

# The Turing machine

**DID YOU KNOW?**

Computers are getting faster and more powerful every year. The average smartphone of today is a million times more powerful than the computers NASA used to fly a spaceship to the moon in 1969!

## EXERCISE 1

To learn how the 'bit' language of computers works, you're going to communicate like computers. First think of some common English words together, and write them in the list below.

Bit	English
00000	
00001	
00010	
00011	
00100	
00101	
00110	
00111	
01000	
01001	
01010	
01011	
01100	
01101	
01110	
01111	

## EXERCISE 2

Once you've filled the list, divide the tasks. One of you will write a short sentence with these words, the other will be the computer translating the message.

1. When writing the sentence however, you must write it in bit language! Instead of using the word, use the 5-digit bit code on the same line.
2. Do not use spaces: your sentence will be nothing more than a string of 0's and 1's, just how a computer likes it!
3. If you need to use words that are not on the list yet, add them to the list below.

Bit	English
10000	
10001	
10010	
10011	
10100	
10101	
10110	
10111	
11000	
11001	
11010	
11011	
11100	
11101	
11110	
11111	

### DID YOU KNOW?

English is a useful language to learn if you want to work with computers. Almost all programming languages, used to create apps and computer programs, are written in English.

Once you've written the sentence in bits, give it to your partner. They must use the list to translate it back to the original English sentence.

Bits: .....

English: .....

Now, switch roles. Now the person who just translated the bit sentence to English will write a new sentence in bits. The one who just wrote the bits sentence will now be the translator.

Bits: .....

English: .....