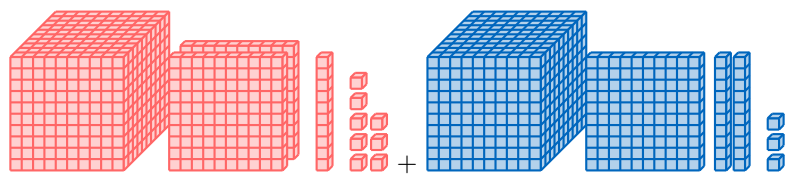


ADDITION

A DEFINITION

Discover: Louis has two boxes of cubes. One box contains 1 218 cubes, and the other box contains 1 123 cubes.



How many cubes does Louis have in total?

Answer: To find the total number of cubes Louis has, we add the cubes in the two boxes:

$$1\,218 + 1\,123$$

Using cubes, we can visualize the addition:



This shows a total of $1\,218 + 1\,123 = 2\,341$ cubes.
Counting each cube one by one would be tedious. Instead, we use column addition to calculate:

$$\begin{array}{r} & & & 1 & \\ & & 1 & 2 & 1 & 8 \\ + & 1 & 1 & 2 & 3 & \\ \hline & 2 & 3 & 4 & 1 & \end{array}$$

Definition Addition

Addition means combining quantities to find a total.

- The $+$ symbol means "add."
- The $=$ symbol shows equality on both sides.

Addition can be represented as:

- **Numbers:**

$$1\,218 + 1\,123 = 2\,341$$

- **Cubes:**



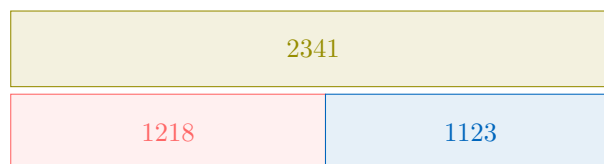
- **Words:**

one thousand two hundred eighteen plus one thousand one hundred twenty-three equals two thousand three hundred forty-one

- **Column Addition:**

$$\begin{array}{r} 1 \\ 1\,218 \\ + 1\,123 \\ \hline 2\,341 \end{array}$$

- **Part-whole model:**



B ADDING USING COLUMNS

Method Column Addition with Carrying

To calculate:

$$288 + 545$$

- **Step 1: Set up the addition**

Write the numbers in a vertical column, making sure the digits line up by place value (ones under ones, tens under tens, hundreds under hundreds).

$$\begin{array}{r} 288 \\ + 545 \\ \hline \end{array}$$

- **Step 2: Add the ones**

$$8 \text{ ones} + 5 \text{ ones} = 13 \text{ ones} = 1 \text{ ten} + 3 \text{ ones}$$

Write the 3 in the ones place of the result and carry the 1 ten to the top of the tens column.

$$\begin{array}{r}
 1 \\
 288 \\
 + 545 \\
 \hline
 3
 \end{array}$$

- **Step 3: Add the tens**

$$1 \text{ ten (carried)} + 8 \text{ tens} + 4 \text{ tens} = 13 \text{ tens} = 1 \text{ hundred} + 3 \text{ tens}$$

Write the 3 in the tens place of the result and carry the 1 hundred to the top of the hundreds column.

$$\begin{array}{r}
 11 \\
 288 \\
 + 545 \\
 \hline
 33
 \end{array}$$

- **Step 4: Add the hundreds**

$$1 \text{ hundred (carried)} + 2 \text{ hundreds} + 5 \text{ hundreds} = 8 \text{ hundreds}$$

Write the 8 in the hundreds place of the result.

$$\begin{array}{r}
 11 \\
 288 \\
 + 545 \\
 \hline
 833
 \end{array}$$

- **Result:**

$$288 + 545 = 833$$

