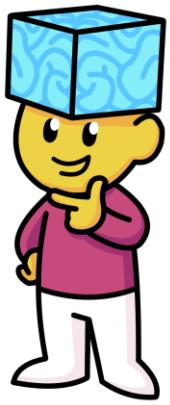
In this lesson we will explore the counting in binary using our fingers.

AFTER THIS LESSON, THE STUDENT SHOULD BE ABLE TO DO THE FOLLOWING:

Binary Finger Counting

1. Use binary finger counting to represent decimal numbers.
2. Explain how binary finger counting works.
3. Convert binary finger counting gestures into decimal numbers.
4. Take decimal numbers and model the number using binary finger counting.

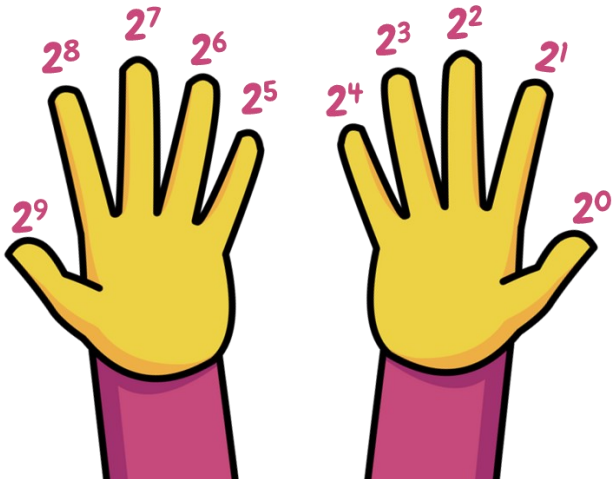
DACTYLONOMY

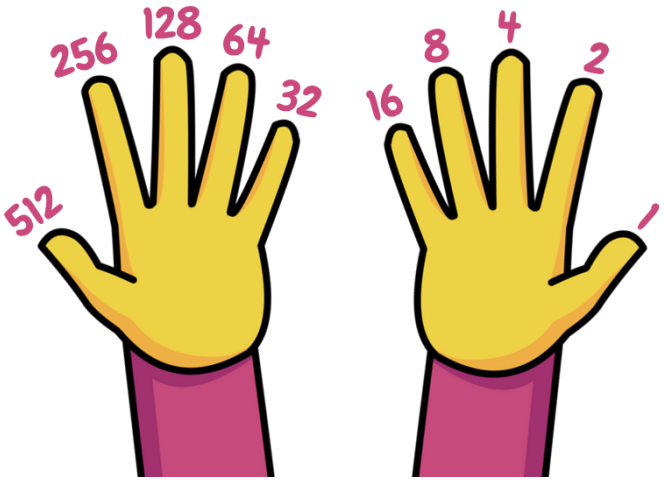


Did you know that the word **dactylonomy** is the practice of counting on your fingers! We all know how to count from 1 to 10 using the fingers on both hands, however, there are various systems of dactylonomy that offer the ability to count into the thousands!

BINARY FINGER COUNTING

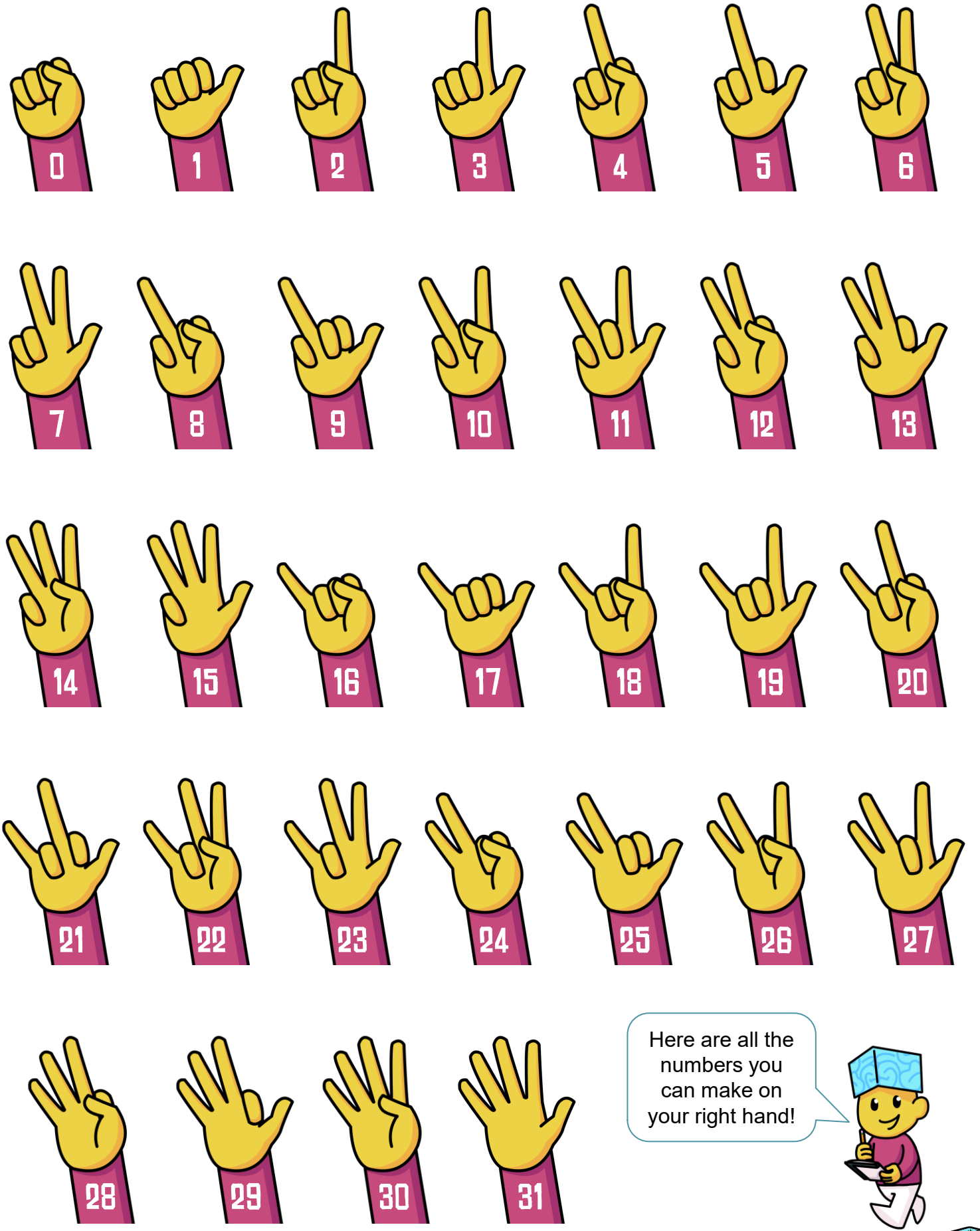
For binary finger counting, hold both hands palm side up. Imagine each finger on your hand represents a power of 2 and each position has double the value of the position to the right of it.



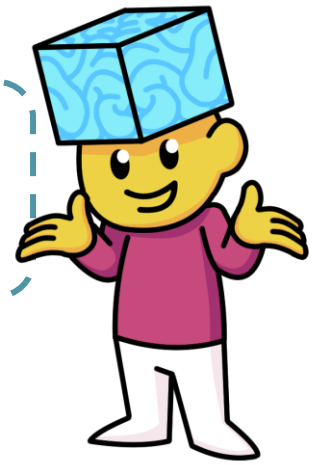


The thumb of your right hand has the assigned value of 1, the pointer finger 2, the middle finger 4, the ring finger 8, and the pinky finger is 16. On the left hand, the pinky has an assigned value of 32, the ring finger 64, the middle finger 128, the pointer finger 256, and the thumb is 512.

Binary Finger Counting on the Right Hand

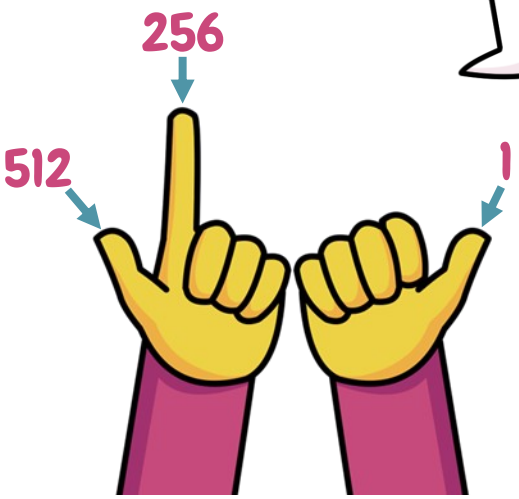


Using both hands makes it possible to count to much larger numbers!



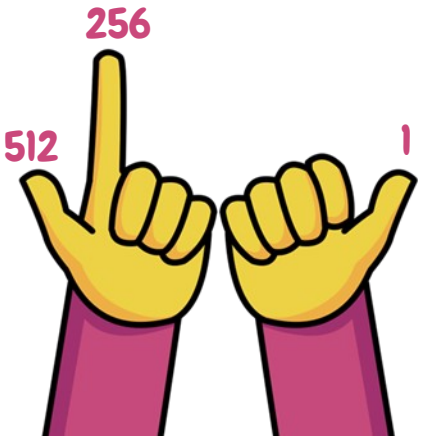
Step 1:

Identify the numeric value of each finger on each hand that is up.



Step 2:

Find the sum of the numeric values.



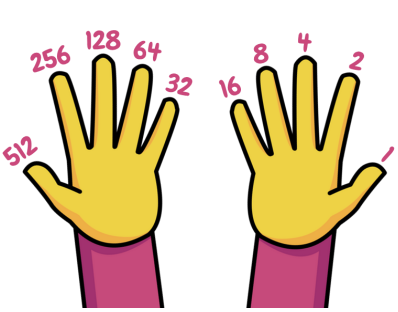
512 + 256 + 1

TECHNICAL NOTE

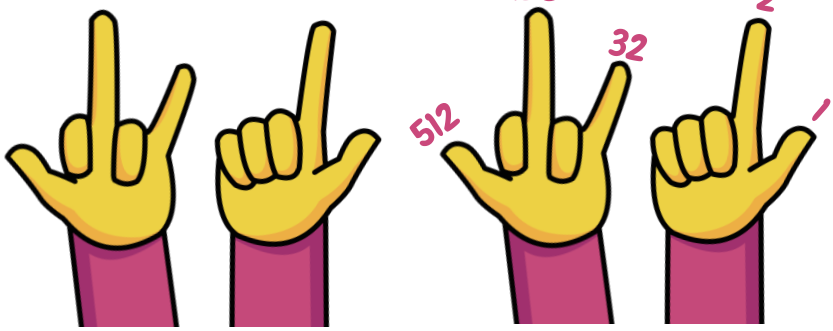
Using both hands for binary finger counting, the numbers 0 through 1023 can be displayed!

TRY THIS!

Determine what numbers are represented by the binary fingers below.



Example



Step 1:

Step 2:

512+128+32+2+1= 675