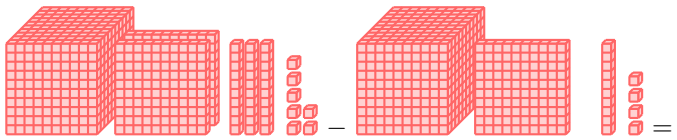
SUBTRACTION

A DEFINITIONS

Discover: Have you ever given away some of your toys or candies to a friend? When you do that, you're subtracting! Let's see: if you have 1 237 cubes, and you give 1 114 cubes to your friend, how many cubes do you have left?

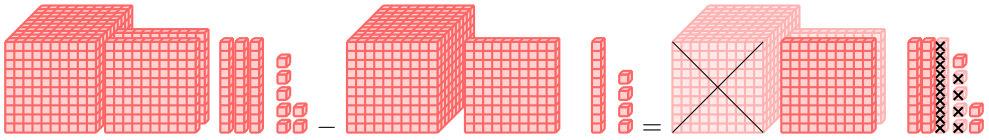


Answer: Counting each cube individually would be quite cumbersome, especially with larger numbers. In such cases, column subtraction is a more efficient method.

$$\begin{array}{r} 1\,2\,3\,7 \\ -\,1\,1\,1\,4 \\ \hline 1\,2\,3 \end{array}$$

Now you have 123 cubes left!

$$1\,237 - 1\,114 = 123$$



Definition **Subtraction**

Subtraction means taking something away. When we subtract, we find out how many are left.

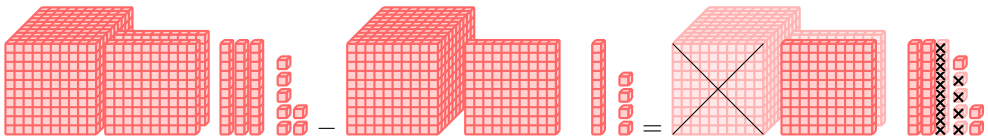
- The $-$ symbol means "subtract."
- The $=$ symbol shows that the two sides are the same.

We can represent subtraction as:

- **Numbers**:

$$1\,237 - 1\,114 = 123$$

- **Cubes**:



- **Words**:

one thousand two hundred thirty-seven minus one thousand one hundred fourteen equals one hundred twenty-three

- **Subtraction Using Columns** :

$$\begin{array}{r} 1\,2\,3\,7 \\ -\,1\,1\,1\,4 \\ \hline 1\,2\,3 \end{array}$$

B SUBTRACTION USING COLUMNS

Discover: Tu as appris à faire des soustractions en colonne avec la méthode de l'emprunt. C'est quand on "emprunte" une dizaine à la colonne d'à côté pour soustraire quand le chiffre du haut est plus petit que celui du bas. Mais aujourd'hui, nous allons découvrir une autre méthode : la méthode par compensation.

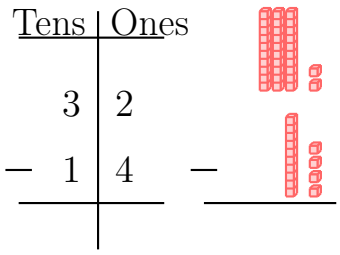
La méthode par compensation repose sur le principe suivant : si l'on ajoute ou soustrait le même nombre aux deux termes d'une soustraction, la différence reste inchangée. Cette propriété nous permet de simplifier le calcul en transformant les nombres pour faciliter la soustraction.

Method **Subtraction in Columns with Compensation**

To calculate:

$$32 - 14$$

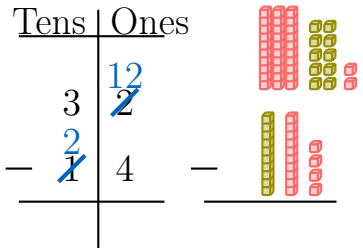
- **Step 1: Set up the subtraction**



- **Step 2: Compensate 1 Ten**

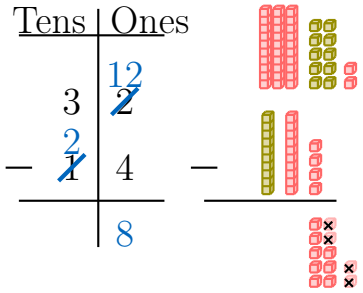
$$2 \text{ ones} - 4 \text{ ones}$$

There are not enough ones. You regroup 10 ones to make it 12. You compensate by adding 1 ten to 14, which makes it 2 tens.



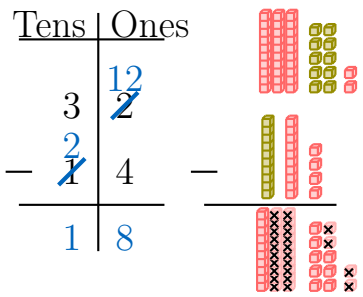
- **Step 3: Subtract the ones**

$$12 \text{ ones} - 4 \text{ ones} = 8 \text{ ones}$$



- **Step 4: Subtract the tens**

$$3 \text{ tens (from 32)} - 1 \text{ ten (from 14)} - 1 \text{ ten (compensation)} = 1 \text{ ten}$$



- **Result**: There is 1 ten and 8 ones. So,

$$32 - 14 = 18$$