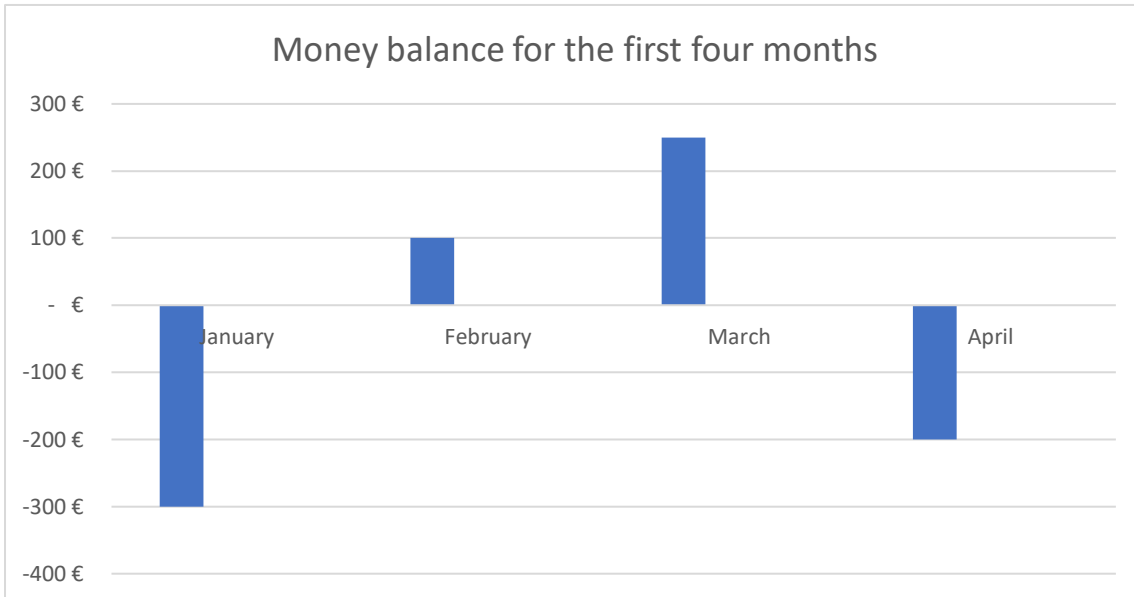


## STAGE 0: CAN I? ACCEPTING THE LEARNING PROBLEM

### Task 0.1

You are doing some practices in a company and you are asked to calculate the money balance for the first four months in the year by watching this graphic. You will have more opportunities to be hired in this company if your work is well done.



### Task 0.2

The company wants to have a positive balance of 600€ by the end of May. You are asked to calculate how much money the company must earn in May to get this desired balance.

### Task 0.3

Studying the report of the last year, you see that the balance in the first three months was -1500€, what was the average balance in each month?

### Tarea 0.4

Have you found problems solving these previous tasks? Write them down and compare with your classmates.

## STAGE 1: WHAT AM I DEALING WITH? CREATING A MODEL OF AN ELEMENT

### Task 1.1

Watch the pictures from A to M from the bank. Classify the operations into as many groups as you can and explain what the criterion you have chosen is.

- Group 1: Name of feature for the classification:

Value of feature:	Value of feature:	Value of feature:	Value of feature:	Value of feature:

- Group 2: Name of feature for the classification:

Value of feature:	Value of feature:	Value of feature:	Value of feature:	Value of feature:

- Group 3: Name of feature for the classification:

Value of feature:	Value of feature:	Value of feature:	Value of feature:	Value of feature:

- Group 4: Name of feature for the classification:

Value of feature:	Value of feature:	Value of feature:	Value of feature:	Value of feature:

## HOW TO OPERATE WITH INTEGER NUMBERS

### Task 1.2

You are going to make a passport for the operations with integer numbers. In a Passport you can find every piece of information needed to identify someone or something, so you are going to think what features and values have been to consider making the passport. To do that, look at the features and values you have chosen in the previous task.

#### PASSPORT FOR THE OPERATIONS WITH INTEGER NUMBERS

FEATURE	NAME OF FEATURE

### Task 1.3

To verify how the features of your passport are related to each other, write some of the different types of operations that can exist by giving different values to the type of operation and the sign of the numbers. Compare your results with your classmates.

NUMBER	KIND OF OPERATION	SIGN OF THE RESULT	OPERATION
5 y 20			
8 y 3			

## STAGE 2: HOW DO WE MAKE A CHOICE? BUILDING A HYPOTHESIS

### Task 2.1

- a) Read the story number 1 and 2 from the bank and fill in the table with the suitable sentence and translate it into mathematic language.

Give 2 positive points.

Remove 2 positive points.

Give 2 negative points.

Remove 2 negative points.

	POSITIVE POINTS (+)	NEGATIVE POINTS (-)
ADDITION (+)		
SUBTRACTION (-)		

- b) After having translated the sentences into mathematic language, join the sentences with the same mathematical meaning.

Give 2 positive points.

Remove 2 positive points.

Give 2 negative points.

Remove 2 negative points.

### Task 2.2

Read the story number 1 and 2 from the bank and fill in the table relating each sentence with a moment in the stories.

SENTENCES	STORY 1	STORY 2
It doesn't matter if you subtract positive points or you add negative points, in both ways you lose points.		
If you subtract negative points is the same if you earn positive points.		

NEGATIVE NUMBERS

Task 2.3

Watch the operations in A, B, C, D cards from the bank. Pay attention to the sign and the absolute value in the results and the numbers. Now, look at the new operations (1, 2, 3 and 4) and join the operations with the same features. After that, draw in the building drawing the graphic representation of this new operations (1, 2, 3 and 4).

Operation 1:  $6 - 4 = 2$

Operation A

Operation 2:  $2 + 4 = 6$

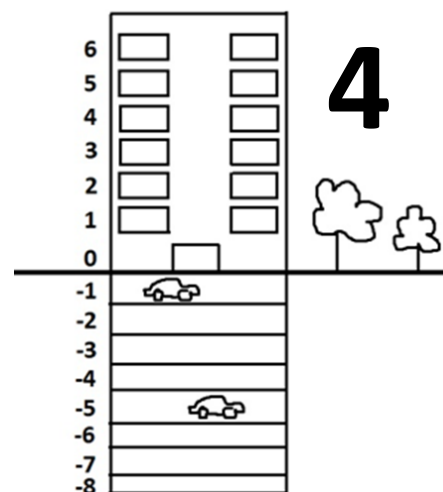
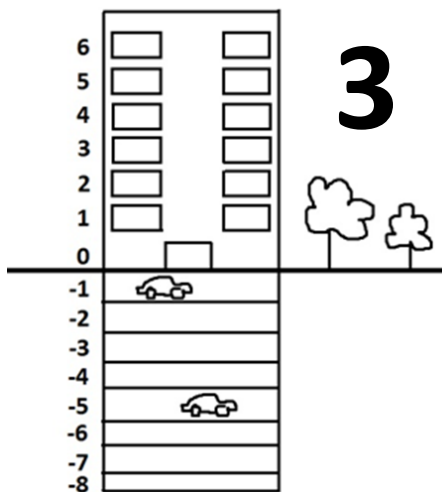
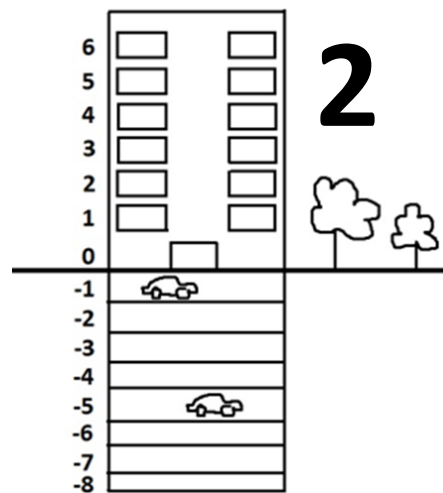
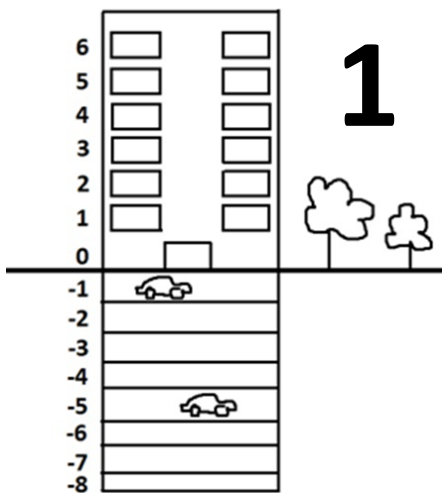
Operation B

Operation 3:  $5 - 12 = -7$

Operation C

Operation 4:  $-1 - 5 = -6$

Operation D



## NEGATIVE NUMBERS

### Task 2.4

You are going to make predictions about the result in operations of ADDITION/SUBTRACTION. To do that, look at the operations from the bank and answer the next questions.

a) Operations A, B, E, F

- In all these operations we find a number with a positive sign and the other one with negative sign, but in some of them the sign result is negative and in others are positive. What does it depend on?
  
  
  
  
  
  
  
  
  
  
- All the operations have one number with positive sign and another with negative sign. How you calculate the absolute value of the result?

b) Operations C, D

- In these operations we find two numbers with the same sign (+ o -), but in some of them the result is negative and in others is positive. What does it depend on?
  
  
  
  
  
  
  
  
  
  
- All the operations have numbers with the same sign. How you calculate the absolute value of the result?

## NEGATIVE NUMBERS

### Task 2.5

Fill in the empty columns to complete the hypothesis about the result of the ADDITION/SUBTRACTION operations.

### **PASSPORT ADDITION/SUBTRACTION**

FEATURE	RESULT'S SIGN	HOW TO CALCULATE THE ABSOLUTE VALUE OF THE RESULT
Both numbers have positive sign		
Both numbers have negative sign		
The absolute value of the positive number is higher than the negative one		
The absolute value of the negative number is higher than the positive one		

### Task 2.6

You are going to make predictions about the result in operations of MULTIPLICATION/DIVISION. To do that, look at the operations from the bank and answer the next questions.

- a) Operations I, J, M, N.
  - In these operations, some of them multiplications and other divisions, all the results have negative sign, what do they have in common?
  
- b) Operations G, H, K, L
  - In these operations, some of them multiplications and other divisions, all the results have positive sign, what do they have in common? Is there anything different?

## NEGATIVE NUMBERS

### Task 2.7

Fill in the empty columns to complete the hypothesis about the result of the MULTIPLICATION/DIVISION operations.

FEATURE	RESULT'S SIGN
Both numbers have positive sign	
Both numbers have negative sign	
One number has a negative sign and the other has a positive one	

## STAGE 3: DOES THE HYPOTHESIS WORK?

### Task 3.1

Verify with these examples if the hypothesis you made are correct. Write the hypothesis which fix with each operation.

$$8 + 9 = 17 \rightarrow$$

$$7 - 18 = -11 \rightarrow$$

$$-13 - 6 = -19 \rightarrow$$

$$-3 + 8 = 5 \rightarrow$$

$$-9 \cdot 5 = -45 \rightarrow$$

$$10 : 2 = 5 \rightarrow$$

$$-8 \cdot -3 = 24 \rightarrow$$