

# WHOLE NUMBER REPRESENTATION

Levels 5-6



## **Information**

Binary code uses two numbers, 0 and 1's, to represent data. Binary refers to a two-based number system. Any data stored or manipulated (text, images, sound or videos) in a digital system will be a sequence of 0 and 1's. The single value of the 0 or 1 is known as a bit. The word 'bit' is a combination of the word binary and digit. One of the most common ways to represent the other characters (i.e G, &, r, #, L etc) as a sequence of binary numbers is to use the American Standard Code for Information Interchange (ASCII) which uses 8 bits to represent 256 unique characters. When pressing the 'a' key on a keyboard, the digital system does not recognise or store it as an 'a'. In ASCII the binary code for the sequence of 0 and 1's that represent the a is: 01100001. The letter a is made up of 8 bits. A capital **G** is 01000111 but a lowercase **g** is not the same but represented as 01100111.

## **Curriculum Expectation**

Students will identify binary code as the language digital systems use to create, store manipulate data.

## **Video Resource**

*Click on the image to open the video*

This video details how the binary code functions, comparing it to the 10-base numerical system.

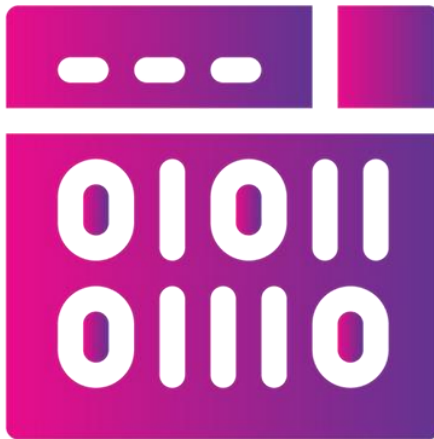


Video Source: Computer Science Education Research Group (CSER)

# BINARY CODE

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Digital systems use two numbers: 0s and 1s



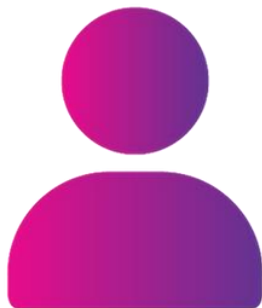
The combination of 0 and 1's make up computer data.

Computers will recognise the 'a' key as 01100001.

Identify binary code as the representation of data used by a digital system.

## HUMAN VS COMPUTER

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**A**  
**B**  
**C**

01000001

01000010

01000011

