Three representation systems

The concept of number requires the simultaneous activation of these types of representations

Boys and girls with dyscalculia have difficulties acquiring and activating the three types of representations simultaneously, which is an indicator of developmental dyscalculia. (Kucian and Von Aster, 2015)

3. Arithmetic operations

- The comprehensive aspect

Operating means transforming quantities: adding or removing acertain quantity means that the final quantity is different from the initial quantity unless zero elements are added or removed.

- The functional aspect

Discover in which situations it is necessary to remove, add, etc.

- The technical aspect: the algorithms

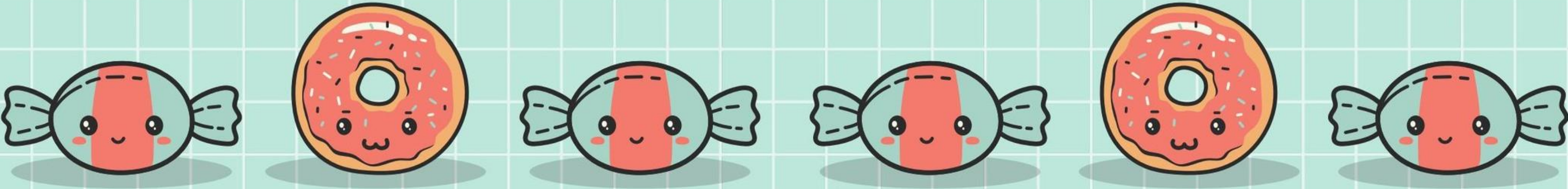Techniques to carry out the operations that are used in our culture to add, subtract…

Let's count

Create a meaningful activity to manage in the classroom

?

_____

?

_____

Number recognition - in 2nd and 3rd cycle of Primary and Secondary school

- Progressively transfer knowledge of natural numbers to other numerical sets, decimals
  - •Recognize that 0.5 is greater ,rational...

than 0.25: 0.5>0.25
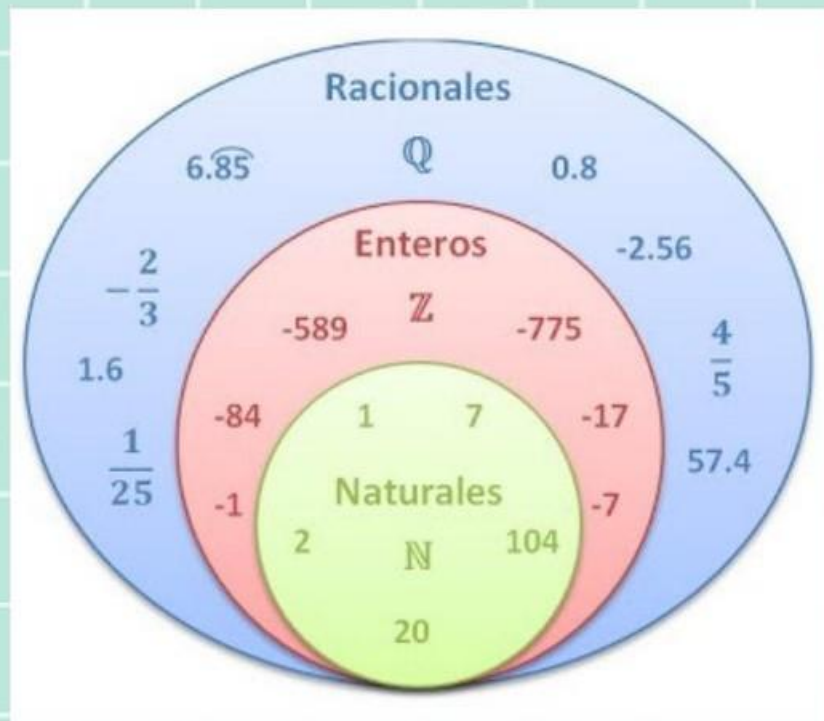- That 0.75 is greater than 0.5 and less than 1: 0.75>0.5 0.75< 1
- Recognize that 0.25=1/4

- Identify ¼and 1/3 on the number line and distinguish that ¼ is included in 1/3
- Working with money and the value of coins (financial sense)
- Manage time

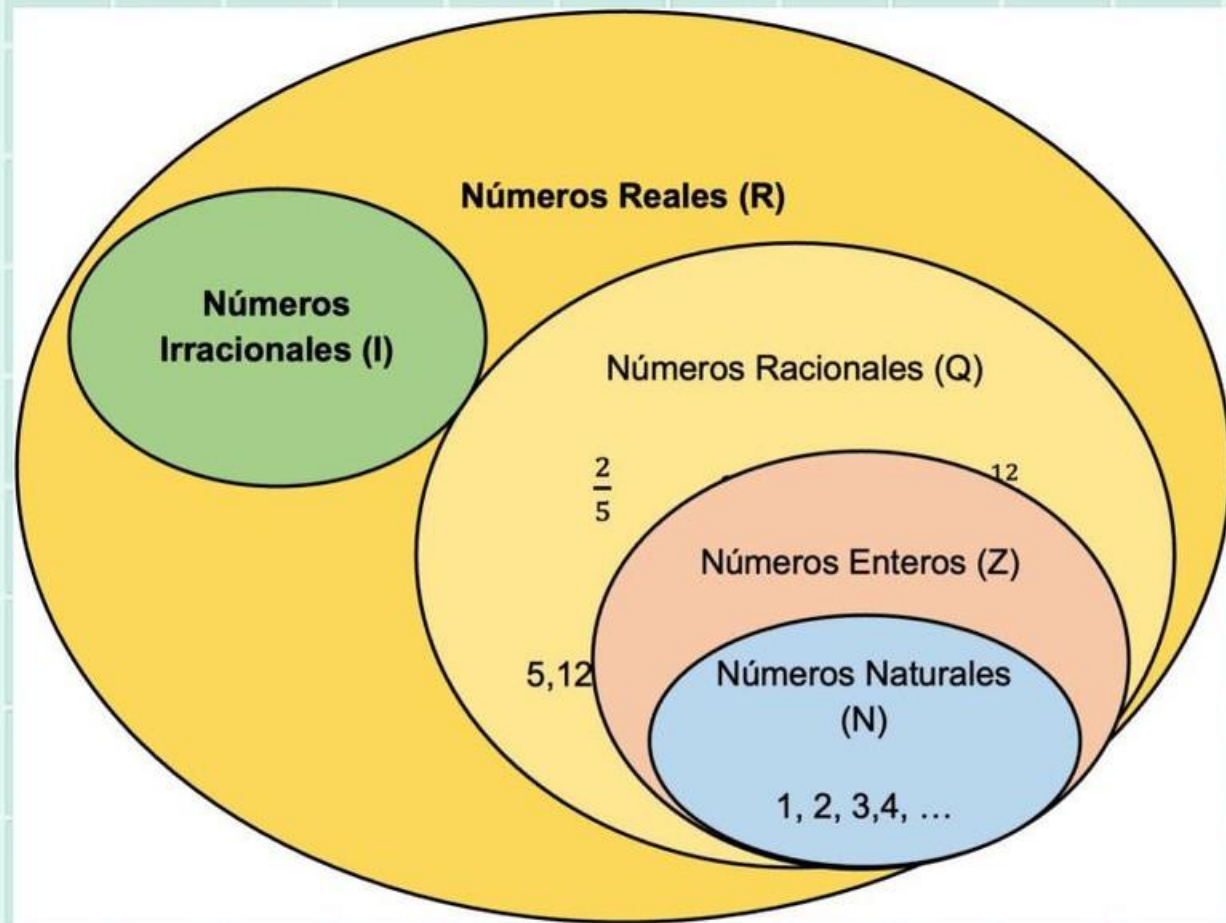•Temperature: graphs and temperature comparisons throughout the day,

week, month, year.

•Other numerical activities related to food
healthy: relationship with weight, height,...

The situation of numbers on the number line

Números Reales (R)

Números Irracionales (I)

Números Racionales (Q)

$\frac{2}{5}$

12

Números Enteros (Z)

5,12

Números Naturales (N)

1, 2, 3,4, …

Consolidation of the mental number line. Progressively

Keep in mind that at the end of the EP, integer and non-integer quantities belonging to different numerical sets (natural and decimal) should be placed on the number line.

Use of numerical references

Use **mental references** to think about numbers, solve problems, make measurements of common objects and environmental situations

- Using one's own weight or height as areference to estimate the weight or height of another person
- Use steps, claps, measuring tapes, tiles.
- Use values like half, ½, 50%; apair of gloves…with which the person feels safe and comfortable when using them

Problem resolution

• One of the fundamental axes of the CM

• Problem solving promotes the development of number sense

• Take into account the typology of the problem

• Know the level of competence of students in solving arithmetic verbal problems where arithmetic operations are involved.

• 2nd cycle of Primary: Strategies and tools for resolution and problems and
    properties: addition, subtraction, multiplication and division of natural numbers
    solved with flexibility and sense in contextualized situations

    • 3rd cycle of Primary. Strategies for solving arithmetic operations
    (with natural numbers, decimals and fractions) with flexibility and meaning:
        mentally, in writing or with a calculator; usefulness in contextualized situations and
    properties.

Understand the meaning of numbers

- Number sense involves understanding how the decimal number system is organized and the multiple relationships that exist between numbers.

- Depending on the numerical activity, you can choose to work either with fractions or with their decimal expression.
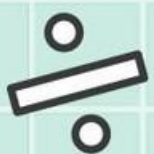
Recognize the relative and absolute size of the magnitudes of numbers

An understanding of the number system helps to mentally organize, compare and order numbers.

- Ex. Astudent who understands the magnitude of numbers should easily recognize

  - that 0.05 is greater than 0.025 and less than 0.75 •that between 2.24 and 2.25 there are infinitely many numbers • have arguments to compare the numbers 7/11 and 7/8 without resorting to expressing them with the same denominator .
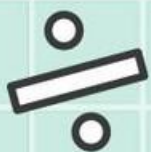
The use of numerical references

- It refers to the ability to use mental numerical references to solve problems or have reference points for measurements of common objects and situations in the environment.

- Reference points are generally multiples of powers of 10, numbers such as 1, 1/2, 50%, or whateve,r value aperson is comfortable making comparisons or calculations with.

- These references can also be personal, for example, aperson who has a close reference in their environment over adistance of 200 meters can use it to estimate another distance; lengths of swimming pools, measurements of soccer fields, basket ball, handball, volleyball and other personal interests