**LESSON PLAN**

**SUBJECT: Math**

**CLASS: 4th grade**

**TOPIC: Solving multiple operations problems;**

**AIM: Developing learning and problem-solving skills through interactive teaching methods;**

**TEACHING STRATEGIES:**

**Methods and procedures: conversation, explanation, gallery walk method, exercise;**

**Teaching aids: flip chart, markers, post-its;**

**Class organization: in groups.**

The class (25 pupils) is divided into 5 non-homogeneous groups of 5 pupils, ensuring a stimulating ambience.

Each group chooses a leader who will write down the rationale for solving the problem, presenting it at the end of the activity during the evaluation process.

 At the beginning of the activity, the teacher tells the pupils the task: solving an arithmetic problem using as many ways of solving as possible.

**Problem:** Three schools participate in a sports contest. The first school participates with 156 pupils; the second school participates with 3 times more pupils and the third school with 235 pupils less than the second school.

How many pupils are participating in the sports competition in total?

To accomplish the learning task, pupils will go through several stages:

1. **Reading and understanding the data of the problem**

Pupils will find out what the data of the problem is, how it relates to each other, what is the requirement of the problem and its unknown element.

The text of the problem will be read by the teacher once, then by the students, in silence, without disturbing the other groups. The problem will be repeated several times, either in groups or individually, until it is well understood by all members of the group.

The text of the problem will be read out expressly, highlighting certain data and the links between them, as well as the question of the problem. Then, the data of the problem is written as follows: 3 schools .... sports competition .... pupils

 School I ... 156 pupils

 School II ... 3 times more pupils than School I

 School III ... 235 less students than School II

How many students are participating in the sports competition?

**2. Understanding the problem**

Students will clearly delineate the data of the problem, the relations among them, and will formulate the right questions in order to find out the final solution of the problem.

The elements of the problem will be clearly delineated as well as the hypothesis and the conclusion of the problem by reading and rereading the text, and through discussions among all members of the group.

**3. Analyzing the problem and preparing the solving plan**

a. How many pupils in School 2 participate in the competition?

b. How many pupils in School 3 participate in the competition?

c. How many pupils participate in total?

 This stage eliminates the insignificant elements from the point of view of mathematical requirements and builds the connecting path among the problem data and its unknown element. Pupils translate the problem into mathematical relations and the connection among them through data analysis exercises, basically discovering the solution to the problem. Some groups may analyze the problem synthetic, other groups analytical; others could do it in both ways.

**Synthetic analysis of the problem:**

**School I ... 156 pupils**

**School II .... 3 times more pupils than School I - (156x3 = 468)**

 **School III ... with 235 pupils less than School II (468-235 = 233)**

**How many pupils are participating in the sports contest? (156 + 468 + 233 = 857 pupils)**

**Analytical analysis of the problem:**

Number of participants in the sports competition

Number of participating pupils in School I

Number of participating pupils in School II

Number of participating pupils in School III

235 pupils less than

School II

3 times more than School I

**Total pupils = 156 + (156x3) + (156x3-235)**

Pupils issue solutions to the problem and write them down on big sheets of paper which are displayed on special boards or even on the walls of the classroom like in an exhibition (hence the name of the method).

During the gallery walk each group leader presents the final product, answer the questions his colleagues from other groups may ask.

The "visitors" may write comments, ideas, criticism, and solutions at the bottom of sheets displayed. At the end of the tour, each team re-examines their results by comparison with the solutions seen by others, using the list of comments made by those who visited their "stand", etc.

*Bibliography: Pânişoară, Ion-Ovidiu "Effective Communication", Polirom Publishing House, Iaşi, 2015;*