

Alan Turing, an English computer scientist, mathematician and cryptanalyst (codebreaker), is considered to be one of the fathers of modern computing. He is best known for his instrumental role in cracking German codes during the Second World War.

Early Life

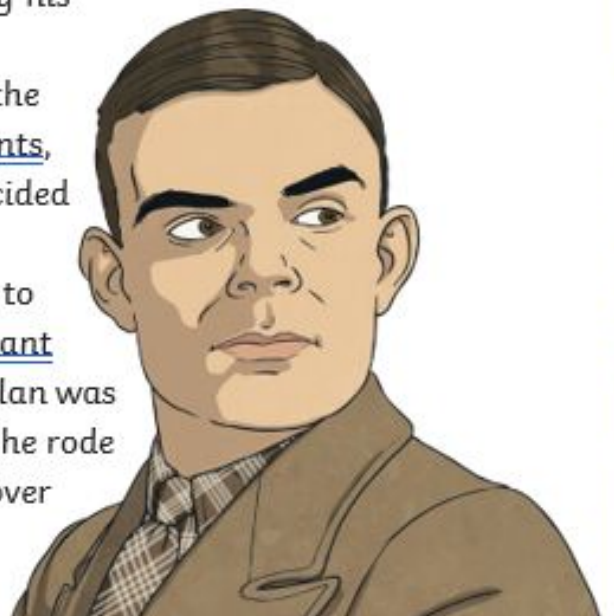
Alan Mathison Turing was born on 23rd June, 1912 in Maida Vale, London. At the time of Alan's birth, his father, Julius, worked as a member of the Indian Civil Service. His mother, Ethel, was the daughter of the chief engineer of the Madras Railway, which operated in southern India.

Due to the location of their work, Julius and Ethel spent a significant amount of time travelling between their homes in Hastings and India. Wishing for their children to be brought up in Britain, Julius and Ethel made the decision that Alan and his older brother, John, would not travel to India with them. Instead, during their absence, the boys would stay with friends of the family – a retired Army couple – with whom they spent a significant amount of their childhood years.

Childhood Genius

From a very early age, Alan began to show signs of his incredible intelligence and, although unverifiable, stories about his childhood clearly show a boy who enjoyed puzzles and challenges. One particular story tells that Alan traced the path of flying bees, worked out where their hive was and retrieved honey for his family.

Alan's genius was immediately recognised by his teachers. At the age of 13, Alan enrolled at Sherborne School – a boarding school in the county of Dorset. In an unusual turn of events, Alan's first day at Sherborne School coincided with the 1926 General Strike – a nine-day-long strike staged by workers across Britain to protest a reduction in their wages. This meant that there was no transport available, but Alan was so determined to attend school that day that he rode his bicycle, unaccompanied by an adult, for over 60 miles and slept overnight at an inn.



It was while at Sherborne School that Alan's aptitude and ability for mathematics and science became instantly apparent. Alan was able to solve problems and understand theories far beyond those expected for a child of his age. At the mere age of 16, Alan was able to understand the work of Albert Einstein.

Bletchley Park

Alan was 27 years of age at the outbreak of the Second World War and had been working part time at Bletchley Park with the Government Code and Cypher School, known as the GC&CS. Bletchley Park was a stately home which had been used as a central point for all codebreakers to work at during the Second World War. Due to the increased need for codebreaking, additional huts had been built in the grounds surrounding the mansion and it was in these that Alan predominantly worked.

During the war, the Germans believed that encrypting their messages – turning them into codes – would prevent their enemies from reading them. The Germans used an ingenious system which involved replacing one letter with another several times. By keeping a log of the changes made each time and comparing this to what had come out of the machine, German soldiers could still read the original message, despite the final outcome not appearing to make any sense.

However, a cypher machine called the Enigma had been invented by Polish codebreakers during the First World War and, in 1939, this machine was shared with British and French codebreakers. By running the process in reverse, the Enigma machine tried to change the final outcome back to the original message that was sent. This would help the British and French to learn the Germans' secrets and outsmart them in the war.

Working alongside senior codebreaker Dilly Knox, Alan and a team of cryptanalysts tried to use the Enigma machine to break the German code. However, within weeks of arriving at Bletchley Park, Alan had created a new machine – 'the bombe' – which was far more effective in cracking codes. This machine became one of the primary tools used to intercept coded German messages and played a significant part in ending the Second World War.

For his services during the war, Alan was appointed as an Officer of the Order of the British Empire (OBE) by King George VI in 1946.

1. Where was Sherborne School situated? Tick **one**.

- Maida Vale
- Dorset
- London
- India

2. In which two subjects did Alan excel while at school? Tick **two**.

- philosophy
- science
- cryptanalysis
- mathematics

3. Find and copy a phrase from the text which shows that the things that happened on Alan's first day at Sherborne School were abnormal.

4. Which government department was based at Bletchley Park during the Second World War?

5. What do the letters OBE stand for?

6. Discuss two things that were unusual about Alan's childhood.

7. **...is considered to be one of the fathers of modern computing...**

Explain what is meant by this phrase and give an alternative phrase that the author could have used.

8. Write an alternative subheading for the third section of the text and explain your choice.

9. Why do you think the stories of Alan's childhood are described as 'unverifiable'?

10. Summarise Alan Turing's contribution to the Second World War in 30 words or fewer.
