

What many 10’s are in the number

SAN

Scenario title/name of the game: What many 10’s are in the number

Children’s age (primary school students):7-9 years old

Time needed:20 minutes

Content/Subject: Problem solving with two-digit numbers

# Introduction

## This activity teaches your child to solve problems involving two-digit numbers. In particular, it allows the student to understand the meaning of the units digit and the tens digit. It consists of both converting a certain number of units weighing "1" to units weighing "10" and adding sets of units of both weights to each other, observing the rules for adding two-digit numbers. The large unit corresponds to 10 small units, which gives a natural representation of two-digit numbers. The task can be extended to subtracting sets of units from each other using the rules for subtracting two-digit numbers.

## Resources:

1. Robot equipped with a button and two scales

2. A container with small and large bricks of two masses, the mass of the larger bricks should be 10 times the mass of the small ones

# A detailed description of the scenario

## The student turns on the robot, which welcomes him and encourages him to play together. The student selects the type of activity by pressing any button. Each time you press it, the name of the activity is spoken. If it is "swap the blocks for large ones", then the student first, according to the instructions, puts a certain number of any mixture of blocks on any pan of the scale. Then, according to the instructions, he sorts these blocks and places the large ones on the left pan, and the small ones on the right. Then, according to the instructions, if there were more than 9 small blocks, it replaces every ten small blocks with one large block in the left pan.

## If it is "add two sets of blocks together", then the student puts a certain number of arbitrary blocks on the right pan, then replaces "tens" of small blocks in the right pan with large blocks in the left pan. He writes down how many big blocks and small blocks he has. The same operation is repeated for the second set of blocks. The student mixes both sets and repeats the weighing and replacement of ten small blocks with one large one. In this way, he gets the natural representation of adding two-digit numbers. The correctness of the result can be checked by the student using a calculator.

# Steps

1. Preparation of the robot and blocks
2. Turn on the robot
3. The robot greets the child and explains how to use it
4. Selecting an activity
5. Instruction given to the student by the robot
6. Action of the child in accordance with the instructions
7. Robot counting bricks by weighing
8. Further instructions, no. changing the type of blocks
9. Information about the result or correctness of the child's actions
10. Return to activity selection

# Tips and tricks for the teacher

• In most cases, your child will be able to interact with the toy on their own and observing their progress will suffice

• Make sure that as a result of sorting and replacing the blocks, only large blocks remain on the left pan and only small ones on the right one

# Scenario implementation and other resources

Maps, arrows, other materials especially created for this scenario

# Variants of the scenario/the game

A more advanced use of the robot can be to subtract sets of blocks from each other. Older children can also be involved in the play process of toddlers by providing initial guidance, and in a more advanced variant by programming new activities.