Bit (binary digit)

Computers store information using bits. A **bit** (short for "binary digit") stores either the value 0 or 1.

What fits in a bit?

A single bit can only represent two different values. That's not very much, but that's still enough to represent any two-valued state.

Is a lightbulb on or off?

State	Bit
	0
	1

Sequences of bits

Computers use multiple bits to represent data that is more complex than a simple on/off value.

A sequence of two bits can represent four (2^2) distinct values:

00 01 10 11

A sequence of three bits can represent eight (2^3) different values:

000   001   010   011 100 101   110 111

A sequence can represent many things: a number, a character, a pixel. Plus, the same sequence can represent different types of data in different contexts. The sequence 1000011 could represent 67 in a calculator application while also representing the letter "C" in a text file.

Physical storage

Computers typically store bits using electromechanical transistors which can map electrical signals to either an on or off state.