2nd April 2020

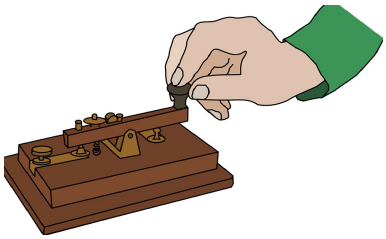
Memory verse for the week:

I will instruct thee and teach thee in the way which thou shalt go:
I will guide thee with mine eye. Psalm 32:8.

Don't forget to ring up an elderly family member or someone from church and demonstrate your memory verse(s) to them!

Something to read aloud

The American inventor **Samuel Morse (1791-1872)** died on 2nd April.[1]



Have you ever tried to learn Morse code? The code works by having every letter of the alphabet represented by a pattern of dots and dashes. These can then be used to signal a message with a short beep or flash for the dots and a long beep or flash for the dashes. Of course, a sound such as a beep or a flash of light given by a torch can only reach a short distance. The code was actually invented for sending messages quickly over a long distance. The equipment used was the electric telegraph invented by Samuel Morse. The operator used an instrument like the one you see on the right to send the dots and dashes as electrical signals down a wire or cable. The code is names after the inventor of the telegraph, Samuel Morse, who also invented an early form of the code.

Samuel Morse grew up in a Christian family and became a Christian himself. He began a career as an artist and at first it was hard for him to make a living. Then he had the opportunity to go from his native Boston to Washington to paint a picture of a famous French soldier. While he was away his wife became ill and then died. It was weeks before he knew this had happened as it took a very long time for messages to travel long distances in those days. Poor Morse had not been able to say goodbye to her. He remembered what had happened during the war of 1812. Lives had been lost in fighting carried on after the peace treaty had been signed because the news had travelled so slowly.

When he was a young man in college Morse had seen demonstrations of electricity. He wondered if there was a way it could be used to send messages quickly. One day he overheard someone talking about an experiment performed by Benjamin Franklin who had passed an electric current through miles of wire and noticed that at once there was a spark at the other end. He stopped painting and worked at the idea. The most famous scientist in America at that time was another Bible believing Christian Joseph Henry (1797-1878) who was head of four of America's most important scientific institutions. Henry encouraged Morse but it was very difficult to get people to invest money in developing and demonstrating the idea. At last Morse gathered enough money to set up a public demonstration by means of a wire passed across New York Harbour. Alas! A passing ship cut through the wire and the demonstration was ruined.

Morse decided to ask the government of America to fund a demonstration of his equipment. Morse thought the government would probably turn down his idea. He had very little support and there were many other things for the Senate to consider before they got round to his request. It was nearly time for the Senate to stop meeting and the senators were all looking forward to going home. Perhaps they would run out of time before they even got round to considering Morse's telegraph. But the Senate passed the bill required without even discussing it and Morse found he had been given funds for a test between Washington and Baltimore.

Morse's troubles were not over. He planned to use underground cables at first but these became too hot and melted the insulation. The first seven miles were wasted and with them more than half the money. Morse changed to overhead cables hung from glass insulators and carried on poles above the ground and this time he succeeded.

At last everything was ready for the great test. What message should be sent for the first time over

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1 You can find out more about Samuel Morse here: https://crev.info/scientists/samuel-f-b-morse

the wires? Morse asked one of his supporters. She suggested, “What hath God wrought”, part of a text from the Book of Numbers Chapter 23. Morse tapped out the words from the Supreme Court Building in Washington and everyone waited for the reply. The operator in Baltimore who had not been told the message in advance received it and decoded the dots and dashes into letters. Then he sent the same words back again to Washington, proving that he had correctly received the message. Samuel Morse was now a famous man. It was not long before telegraph wires were carried on poles all over America and many other countries. A cable was laid under the Atlantic Ocean from America to Britain and news was carried from one place to another almost instantly.
Morse gave God the praise for his invention. “It is His work and He alone carried me thus far through all my trials and enabled me to triumph over the obstacles, physical and moral, which opposed me.” he said, “‘Not unto us, not unto us, but to Thy name, O Lord, be all the praise.’”[2]

Map Work

Find Washington, Baltimore and Boston on a map of the USA. How far is it from Washington to Baltimore? How far from Washington to Boston?

Something to make and do

You can make a toy “telephone” for passing spoken messages along a piece of string if you have two paper cups and a ball of string. If you have two tins these are even better but be careful to avoid sharp edges. You need to make a **small** hole in the bottom of your cup or tin. A hammer and nail will do the job with the tin. Now decide where you are going to use your “telephone”. You could use it in the garden if you want to get a good long distance. If using it indoors remember that the string must be straight, not catch on anything and must be taut for the “telephone” to work. Measure out your piece of string to the length you want to send your message and allow a little extra for the knot. Now you must fix one end of the string through the hole in one of the cups and secure it with a knot. Do the same with the other end and the other cup. Now it is ready to use. One person stands with the cup to their ear. The other person speaks into the other cup. If the string is taut you should be able to hear them!

How does it work?

Sound waves are made when sounds make vibrations in the air. Your voice vibrates the air inside the cup, and the vibrations are then transferred to the bottom of the cup. The bottom of the cup passes the sound waves to the string, and so on to the other cup. If, instead of holding the string taut you let it slacken, the vibrations do not travel directly down the string but are dissipated (spread out) all around.

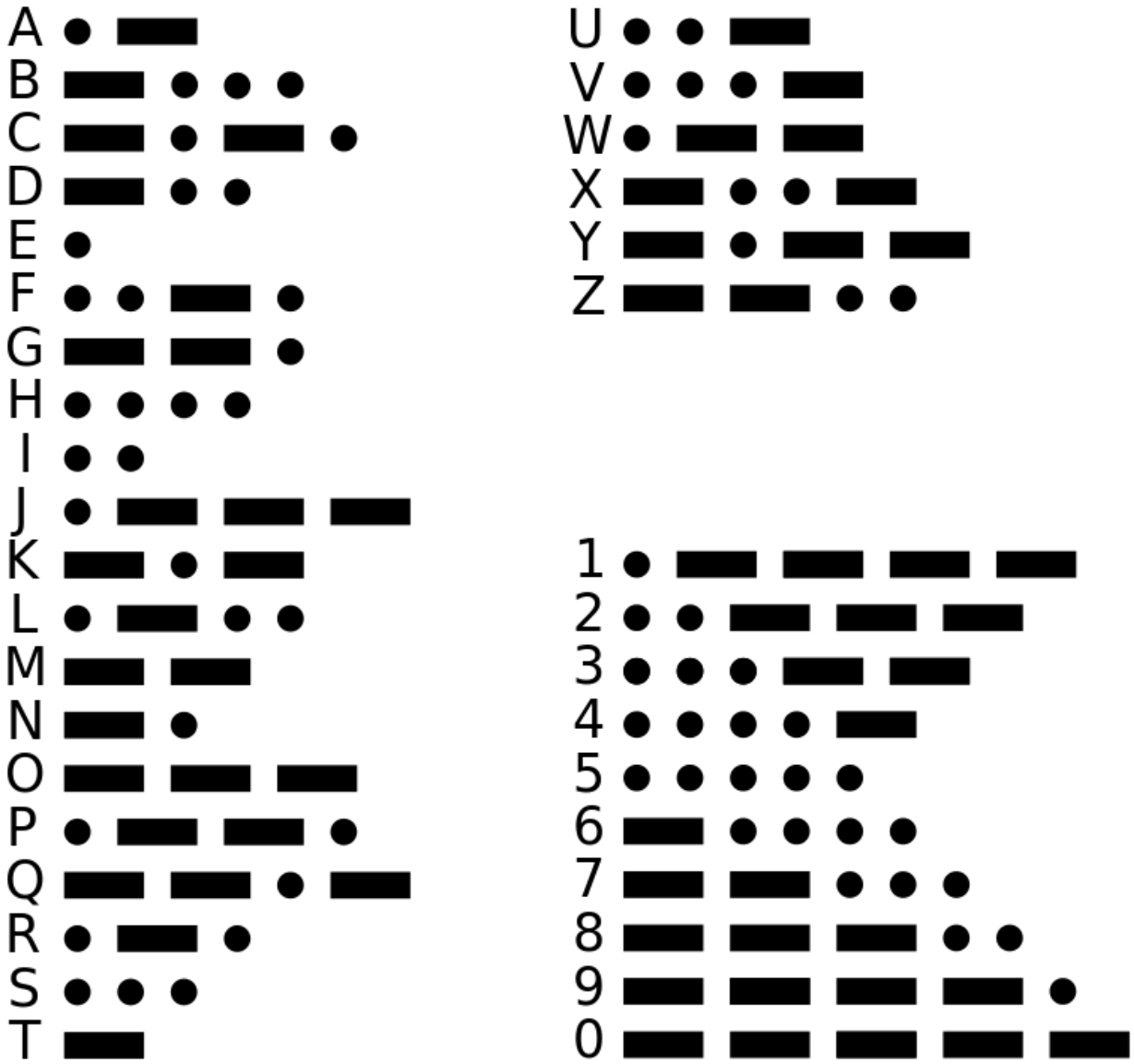
Something to talk about

Why did Samuel Morse say that his invention was really God's work?

2 I have used facts found on https://crev.info/ to build this lesson.

International Morse Code

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



Can you put your name into Morse code? Try part of your memory verse too. A good game is to tap a Morse code word (gently!) onto someone's back and see if they can work it out by looking at the chart! A light tap for a dot and a stroke from left to right for a dash works well. Maybe you could even write a letter to a friend in Morse code. Don't forget to explain how to decode it though!