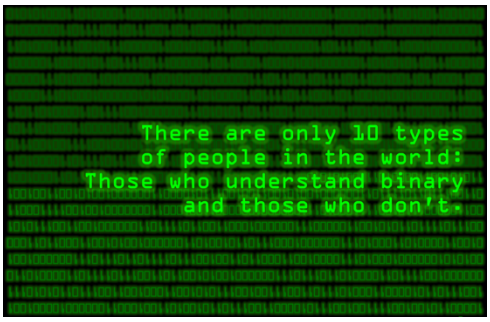
**Middle School Term 1, Digital Technology**




# How can you represent words and numbers with just two symbols?

| My Learning Intentions | | Before | After |
|---|---|---|---|
| 1. | I explain how digital systems use whole numbers as a basis for representing a variety of data types | | |
| 2. | I understand what is a binary number and how it is used to represent all types of data | | |

**My Success Criteria**

| I must do: | | Me | Peer | Teacher |
|---|---|---|---|---|
| 1. | I examine how whole numbers are used to represent all data in digital systems | | | |
| 2. | I recognise that digital systems represent all types of data using numbers codes that ultimately are patterns of 1s and 0s (called binary digits) | | | |
| 3. | I explain that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware | | | |
| **I might do:** | | | | |
| 4. | I am able to use binary numbers to create my own code | | | |
| 5. | I explain how binary numbers are used to represent all data in digital systems. | | | |

**Definitions:**

***Digital systems*** *are composed of hardware and software. A digital system allows us to run software on top of hardware to make things work*
***Hardware*** *– physical parts of a computer system*
***Software*** *- programs and data stored within the system*
***Binary -*** *Computers have electrical transistors and these can only be in one of two states – either 'on' or 'off. 1's and 0s represent the 'on' and 'off' electrical states. Because there are only two states, computers cannot count in 10s or speak languages like humans, and instead, computers count in 2s. The images we see on a screen are really a representation of 0s and 1s, which are converted to symbols, characters and numbers for our human eyes to see.*