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Intellectual output 2

Mathematical creativity

4 Creativities Project
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INTRODUCTION

The aim of FCREATIVITIES project is to improve the teachers' abilities to generate a creative education, leading to the creation of students who are able to think, analyze and solve daily problems. With the following six activities we aim to equip the teachers with some easy to implement, fun to organize exercises to be used with **10 to 12 year old students**, focusing on enhancing their motivation, logical thinking and **mathematical creativity**. The very nature of mathematics provides a suitable platform for developing creativity. Mathematical creativity could be defined as the process that results in unusual and insightful solutions to a given problem, irrespective of its level of complexity. Mathematical creativity is observed when one generates a non-standard solution for a problem which may not be solved so easily using the conventional methods.



Title of the activity

Hopscotch - Mathematical creativity under the interface of a basic calculator



Description

This activity consists in mixing math with physical activity. The students will be divided in groups of 3-4 students. The game will be played outside, in the schoolyard. It is similar to the very well-known game "Hopscotch", having a design under the form of a basic calculator. A piece of chalk will be needed in order to draw it. It's a great game (method) to solve from simple to complex math exercises and also do some physical activities. The rules are simple and easy to follow, and its biggest advantage is that it can be adapted to fit the age and the mathematical knowledge of the students.



Aims

1. *Developing mental calculation*
2. *Developing creative, fast and precise thinking*
3. *Developing mathematical skills*
4. *Developing problem solving*
5. *Developing team working*



Steps we must follow

1. Draw with a chalk outside, in the schoolyard, a hopscotch having a calculator design as follows below:

7	8	9	÷
4	5	6	×
1	2	3	-
0	,	=	+

2. Create groups of 3-4 students. Older students (they might have more experience) can work in pairs;
3. Each student will throw a small object (a pebble). The first player will throw the pebble on number 0, then will have to hop in an equation with the result 0 (e.g $3-3=0$), then to number 1 and so on. If the player makes a mistake (in the math or jumping wrong) the next player will continue.
4. The winner will be the one who reaches 9.



Materials (if needed)

- Hopscotch (creative math design) drawn outside;
- A piece of chalk;
- A tape-roll (if you are playing inside);



Tips

Teachers can adapt the difficulty of the game, according to the mathematical level of the students. If the students are playing in pairs, they can form a two digit number or decimals and then each student from one pair will throw the stone on one number. The teacher can also change the way to hop (e.g. on the odd numbers students can hop on the right foot and on even numbers students can hop on the left foot).