

Addition and Subtraction with Bee-bot

1. Title: Addition and Subtraction with Bee-bot
2. Which subjects are integrated in the activity: Mathematics, Estonian language, Art
3. Target group (age and group size): 1st grade, 19 students
4. Duration of the activity: 2 x 45 minutes
5. Keywords: addition and subtraction, text problems, reading, cipher, number composition, crafting

6. Summary of activities (-200 words):

The students' task was to practice adding and subtracting with a bee-bot on a mat. Addition and subtraction were within 20. The task had to be solved in a group of 3-4 members. In addition to the tasks, the mat had three text tasks that had to be solved in a group and written down on paper. After the task of the bee-bots, the children had to solve a mystery. The solution of the secret was: open the workbook on page 60. The students' task in the group was to solve the tasks in the workbook together by adding them to the transition.

In the second half of the lesson, the students had to think about the composition of the number and make number houses in the group. Each group was assigned a fixed number (5, 6, 7, 8, 9) and the students had to write different possible actions on the paper labels, which could consist of this number. The signs could be decorated, a roof had to be made and the number given to the group had to be placed in the middle of the roof.

7. List of materials, environments and tools: Bee-bot, cards, mats, math workbook, colored paper, larger paper (poster size) pencils, felt-tip pens, stick glue
8. Detailed description of the activity, covering both teaching and learning activities:
 - Before completing this activity, students should be introduced the day before how to program the Bee-bot, and repeat the necessary topics (eg solving text problems).
 - Divide students into groups at the beginning of the activity. One good method is to use color tags, for example. Each student takes one label from the bag and later finds their groupmates. Be sure to consider children who are not suitable for group work.
 - Introduce students to the meaning of group work and talk about goals. Definitely time must be allowed for solving. The task with Bee-bots can take about 30 minutes. It is good if the children can move a little after this activity. You can take a break from rest or exercise.
 - Give the children a cipher and watch how it is handled.
 - The solution to the cryptography was: open the math workbook on page 60. Students can have the workbook solved independently or in a group.
 - Repeat the composition with the number of children. To do this, distribute a piece of paper to each group.
 - Introduce the children to what a number house means and what the purpose of the craft is.
 - Students should write as many different operations as possible on a piece of paper. For example, the number 5 consists of $3 + 2$.

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- When the tasks are written, give the children a larger piece of paper to stick to. Surely they could also make a roof for the "house".
- Attach the students' work to the classroom.
- At the end of the activity, summarize the class: what was learned in the lesson and what was remembered, what should be practiced, what should be done better, and so on

10. Learning objectives:

- Fix addition and subtraction within 20
- Practice solving text problems
- Recall the composition of the number
- Find out what a number house is
- To develop children's cooperation skills
- Practice bee-bot programming

11. Evaluation guide:

After this group work, I prepared a check for the children, where there was an addition and subtraction within 20 limits and a text task.

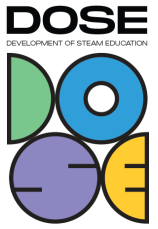
12. Reflection and recommendations for the operator:

Children who do not want to work in a group should be considered. In addition, you have to give more time to do the crafting or even three hours. We ran out of time, so we were not able to complete our crafting task in one math class. You must also be patient in carrying out your activities. I think that this math task is suitable for the 1st grade and affordable. If I had added even more details or tasks, the children would get tired quickly.

9. Contact:

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Appendix 1.

Solve the secret code!

B2 A1 B2 C3 D4 D4 A4 B2 B2 C1 B2 C3

D2 B3

D1 C4

	1	2	3	4
A	V	X	H	R
B	Q	A	K	J
C	M	W	T	0
D	6	L	Z	Ö

NB! This code is in estonian. The code should be modified based on the language used.