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DEVELOPMENT OF MATHEMATICAL COMPETENCE OF FUTURE PRIMARY SCHOOL TEACHERS (ON THE EXAMPLE OF NATURAL RESOURCES)

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Abstract
The article investigates the issue of envisioning mathematical science of utilizing water, which is the second need of man, specifically, to decide the arrangement of an (a:b) division, to locate the number average mean, and to clarify the idea of fractions are shown through a “water counter”.

Keywords: Water counter, one cubic unit of water, barrier, water level, law of contiguous vessels, division operation, arithmetic mean value, fractional concept.

Introduction

In our country, mathematics has been identified as one of the priority areas for the development of science in 2020. In the past period, a number of systematic works have been carried out to bring mathematics science and education to a new qualitative level [6].

Further improvement of the system of teaching mathematics in all areas of education, effective support of teachers, expansion of the scope of scientific and educational work and increase practical cooperation, international cooperation with societystrengthening, as well as **ensuring the implementation** of the tasks set out in the State Program for the implementation of the Action Strategy for five priority areas of development of the Republic of Uzbekistan in 2017-2021 in the "Year of Development of Science, Education and Inclusive Economy"In

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our research work, the issue of showing ways to enlighten the subject of mathematics in a deeper way to our students has been[1] raised.

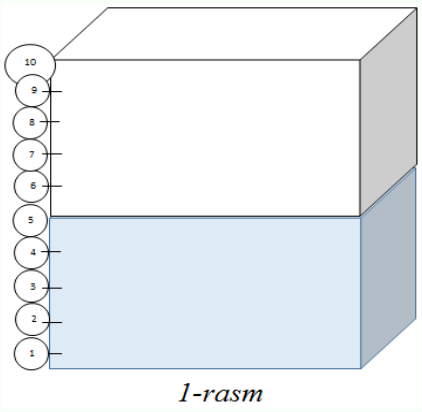
In order to deepen the knowledge and talent of young people, to ensure their further participation in the further development of Uzbekistan as qualified personnel, modern approaches to the educational process are being introduced. In response, we will focus on the effectiveness of the article and its effectiveness in its implementation [7].

The main goal is to radically reform the education sector, to get rid of its ideological views of the past, to create training of highly qualified personnel who meet the high spiritual and moral requirements of the level of developed democratic countries. The state policy in the field of personnel training assumes the formation of a fully harmonious citizen, expressing the expediency of relying on the possibilities of intellectual, spiritual and moral education of a continuous education system.

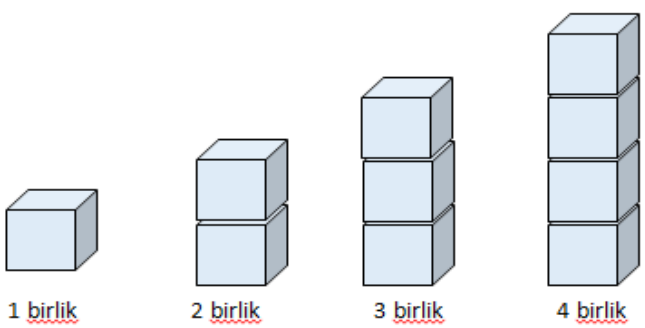
Today's primary education students are tomorrow's elementary school teachers. The above tasks will be fulfilled only if the future primary school teacher adheres to an innovative approach to teaching mathematics[2].

In this research work, we outline the visualization of mathematics using water, which is the most necessary blessing for existence:

Water counter. In a water meter, we take 1 unit of water in a cube-shaped container with a length of one edge equal to one. The oil of the cube is made of glass, and the water inside is clearly visible to you [8]. On the visible side of the vessel, 1 unit can be depicted again divided into parts(10/1, 100/1, ...).



1-rasm



2-rasm

[1] Decree of the President of 07.05.2020 N PP-4708 "Decree of the President on measures to improve the quality of education in mathematics and the development of scientific research".

[2] Jumayev M. E., Tadjiyeva Z.G. "Methods of teaching mathematics in primary grades" Tashkent: 2005.

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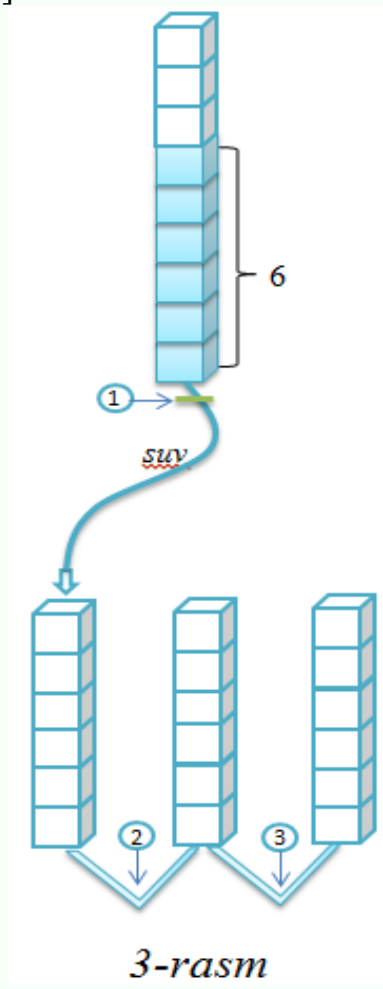
Figure 1 depicts a cube given with an accuracy of 10/1, which shows 1 unit if it is full of water, while the figure 0,5 represents a unit. Because fifteenths of a cube has water.

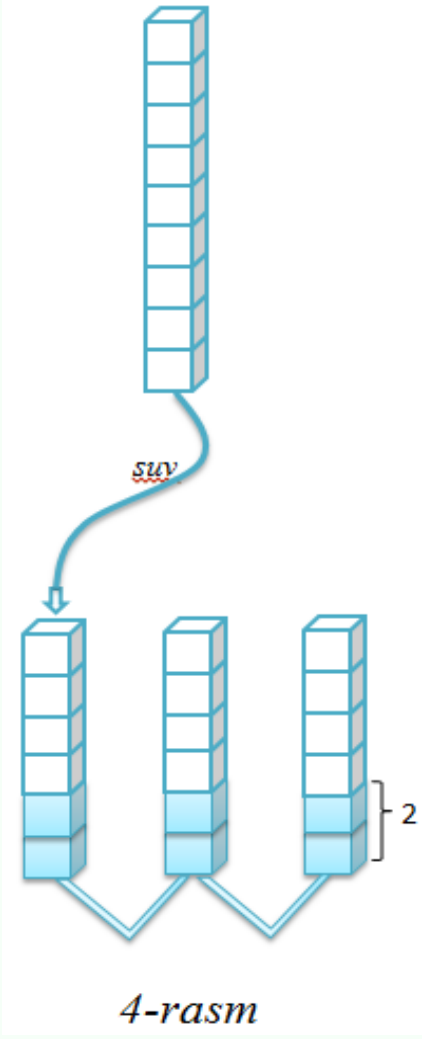
Two, three, four, ... We represent the units as shown in Figure 2. No glass shell was removed between the two units [9].

The act of dividing. The practice of being as we know it is first taught in the 2nd quarter of the 2nd grade. Making things equal is called becoming. Two dots (:) is a sign of division. The expression 10:5=2 reads like this: The division of 10 by 5 equals 2**.** We consider explaining the operation of being below using water [11].

Methodological basis of the issue: In order to show the method of teaching the process of division using water7: 3, we will outline the solution of the division. We use the water counter above above. The use of the water counter shown in Figure 3 provides an effective result in explaining the division operation to elementary school students. Since it is, we first fill 7 cubic units with water. Below we take 3 columns, which are connected according to the law of adjacent vessels, as shown in the figure. When the water in the upper column is released, the height of the water level in the columns below forms a division (= height of the water level).7: 37: 37: 3



3-rasm



4-rasm

In this process, in addition to understanding the process of being an elementary school student, one will also get an idea of the blood of adjacent vessels studied in physics. Figure 3 shows 1-7, 2 – the path that directs water from the column

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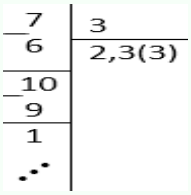
above to the columns below, 3 and 4 Rings filled with water ensure the passage of water to the columns (the rings existed before the water on the upper column was released), 5 – (7: 3 ≈ 2,3) indicates the result, and 6 – indicates the water level.



The scientific basis of the matter: In the angular method, we divide 7 by 3.

$$\frac{7}{3} = 2{,}333 \ldots = 2,(3)$$

The water level shown in Figure 3 also shows the same 2, (3) thing, which means that both the scientific basis and the methodological basis of the issue indicate the same result [10].

The arithmetic mean value. In everyday life, you have probably read or heard in newspapers and magazines, on radio and television, as well as on the Internet, about average productivity, average monthly wages, average daily temperature, average age of the population, average price increases, average labor productivity, average yield[3]. What quantities are these, how are they found, can the concept of arithmetic mean be taught to elementary school students as well?

In order to be able to answer the above questions, we recommend that the future primary school teacher use the method of calculating using water when covering the topic of the arithmetic mean value. The arithmetic mean in finding the solution of the problem below focuses on the methodological and scientific foundations of covering the topic [12].

Question: Find the arithmetic mean of the numbers 3, 7, 5, and 1?

[3] B.Q. Haydarov. Mathematics 5 (textbook for grade 5 of general secondary schools). Tashkent "Yangiyul polygraph servis" 2015. p. 199.

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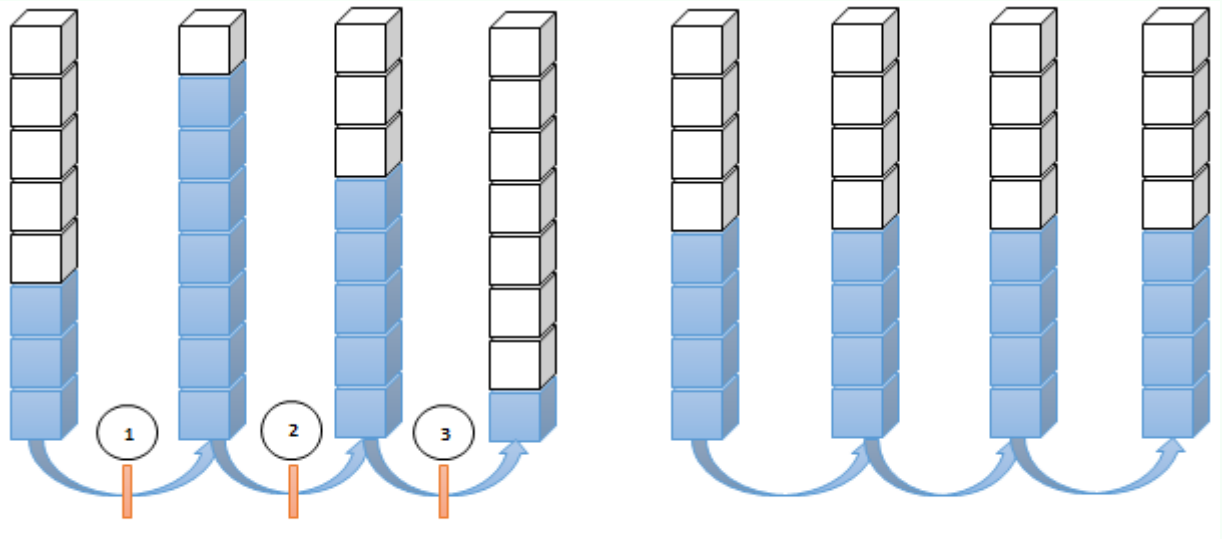

5-rasm

Methodological basis for problem solving: (visualization of mathematics using water). To begin with, we take the 4 columns of the water counter because we are asked to find the mean value of the 4 numbers. As illustrated in the left of Figure 4, we pour 3 cubic units into the first column, 7 cubic units into the second column, 5 cubic units into the third column, and 1 cubic unit into the fourth column. To determine the desired result, the mean value, we raise the barriers 1, 2, 3 shown in the left of Figure 4. Once this process is complete, the left part of Figure 4 will take over the view shown on the right. The 4 cubic units listed on the right of the picture show the water problem solution, the medium value. So the solution to the given illustration is 4.

Note; The water in the rings where the barriers 1, 2, 3 are located on the left side of (Fig. 4) is not dependent on the cubic unit of water that is poured into the columns (3, 7, 5, 1). We know from the science of physics that when barriers are removed, the left side of the picture shows the same level "according to the law of contiguous vessels" as seen on the right [4] side [13].

Scientific basis for solving the problem: To determine the mean arithmetic of the given numbers, it is enough to divide the sum of these numbers by their number.

$$\frac{3+7+5+1}{4}=\frac{16}{4}=4$$

The question answer was 4 even when scientifically based.

[4] N.Sh.Turdiyev PHYSICS 6. Tashkent-2017. p. 62.

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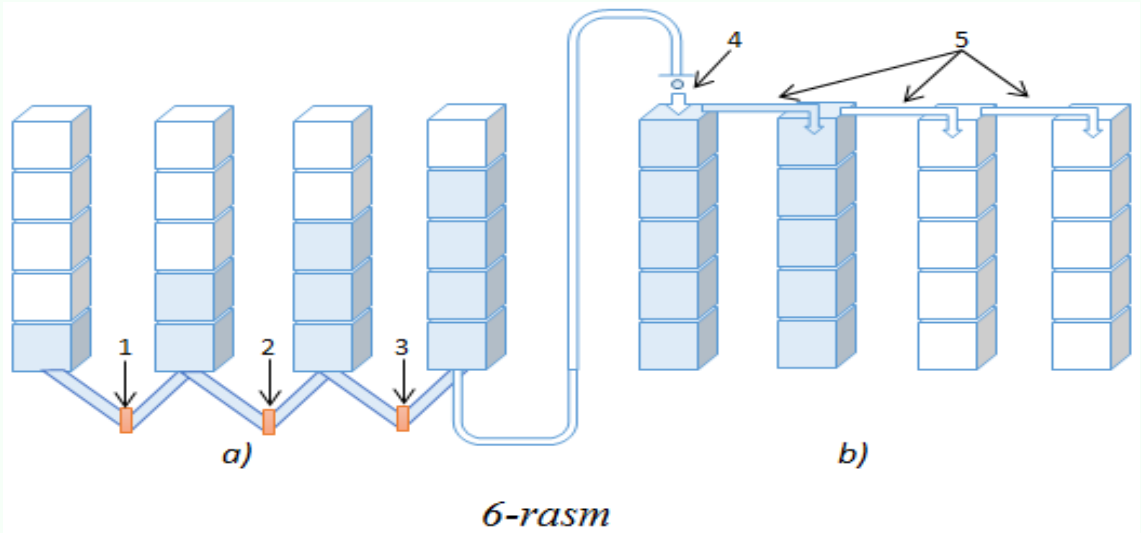
In conclusion, it can be said that the use of the above method not only concentrates the student's attention, but also arouses the interest of students who are not only good masterers, but also have difficulty mastering mathematics. In addition to the concept of middle value, the elementary school student will also have an idea of the "law of adjacent vessels," which is one of the most important laws of physics. Since elements of mathematics and physics are taught in the given method, the future teacher is considered to have enlightened his lesson based on interdisciplinary integration that has become the slogan of today. **Indeed, in the Annex to the decision PP-4708 it is mentioned that an important stage in improving the quality** of teaching mathematics in higher and secondary specialized educational institutions is the provision of interdisciplinary integration in mathematical education [1].

The concept of fraction. To illustrate the concept of fraction using a water counter, we do the problem given below [14]:

$$\frac{1}{5}+\frac{2}{5}+\frac{3}{5}+\frac{4}{5}=?$$

Methodological basis of the issue: Since the properties of the given fractions are 5, we assume 5 cubic units as a whole. So one column consists of 5 cubic units. To illustrate this, we pour 1 cubic unit into the first column, 2 cubic units into the second column, 3 cubic units into the third column, and 4 cubic units into the fourth column, and these represent 5/1, 5/2, 5/3, and 5/4, respectively. On the water counter in the given picture, the rings like 4 rings are 3 pieces, in which the



6-rasm

water quoted in them is indicated as parts of the whole (1, 2, 3, 4), the cubic unit does not depend on the units of water (in our daily life, remember the ring of

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water constant in the bathtub rakquina). If we add the water in the columns listed in the left part of the figure, we get the situation shown on the second water meter (left). From this, we can see that the solution to the problem is 2 wholes:$\frac{1}{5}$
The scientific basis of the matter:

$$\frac{1}{5}+\frac{2}{5}+\frac{3}{5}+\frac{4}{5}=\frac{1+2+3+4}{5}=\frac{10}{5}=2$$

The sum of fractions given even according to the law of adding fractions of the same magnitude was equal to 2 wholes.
Note: On a water counter, one column (vessel) was taken as a whole and it was divided into 5 equal parts. When the vessel is filled with water, a fraction of five is formed, which represents a single whole:

$$\frac{5}{5}=1$$

If you explain the topic of adding fractions using the above method, you will be presenting the lesson in an interesting way even to the most discerning student.

Conclusion and recommendations

Revealing the theoretical laws of mathematics with the support of a "water counter" is tantamount to giving life to the sciences described in the white paper. It would not be an exaggeration to say that the method outlined in the article is a gift for 7-11 year olds prepared by a young teacher in response to their playfulness. If the future Pedgog enters each lesson with the same methods as above, his students will wait for him in the classroom, around the New Year's Arch, with the same enthusiasm as they would expect snowman.
Using this method, you will develop your student's ability to visualize theoretical knowledge in practice, which is your teaching contribution to the ability of your student to adequately meet the requirements of the PIRLS international assessment program. The PIRLS Progress in International Reading and Literacy Study is designed to assess the level of reading and comprehension of the text of primary school students. This international programme prepares the way for students to successfully continue their education in the later stages of education through the ability to understand and interpret the text, make the right decisions in an independent life in the educational process of the primary grades [7].

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We recommend that students of primary education and sports educational work get acquainted with the method presented in the research work and use it in their professional activities in the future.

References

1. Decree of the President of 07.05.2020 N PP-4708 "Decree of the President on measures to improve the quality of education in mathematics and the development of scientific research".
2. Jumayev M. E., Tadjiyeva Z.G. "Methods of teaching mathematics in primary grades" Tashkent: 2005.
3. N.Abdurakhmanova, L.Urunboeva, MATHEMATICS, textbook for the 2nd grade of secondary schools. Tashkent "Yangiyul Polygraph Service" 2018
4. B.Q. Haydarov. Mathematics 5 (textbook for grade 5 of general secondary schools). Tashkent "Yangiyul polygraph servis" 2015. p. 199.
5. N.Sh.Turdiyev PHYSICS 6. Tashkent-2017. p. 62.
6. Ismoilov, B. T., Badalov, D. A., & Turaeva, G. E. (2019). Formulation and solution of the problem: find the area of a quadrilateral on four sides. Scientific Horizons, (5-2), 43-47.
7. Ismoilov, B. T. (2018). The problem of the development of play in the history of pedagogy. The journal is published monthly and publishes articles in the humanities. More details at, 83.
8. Ismoilov, B., & Djumaev, M. (2023). IMPROVING THE METHODOLOGICAL SYSTEM FOR FORMING MATHEMATICAL COMPETENCES IN FUTURE PRIMARY SCHOOL TEACHERS. Science and innovation, 2(B3), 550-556.
9. Toxirovich, B. I. (2022). TEACHING CONSTRUCTIVE ISSUES IN THE WORLD EDUCATION SYSTEM (on the example of primary grades). Conference, 127-131.
10. Ismoilov, B. T. (2022). TRAINING FUTURE PRIMARY SCHOOL TEACHERS TO SOLVE CONSTRUCTIVE PROBLEMS USING WATER METER TECHNOLOGY. Oriental renaissance: Innovative, educational, natural and social sciences, 2(12), 867-872.
11. Ismoilov, B. T. (2022). CALCULATION OF THE FULL ENERGY OF HELIO-LIKE ATOMS USING THE PERTURBATION THEORYDEVELOPMENT OF MATHEMATICAL COMPETENCE OF

Educator Insights: A Journal of Teaching Theory and Practice
Volume 01, Issue 10, October 2025
brightmindpublishing.com
ISSN (E): 3061-6964

STUDENTS IN RESHENII KONSTRUKTIVNYX ZADACH. Scientific and Technical Journal of Namangan Institute of Engineering and Technology, 3(1), 3-7.

12. Ismoilov, B. T. (2020). METHODOLOGY OF TRANSFER FROM A BALL TO A CUBE. Scientific and Technical Journal of Namangan Institute of Engineering and Technology, 2(12), 6-10.
13. Ismoilov, B. T. (2019). METHODS FOR SOLVING THE PROBLEM OF TEACHING MATHEMATICS IN ELEMENTARY SCHOOL. Scientific Horizons, (5-2), 32-37.
14. Ismoilov, B. T. (2019). THE USE OF SITUATIONAL TASKS IN THE COURSE OF TEACHING MATHEMATICS IN PRIMARY SCHOOL. Scientific Horizons, (5-2), 38-42.