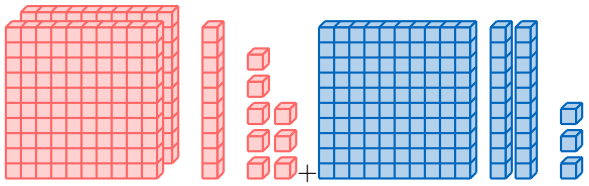
ADDITION WITHIN 1000

A DEFINITION

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

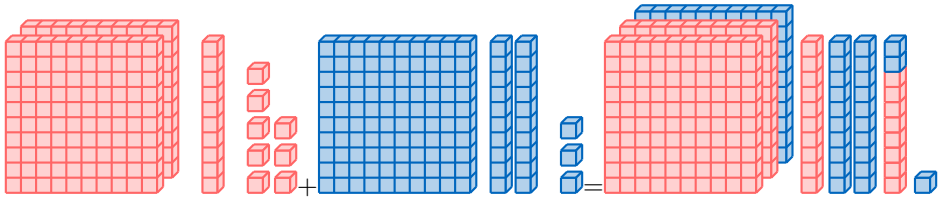


How many cubes does Louis have in total?

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

$$218 + 123$$

Using cubes, we can visualize the addition:



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

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

Definition **Addition**

Addition means combining quantities to find a total.

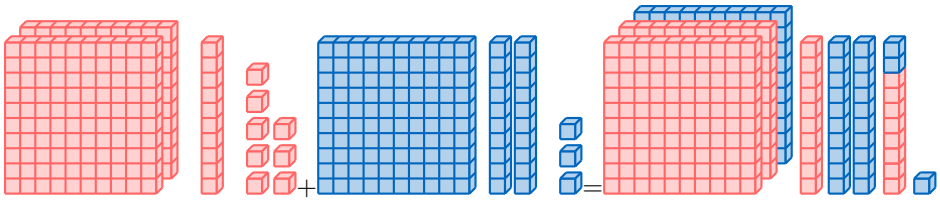
- The $+$ symbol means "add."
- The $=$ symbol shows equality on both sides.

Addition can be represented as:

- **Numbers**:

$$218 + 123 = 341$$

- **Cubes**:



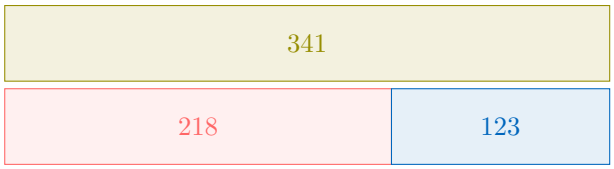
- **Words**:

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

- **Column Addition**:

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

- **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).

$$\begin{array}{r} 2\,8\,8 \\ +\,5\,4\,5 \\ \hline \end{array}$$

- **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.

$$\begin{array}{r} {\scriptstyle 1} \\ 2\,8\,8 \\ +\,5\,4\,5 \\ \hline 3 \end{array}$$

- **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.

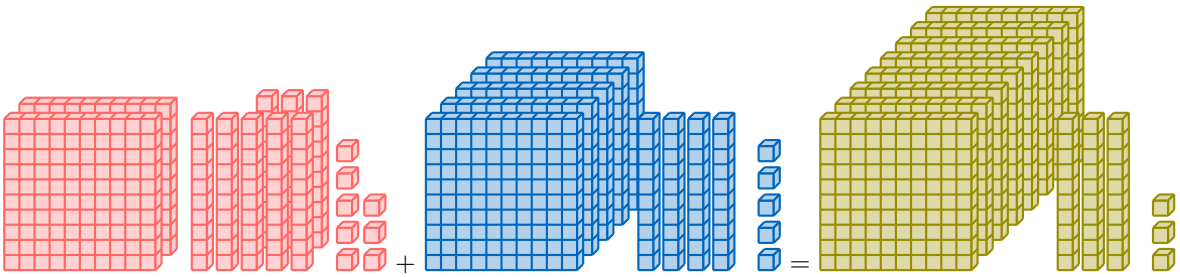
$$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 2\ 8\ 8 \\ +\ 5\ 4\ 5 \\ \hline 3\ 3 \end{array}$$

- **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.

$$\begin{array}{r} {\scriptstyle 1\ 1\ \ } \\ 2\ 8\ 8 \\ +\ 5\ 4\ 5 \\ \hline 8\ 3\ 3 \end{array}$$

- **Result**:

$$288 + 545 = 833$$