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Arithmetic average of two or more natural numbers

SUBJECT AREAS:

Natural sciences,

Math

ACTIVITY DESCRIPTION:

To use of specific concepts and algorithms in various mathematical contexts

To use language specific to fractions/percentages in given situations

OBJECTIVES:

- Performing addition with natural numbers
- Performing the division of natural numbers
- Calculating the arithmetic average of two or more numbers
- Using the properties of the addition of natural numbers

MATERIALS:

Tablets, notebooks

GRADE/LEVEL:

Upper Elementary School (12-14)

DURATION:

Preparation time: 20 min.

Activity time: 45 min.

PLACE:

Classroom/ online

AUTOR:

Sprijin si Dezvoltare Association, Romania

INTRODUCTION:

In this knowledge acquisition lesson, from the Numbers chapter. Data Organization Learning Unit Operations with Decimal Fractions with a Finite Number of Nonzero Decimals Students will learn about the arithmetic mean of natural numbers and its properties.

Students will work individually and in teams, sharing their experience with the whole class

BACKGROUND:

The topic that you are going to introduce is the lesson Arithmetic average of two or more natural numbers.

Procedure:

Outline: Make an outline of what you're going to be presenting (to engage students, do something to grab their attention), for use smart boards with a math game and questions. The teacher tells the students that in this lesson they will learn to calculate the arithmetic average of natural numbers. To familiarize them with the concept, the students are given a practical situation: Here are Marius's marks for music and history in the first semester: Music: 10 and 8, History: 8, 6 and 7. What semester average will he have in the catalog for each subject?

The students are seated in pairs and have their notebooks and tablets with the on them. The teacher announces and writes on the board the title of the lesson: Arithmetic average of two or more natural numbers. Students write the title in their notebooks.

Directing learning Method: Discovery learning, conversation Concepts: Sum, arithmetic average

Instruction:

The arithmetic average of two or more numbers is a number obtained by dividing the sum of the numbers by their number.

Notation: ma

ma(x,y) = (x+y) : 2

Example: ma(2,6) = (2+6) : 2 = 4

ma(x,y,z) = (x+y+z) : 3 = (5 + 12 + 19) : 3 = 36 : 3 = 12

Obs.: If in the problems we are given the arithmetic average of the numbers we will be able to calculate their sum:

ma(a,b,c,d) = 1238 then (a+b+c+d) = 1238 · 4 = 4952

The students receive the worksheet and solve the first exercise together with their classmates.

The check is done frontally.

What are the properties of the arithmetic mean?

Students should compare the arithmetic mean obtained for each subpoint with the numbers for which it was calculated and note that:

Property: The arithmetic means is greater than the smallest of the numbers and less than the largest of them.

Example ma(20,50) = 35 and 20 < 35 < 50. Notice how the two numbers lie on the axis relative to their arithmetic meaning.

The arithmetic average is not always a natural number!

Independent Practice:

Purpose: Students to fix their new knowledge about the arithmetic means of natural numbers and its properties and to have students practice on their own.

Materials: Notebooks, board, tablets with the Average game, worksheets.

Method: Game, conversation, exercise Concepts: Sum, arithmetic mean using tablets with the game https://www.iknowit.com/lessons/d-finding-mean-average.html

Guided Practice: Take students back through what they've just learned (create a different way to monitor student progress through the lesson); using the task: The arithmetic average of the age of their family?
Formative Assessment: Make sure your students get as much as possible from this lesson. Check if they understood with a few questions for continuously monitoring as: What is average?
Collaborative Process: They will work in pairs. A pair of students to explore the math concept.

FUN FACTS:

- *Explore together when we can use the arithmetic mean in everyday life, such as: calculating an average of fruits eaten in a month, calculating an average of the days it rained in a month, calculating the amount of money spent on sweets in a week, etc.*

ASSESSMENT:

Use questions to check their understanding: „What is an average?" „What is the formula?" „What are the properties of the arithmetic average?"

Use the game for independent practice and assessment:

https://www.iknowit.com/lessons/d-finding-mean-average.html

EVALUATION:

After the students finish the activity in groups, they are asked reflection questions:

• How did you find the workload? What did you have to do during the activity?

• How did you do in the application to solve the given exercises?

• What did you enjoy doing the most?

• What did you remember most easily from this activity?