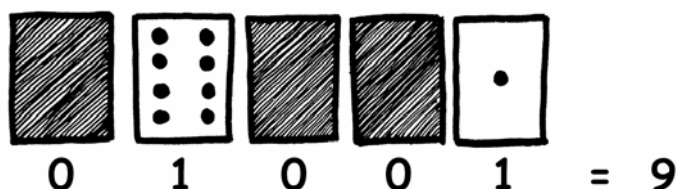


# Worksheet Activity: Working With Binary

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:**

$$\boxed{\times} \boxed{\checkmark} \boxed{\times} \boxed{\times} \boxed{\checkmark} =$$

( $\checkmark=1$ ,  $\times=0$ )

$$\uparrow \downarrow \uparrow =$$

( $\uparrow=1$ ,  $\downarrow=0$ )

$$\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc =$$

( $\odot=1$ ,  $\bigcirc=0$ )

$$\begin{array}{c} \uparrow \\ \square \end{array} \begin{array}{c} \downarrow \\ \square \end{array} \begin{array}{c} \uparrow \\ \square \end{array} \begin{array}{c} \downarrow \\ \square \end{array} =$$

( $\begin{array}{c} \uparrow \\ \square \end{array}=1$ ,  $\begin{array}{c} \downarrow \\ \square \end{array}=0$ )

$$\text{☺} \text{☹} =$$

( $\text{☺}=1$ ,  $\text{☹}=0$ )

$$\text{👍} \text{👎} \text{👍} \text{👎} =$$

( $\text{👍}=1$ ,  $\text{👎}=0$ )

$$+ + \times + =$$

( $+=1$ ,  $\times=0$ )

$$\cup \cup \cup \cup \cup =$$

( $\cup=1$ ,  $\cup=0$ )

$$\blacktriangle \blacktriangledown \blacktriangle \blacktriangledown \blacktriangledown =$$

( $\blacktriangle=1$ ,  $\blacktriangledown=0$ )

$$\spadesuit \spadesuit \spadesuit \spadesuit \spadesuit =$$

( $\spadesuit=1$ ,  $\clubsuit=0$ )

**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!