MATHS

“Base 10 numerical breakdown stamps”

Ref. 30692

FOR EDUCATIONAL PURPOSES

akros

EN

BASE 10 NUMERICAL BREAKDOWN STAMPS

Ref. 30692

CONTENT:

Base 10 number decomposition stamps for representing quantities. Includes 4 solid wood stamps that represent one, ten, a hundred and a thousand. Suitable for any ink.

RECOMMENDED AGE AND INSTRUCTIONS:

From 3 to 8 years.

With these stamps, we can help children to learn number decomposition in base 10 in a visual and manipulative way. This material can help us work on quantities and their representation in a fun and exciting way in the classroom or home.

With the smallest children, we approach number decomposition with tens and ones.

Although the game is aimed at children from 3 to 8 years, it can be played with older children with more complex activities. Also with children who have special needs or with adults that need to work on number decomposition, adding and subtracting or visual representation of numbers.

Inspired by the Montessori Methodology.

EDUCATIONAL OBJECTIVES:

- To establish the association that exists between a quantity of objects, its pictorial representation, its canonical decomposition and its representation with positional numbers.
- To facilitate number decomposition and the positional value both of natural numbers and decimal numbers.
- To improve comprehension of addition and subtraction operations, and their different algorithms.

METHOD OF PLAY AND ACTIVITIES:

Below are some activities for children between 3 and 4 years old:

1. **Representing numbers from 1 to 10**
   Depending on the knowledge of each child, write the numbers from 1 to 10 and ask the child to represent them with the stamps. In this way, next to the number one, the child would put a stamp of the one, next to number two, two stamps of the one, and so on progressively up to the number 10 or up to the number that the child has learned. It is recommended to use the one stamps.
2. **The friends of…**
   Put the number you want to work with at the top of the sheet. Then put the

different sums that give the above number in a two column table. For example, if the top number is six, ask the children to tell you what the friends of the six are, i.e. so that they can see what combinations of numbers make up the six, for example 1+5, 2+4, 3+3, 4+2…This is represented with stamps.

6			
1		5	
2		4	
3		3	
4		2	
5		1	
6		0	

The following exercises should be carried out once addition and subtraction has been introduced to the children:

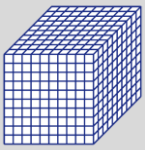
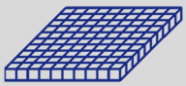
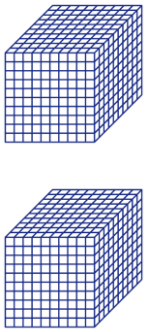
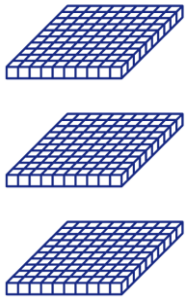
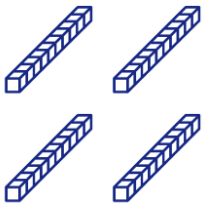
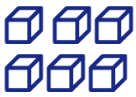
3. **Representing natural numbers**
   If we identify the small cube as one, the number eight can be represented as eight cubes, the nine as nine cubes etc., and the 11 is 11 cubes, but 10 cubes can be grouped in a bar (as they are equivalent) and the 11 can be represented as a bar and a cube. The same can be done with larger numbers, by applying as many block stamps as there are units of a thousand, as many plates as hundreds, as many bars as tens, etc.

4. **Changes**
   Note that a block or large cube (thousand) is "worth" ten plates (hundreds) and that these can be grouped or "ungrouped" as required. The same applies for converting plates into bars and bars into small cubes, and vice versa.

5. **Representing in a table**
   Divide the paper into two, three or four columns, one for each order of magnitude under consideration: units of thousands, hundreds, tens and ones. Head each

column with the stamp of its order of magnitude. In the table, place the digits of the number under consideration, thus we see that 2364 is decomposed as two blocks - units of a thousand, 3 plates - hundreds, 4 bars - tens and 6 cubes - ones. We can see that one bar is equal to ten ones, thus 4 in the ten position is worth, in reality, 40, or that as a block is equal to 10 plates, two units of a thousand are 20 hundreds, 200 tens or two thousand ones.

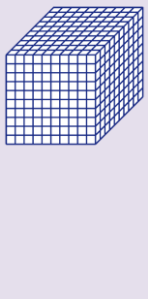
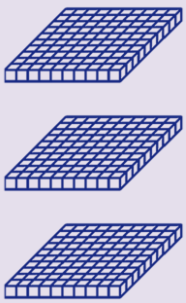
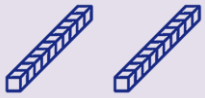
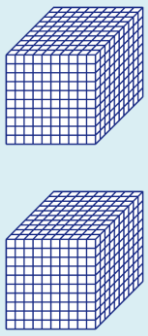
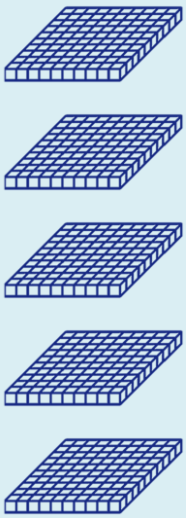
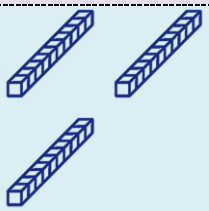
Example:

Units of Thousands	Hundreds	Tens	Ones
			
2	3	4	6
			

6. **Adding in the table**

Suggest a horizontal or dictated addition, and request that the numbers are placed on the table and added. First without carrying - no more than nine in each order of magnitude - later with carrying, bearing in mind that if in one order of magnitude there are more than nine elements, we can change 10 of them for another of the immediately higher order.

Example:
Add 1322+ 2531

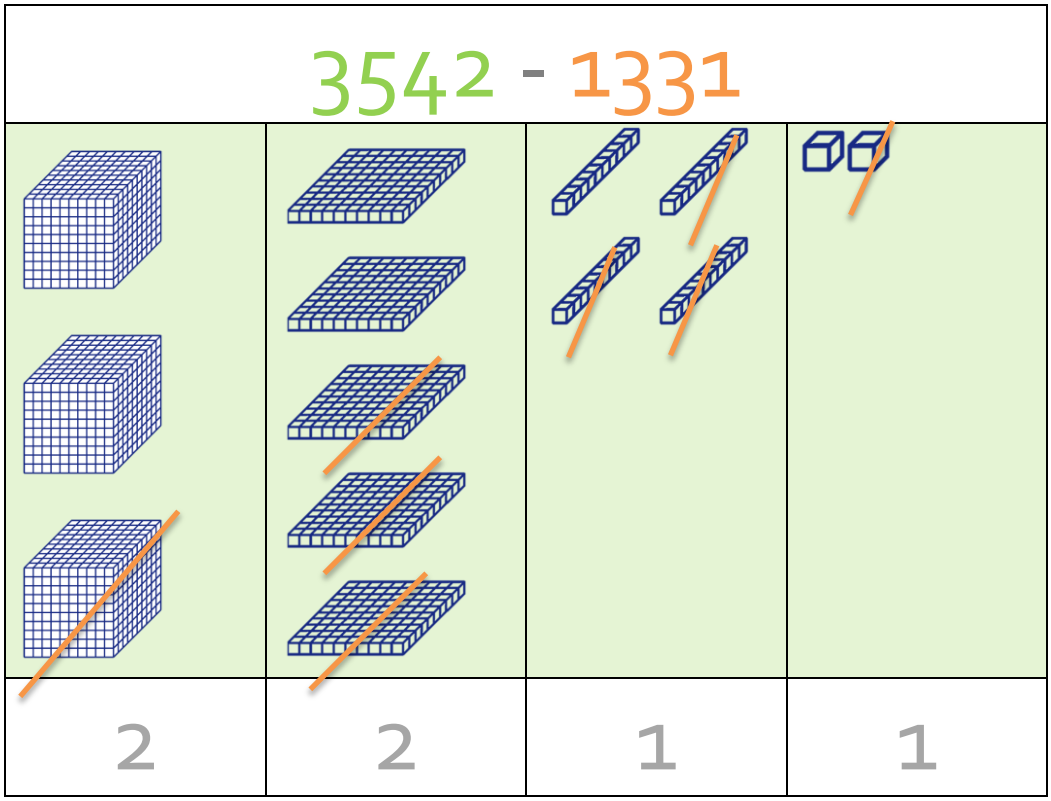
1322 +2531			
			
			
3	8	5	3

7. **Subtracting**

A slightly different method is used for subtraction, the minuend is represented with the stamps and the subtrahend is deducted from this.

Example
Subtraction > 3542-1331

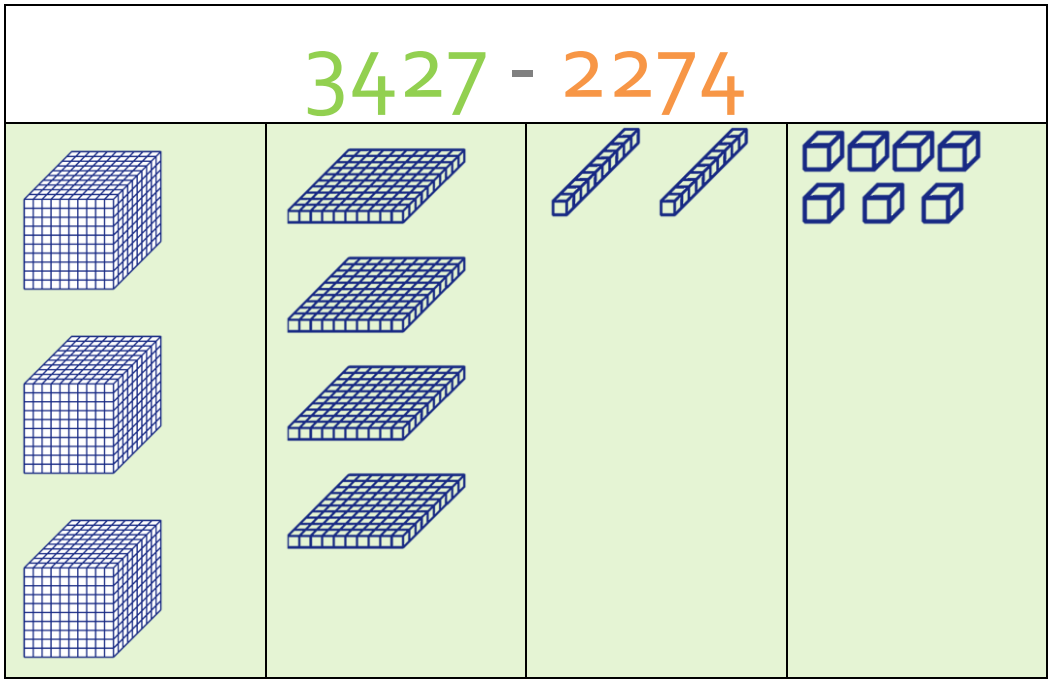
First, we represent the minuend in the table with the stamps. Then subtract the subtrahend by crossing out the corresponding blocks (units of a thousand), plates (hundreds), bars (tens) and cubes (ones) The remaining figures that are not crossed out are the result of the subtraction. This is shown below.



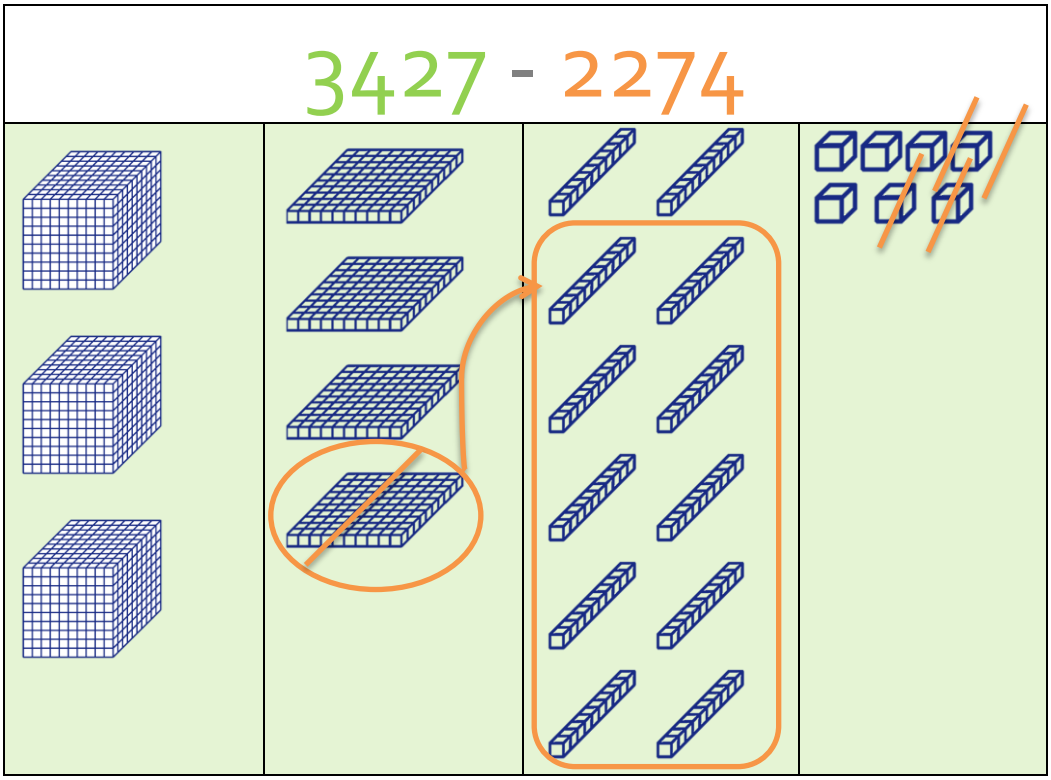
8. Subtracting with carrying

When subtracting, it can occur that an order higher than in the minuend is required, in this case we have to go to the higher order and take an element from it and convert it into 10 of the lower order.

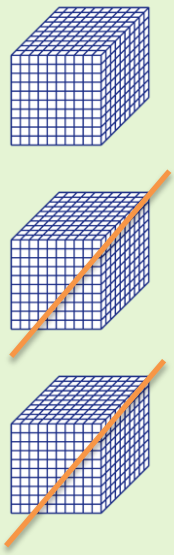
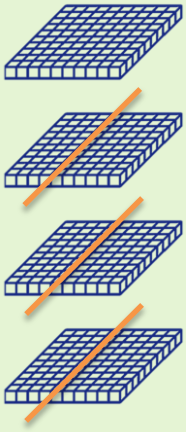
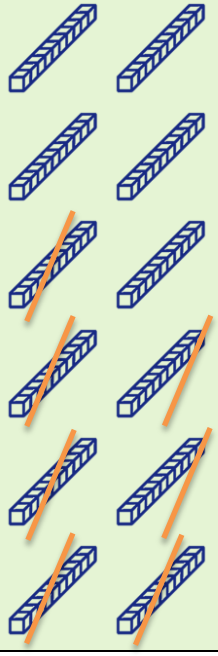
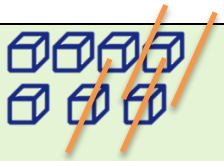
For example 3427 – 1274 requires more tens than there are in the minuend:



We see that there are not sufficient tens in the minuend (just 2) to take from it those of the subtrahend (7). In this case as there are hundreds, and a hundred equals 10 tens, we move a hundred to tens and now we can make the subtraction.



Then we make the subtraction normally.

3427 - 2274			
			
1	1	5	3

9. **Bankruptcy**
   A game in which a six sided dice is thrown nine times, and it is played with the three smallest stamps. On each throw of the dice, choose one of the stamps and stamp it as many times as the number obtained on the dice. The aim is to get as close to 1000 as possible, but not to go over it!

10. **And decimals**
    All that we have seen also applies if we consider that one can be represented by any of the stamps. For example, the large block. In this case, the plate (usually one hundred, which is a 10th part of the block) will be the tenth, the bar will be the hundredth and the small cube will be the thousandth.
    This last activity is recommended after the introduction of decimals in the classroom.