

Alan Turing and the Enigma



Who Was Alan Turing?

Alan Turing was a British mathematician. During the Second World War, he worked as a codebreaker, cracking German codes created by Enigma machines. His work was pivotal in the Allies' victory.

Alan Turing was born on 23rd June 1912. He had an older brother called John. Their father worked for the British civil service in India.

Turing's parents wanted their sons to be raised in Britain so the boys stayed with family friends while their parents were in India.



The Universal Machine

In 1936, Turing created the idea of a special machine that could follow simple codes. He called this the 'Universal Machine'.

These machines are now known as a 'Universal Turing Machine' and they formed a lot of the ideas behind computing.



Second World War

Cryptanalysis is the study of **encrypted** messages. During the Second World War, Germany sent encrypted messages about its military strategies. To win the war, it was vital that the Allies were able to decode these messages.

A team of workers at a place called Bletchley Park were set the task of decoding these messages.



Encrypted – where information is changed into a code so it can only be understood by the recipient.

Second World War

Not long after the First World War, a German man named Arthur Scherbius invented a machine called the Enigma.

The Enigma was a machine that looked like a typewriter. As you typed in your message, a different letter lit up. The message was converted into a code using these illuminated letters. The person receiving the message also had an Enigma. When they typed in the coded message, the letters from the original message lit up and it could be read. This meant that orders could be passed secretly.



The Impact of Turing's Work

Breaking the German code meant the Allies knew when and where attacks were planned.

Without Turing's discovery, military experts believe that the Second World War could have carried on for another two years. Consequently, millions of lives were saved.



Try It!

Try making your own Enigma code. Swap each letter in the alphabet with another one. For example, 'A' might become 'Q' and 'R' might become 'E'.

Once each letter has been allocated a different letter, write a coded message to your partner. Give them some clues: tell them which letter represents 'E', 'T' and 'H'. Can your partner work out the message? They might need to be given a few more letters.

A = Q, R = E, T = B, H = O

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
Q	W	E	R	T	Y	U	I	O	P	A	S	D	F	G	H	J	K	L	Z	X	C	V	B	N	M

ITSSG GQA ESQLL

EQF NGX VKOZT Q LTEKTZ DTLQUT ZG NGXK YQDOSN GK

YKOTFRL

UGGR SXEA