# Modeling whole numbers

## Abstract

Learn how to model whole numbers visually using blocks and tables.
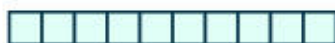
**Keywords:** Prealgebra; Math

## Defining a block notation

There are many ways to represent whole numbers visually, and one way we can do so is with blocks. We can use **base-10 blocks** to represent ones, tens, and hundreds as shown in the following figure:
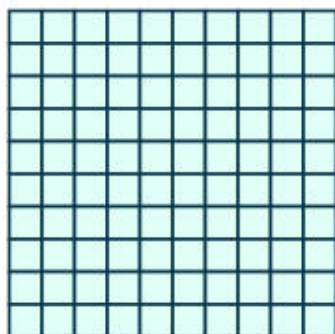


We may use the base-10 block notation shown in the image above where a:

- single block is 1,
- rod of ten single blocks is 10, and
- square of a hundred single blocks (or ten rods) is 100.

## Modeling whole numbers using blocks

Consider the number 143. How can we represent it in base-10 block notation?

Since we're using the **place value** system for our numbers, then we should recognize that the value of each digit in a number is associated with the position of that digit (or its *place*) within the number.

For example the 3 in 143 is in the ones place, the four is in the tens place, and the 1 is in the hundreds place. So we can show them visually as 3 single blocks, 4 rods, and 1 square.
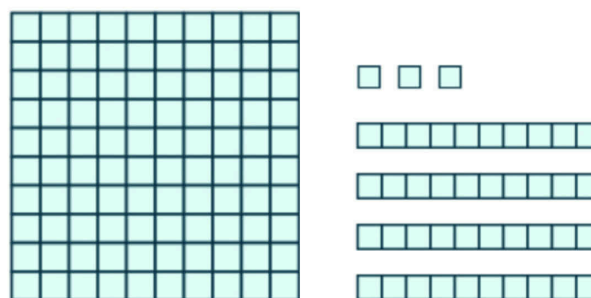


## Modeling whole numbers using tables

We can also model whole numbers with tables to help understand how they correlate with the place value system. Here's how we can model 143 using a table:

| Digit | Place value | Number | Value | Total value |
|-------|-------------|--------|-------|-------------|
| 1 | hundreds | 1 | 100 | 100 |
| 4 | tens | 4 | 10 | 40 |
| 3 | ones | 3 | 1 | +3 |
| | | | | Sum = 143 |

## Practice problem

Model the number 127 in base-10 block notation and in a table.