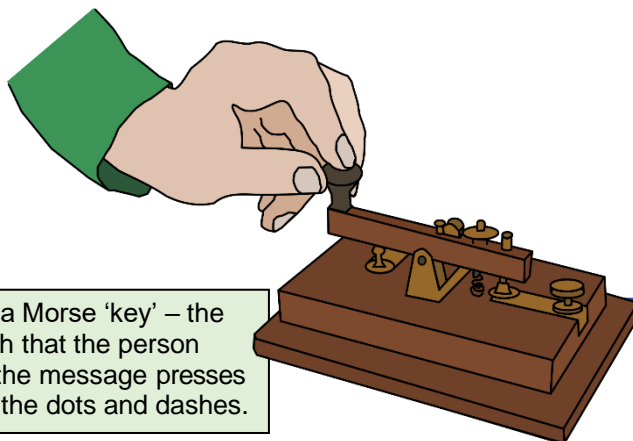
What's this all about?

In 1831, Michael Faraday made a brilliant invention that has changed all our lives: a generator that could make electricity. Wires and cables attached to these generators could supply electricity wherever it was wanted.

The first use of this electrical supply was to power machines in factories. However, someone had a brilliant idea – the electricity could be used for communication. It could be turned on or off, making pulses. These pulses could make clicking noises on special equipment.

An American inventor, Samuel Morse, worked out how to use the pulses to mean different letters. A short pulse made a short sound, called a 'dot'. A longer pulse made a longer sound, called a 'dash'. Each letter could be represented by a different selection of dots and dashes – for example, A = dot dash, S = dot dot dot. The people receiving the code listened to the dots and dashes and wrote down the letters to make the message.

Morse code became an international language. It was one of the quickest ways of communicating over distance until the telephone was invented in 1876.



This is a Morse 'key' – the switch that the person sending the message presses to create the dots and dashes.



This is a Morse 'sounder'. It buzzes when it receives a dot or a dash.

Activity title: Morse Code

International Morse code

There are rules so that everyone can understand the code:

1. The length of a dot is one unit.
2. The length of a dash is three units.
3. The space between the parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

The letters and numbers in Morse code are:

A ● —
B — ● ● ●
C — ● — ●
D — ● ●
E ●
F ● ● — ●
G — — ●
H ● ● ● ●
I ● ●
J ● — — —
K — ● —
L ● — ● ●
M — —
N — ●
O — — —
P ● — — ●
Q — — ● —
R ● — ●
S ● ● ●
T —

U ● ● —
V ● ● ● —
W ● — —
X — ● ● —
Y — ● — —
Z — — ● ●

1 ● — — —
2 ● ● — —
3 ● ● ● — —
4 ● ● ● ● —
5 ● ● ● ● ●
6 — ● ● ● ●
7 — — ● ● ●
8 — — — ● ●
9 — — — — ●
0 — — — — —

Activity title: Morse Code

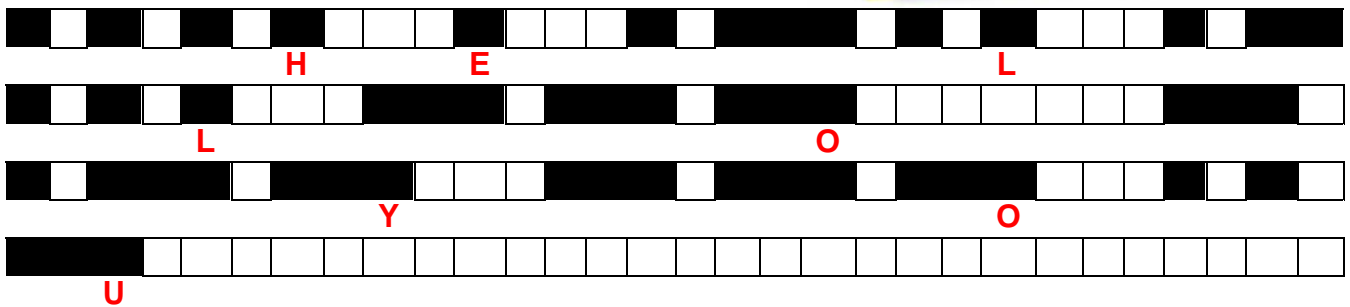
Using Morse code

Here is the word 'hello' in Morse code:



When writing a message in morse code, you can use a grid to help make your dots, dashes and spaces meet the rules.

HELLO YOU in Morse code would read.



Remember the rules:

1. A dot is 1 unit.
2. A dash is 3 units.
3. The space between parts of a letter is 1 unit.
4. The space between letters is 3 units.
5. The space between words is 7 units.

What equipment will you need?

- A torch or flashlight
 - Pen to complete the Morse code grid
- If you are making the electric circuit:*
- One battery pack or power supply (for example, 1.5 volts or 3 volts)
 - One switch
 - Three crocodile clips connecting leads
 - One light bulb
 - One bulb holder

The light bulb must fit in the holder. It must also be suitable for the amount of power that is supplied by the battery.

Activity title: Morse Code

What results are expected?

150 YEARS OF IET

Morse code grid for "150 YEARS OF IET". Each character is represented by a sequence of black bars (dots) and white bars (dashes) in a grid format.

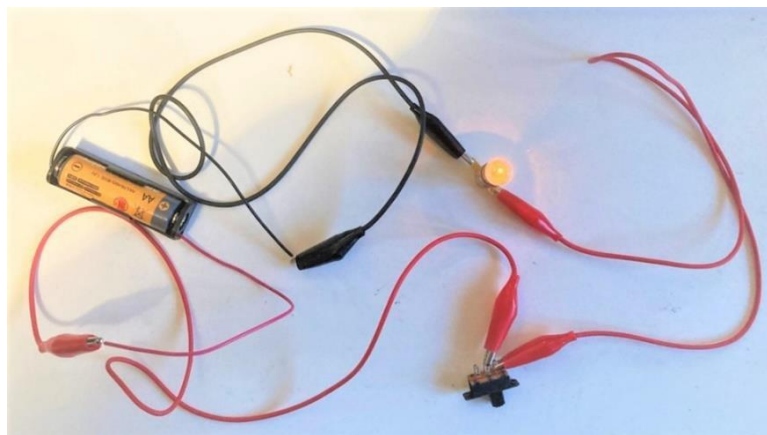
1	5		
0			
Y	E	A	
R	S	O	
F	I	E	T

Message by a pupil:

Morse code grid for a pupil's message: "DO YOU WANT A HUG". Each character is represented by a sequence of black bars (dots) and white bars (dashes) in a grid format.

D	O	
Y	O	
U	W	A
N	T	A
H	U	
G		

Pupil circuit:



With thanks to Hawthorns Primary School, Worthing, for sharing these resources which were created as a series of activities to celebrate 150 years of the IET.