

# Count the Dots

## Junior/Middle/Upper Primary

### Curriculum

#### *Representation of Data*

*Data can be represented using whole numbers.*

### Vocabulary

Binary code- system by which data is stored on computers using zeros and ones.

### Overview

Data in computers is stored and transmitted as a series of zeros and ones. We can represent information by using just these two symbols. Students will investigate the patterns used in Binary Code.

### Lesson Steps

- Students lay the cards out in order with the 16 dot card on the left.
- What do you notice about the number of dots on the cards? (Each card has twice as many as the card to its right)
- We can use the cards to make numbers by turning some of them face down and adding up the dots that are showing.
- Students flip the cards to show a number exactly. Eg 5.
- Try making numbers 1, 2, 3, 4, 12, 19, 6, 15, 21.
- Discuss any patterns that the students observe.
- When a binary number card is **not** showing, it is represented by zero. When it is showing, it is represented by 1. Eg. 01001=9

### Extension

Give students the binary numbers and have them work out what the number is.

What day of the month were you born? Write it in binary.

*Activity available on [csunplugged.org](http://csunplugged.org)*