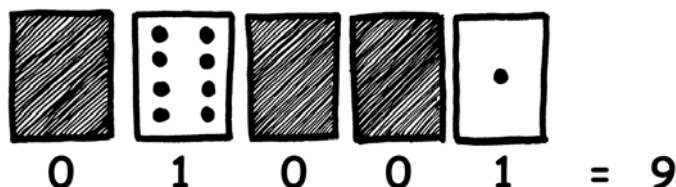


Worksheet Activity: Working With Binary

The binary system uses **zero** and **one** to represent whether a card is face up or not. **0** shows that a card is hidden, and **1** means that you can see the dots. For example:



Can you work out what **10101** is? What about **11111**?

What day of the month were you born? Write it in binary. Find out what your friend's birthdays are in binary.

Try to work out these coded numbers:

$$\begin{matrix} \boxed{\times} & \boxed{\checkmark} & \boxed{\times} & \boxed{\times} & \boxed{\checkmark} & = \\ (\checkmark=1, \times=0) \end{matrix}$$

$$\begin{matrix} \uparrow & \downarrow & \uparrow & = \\ (\uparrow=1, \downarrow=0) \end{matrix}$$

$$\begin{matrix} \bigcirc & \bigcirc & \bigcirc & \bigcirc & \bigcirc & = \\ (\odot=1, \circ=0) \end{matrix}$$

$$\begin{matrix} \uparrow & \downarrow & = \\ (\uparrow=1, \downarrow=0) \end{matrix}$$

$$\begin{matrix} \text{☺} & \text{☹} & = \\ (\text{☺}=1, \text{☹}=0) \end{matrix}$$

$$\begin{matrix} \text{👍} & \text{👎} & \text{👍} & \text{👎} & = \\ (\text{👍}=1, \text{👎}=0) \end{matrix}$$

$$\begin{matrix} + & + & \times & + & = \\ (+=1, \times=0) \end{matrix}$$

$$\begin{matrix} \cup & \cup & \cup & \cup & \cup & = \\ (\cup=1, \cup=0) \end{matrix}$$

$$\begin{matrix} \blacktriangle & \blacktriangledown & \blacktriangle & \blacktriangledown & \blacktriangledown & = \\ (\blacktriangle=1, \blacktriangledown=0) \end{matrix}$$

$$\begin{matrix} \spadesuit & \spadesuit & \spadesuit & \spadesuit & \spadesuit & = \\ (\spadesuit=1, \clubsuit=0) \end{matrix}$$

Extra for Experts: Using a set of rods of length 1, 2, 4, 8 and 16 units show how you can make any length up to 31 units. Or you could surprise an adult and show them how they only need a balance scale and a few weights to be able to weigh those heavy things like suitcases or boxes!