

ADDITION

A WHAT IS ADDITION?

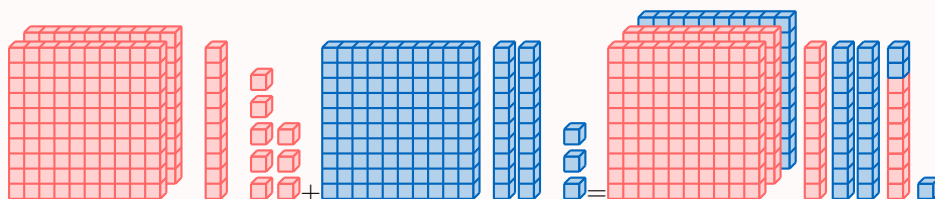
Definition Addition

Addition is joining groups together to find the total, or **sum**. The **plus sign (+)** tells us to add. We can show "two hundred eighteen plus one hundred twenty-three equals three hundred forty-one" in many ways:

- With numbers:

$$218 + 123 = 341$$

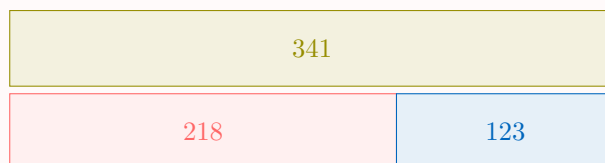
- With cubes:



- With a column addition:

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

- With a part-whole model:



B ADDING IN COLUMNS

Method Column Addition with Regrouping

Let's calculate:

$$288 + 545$$

- **Step 1: Line up the numbers by place value.**

Write the numbers one on top of the other. Make sure the ones, tens, and hundreds are in straight columns.

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

- **Step 2: Add the ones.**

$$8 \text{ ones} + 5 \text{ ones} = 13 \text{ ones}$$

13 ones is the same as 1 ten and 3 ones. We write the 3 in the ones place and **carry** the 1 ten over to the tens column.

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

- **Step 3: Add the tens.**

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

13 tens is the same as 1 hundred and 3 tens. We write the **3** in the tens place and **carry** the 1 hundred over.

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

- **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.

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

- **The Result:**

$$288 + 545 = 833$$

