

Alan Turing was an English computer scientist, mathematician and **cryptanalyst**. He is thought to be one of the inventors of modern computing and he is best known for his important role in cracking German codes during the Second World War.

### **Early Life**

Alan Mathison Turing was born on 23<sup>rd</sup> June, 1912 in Maida Vale, London. His father, Julius, worked for the Indian Civil Service. His mother, Ethel, was the daughter of the chief engineer of the Madras Railway in southern India. Due to Julius's job, Julius and Ethel spent a vast amount of time travelling between their homes in Hastings (in England) 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, while they were in India, the boys would stay with friends of the family.

### **Childhood Genius**

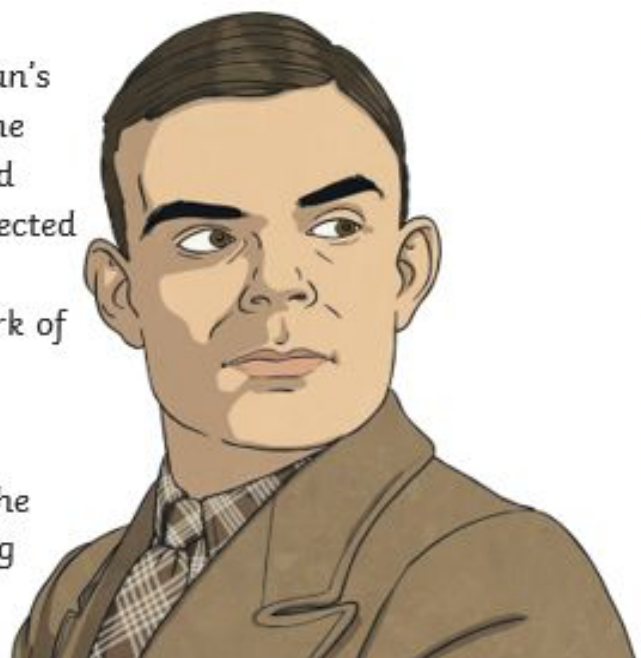
From a very early age, Alan began to show signs of his intelligence, and stories about his childhood clearly show a boy who enjoyed puzzles and challenges. One story tells that Alan traced the path of flying bees, in order to work out where their hive was and find honey for his family.

Alan's intelligence was also recognised by his teachers. At the age of 13, Alan joined Sherborne School: a **boarding school** in the county of Dorset. Alan was so determined to attend school on his first day at Sherborne that he rode his bicycle for over 60 miles and slept overnight at an inn, all without any help from an adult.

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

### **Bletchley Park**

Alan was 27 years of age at the start 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** at which all codebreakers worked during the war.

During the war, the Germans believed that **encrypting** their messages would stop their enemies from reading them. The Germans used a clever system which involved replacing one letter with another several times. By keeping a log of what changes had been made (called a key), German soldiers could still read the original message, even though the final outcome did not appear to make any sense.

However, a machine called the Enigma had been invented by Polish codebreakers during the First World War. In 1939, the Polish codebreakers shared their machine with British and French codebreakers. The Enigma machine tried to change the final outcome back into the original message that was sent. This would help Britain and France 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. Within weeks of starting work at Bletchley Park, Alan had created a new machine – 'the bombe' – which was far better at cracking codes than the Enigma machine had been. Alan's new machine became one of the most important tools used to read German messages and it played a huge part in ending the Second World War.

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

### **Glossary**

**Albert Einstein:** A scientist and philosopher who is credited with making some of the greatest scientific discoveries in recent history.

**boarding school:** A school at which the students also live, as well as learn.

**cryptanalyst:** Somebody who is able to break coded messages without being told the key.

**encrypting:** Turning something into code.

**stately home:** A large and impressive house that is or was lived in by a rich family.

Week 2 day 4 challenge 2

1. What was the name of the senior codebreaker that Alan worked alongside at Bletchley Park? Tick **one**.
- Albert Einstein
  - John Sherborne
  - Dilly Knox
  - Julius Hastings

2. **During the war, the Germans believed that encrypting their messages...**  
What does encrypting mean? Tick **one**.

- destroying something
- turning something into code
- transmitting a message
- outsourcing work to someone

3. List three members of Alan Turing's family.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

4. **Alan and a team of cryptanalysts tried to use the Enigma machine...**  
Give another word which the author could have used instead of **cryptanalysts**.

\_\_\_\_\_

5. At what age did Alan enrol at Sherborne School?

\_\_\_\_\_

6. According to stories, why did Alan trace the path of flying bees?

\_\_\_\_\_  
\_\_\_\_\_

7. What was unusual about Alan's first journey to Sherborne School?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Why do you think Polish codebreakers shared their invention with the British and French?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Summarise what you have read in the section entitled 'Childhood Genius' in 20 words or fewer.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_