INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

# DEVELOPING THINKING SKILLS IN TEACHING MATHEMATICS TO PRIMARY SCHOOL STUDENTS

Makhmudova Ozoda Yuldashovna
Teacher, Kokand State University

**Abstract**
This article analyzes effective methods for developing thinking skills in teaching mathematics to primary school students. Detailed information is provided on methods, technologies, and teaching materials aimed at developing logical, analytical, and creative thinking in mathematics lessons. The advantages of using practical exercises and game methods that help develop students' thinking skills are also shown. The article also contains practical recommendations for more effective organization of the educational process.

**Keywords:** Primary school, mathematics, thinking skills, logical thinking, analytical thinking, creative thinking, teaching methods, educational technologies.

## Introduction

Solving mathematical problems is an important part of teaching mathematics. It is impossible to imagine mastering mathematics without solving problems. In mathematics, problem solving is an important way to put the theory of solving problems into practice. Solving problems plays an important role in the process of mastering one or another theoretical material studied in elementary grades and develops students' thinking skills. Problems are structured on the basis of a system of practical work. This means that the formation of each new concept is always carried out by solving one or another problem that helps to explain the importance of this concept and requires its application.

Simple problems are used to reveal the content of arithmetic operations, the connections between the components of the operation and the results, and to familiarize students with the connections between different quantities. Simple problems are necessary for students to solve complex problems, and the resulting knowledge serves as the basis for the formation of skills and abilities. Problems are a useful tool for developing children's thinking abilities and usually include some knowledge. The search for this knowledge requires the problem solver to independently resort to analysis and synthesis, compare facts, generalize, etc.

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

Teaching these methods of knowledge is one of the important goals of teaching mathematics.

When solving problems, interest in the subject develops, independence, freedom, demandingness, diligence, and goal-orientedness develop in general. In educating students, life problems also help to expand the circle of ideas. Working on problems systematically and on a planned basis leads to the improvement of students' individual skills.

Working on a problem begins with mastering its content. In the early stages, when students do not yet have the skills to read, they should be taught to listen to the text of the problem read by the teacher and distinguish the important elements of the condition by sounding out. Then, in order to better master the condition of the problem, each student should listen to the text of the problem and read the problem independently. For this, they should be offered to read the problem first silently, and then read it out loud expressively.

In primary grades, the study of problems is carried out through the formation of new concepts, the transition from solving simple problems to solving complex ones. In this, we will consider various simple problems on addition, subtraction, multiplication and division, that is, finding the sum of the same addends, problems on division into multiples and equal parts, problems on increasing and decreasing a number by a certain number, simple problems on comparing numbers, finding unknown components of operations, as well as various complex problems, including problems that are solved by subtraction, problems on finding the sum of two factors and their inverse, problems that are solved by multiplying the sum and then dividing, and other problems.

If the given problem corresponds to or is similar to the problems solved in class in terms of its complexity, then students should be taught to independently find a way to solve the proposed problem. For this purpose, students should master the simplest general methods of approaching the solution of problems.

Students should be able to write down the problem condition briefly and clearly under the guidance of the teacher, and to illustrate the condition with a drawing or picture in order to facilitate finding solutions. Students should learn to clearly and clearly explain what is known and unknown in the problem being solved, what follows from the problem condition, what arithmetic operations can be used to find the answer to the problem question. Students should be able to understand why they chose each operation, construct an expression or equation for the problem, solve it, answer the question, and check the correctness of the solution.

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

Practices in the methodology of teaching simple problems within ten acquire some training and skills in using visual aids in solving simple problems. In the 2nd grade, working on problems takes on a central role. Here, in addition to addition and subtraction, they also learn to multiply and divide, find the sum of the same numerators, divide into equal parts, and divide into equal parts. Various simple problems on division, increasing and decreasing a number a certain number of times, short comparisons of numbers, finding the unknown component of operations, as well as various complex problems of various types, problems solved by the method of deduction, problems on finding the sum of two products and the inverse problems, problems on multiplying and dividing a sum by a number are considered.

Solving various types of problems, in addition to revealing the meaning of actions, the formation of this or that concept or relationship, serves to expand the scope of students' knowledge, as well as to familiarize them with certain quantities and the connections between them. In order for students to acquire the skills necessary for solving problems, it is necessary to teach them to find certain connections between the given and the sought-after in various life situations, with understanding. Thus, when working on solving problems, the student should not only think about one or another problem, but also take care of the planned and systematic development of specific skills that form the skill of solving problems. Because the general complex skill of solving problems consists of these specific skills.

Working on a problem begins with mastering its content. In order to better understand the content of the problem, students should not only listen to the text of the problem, but also read it independently. If the problem is confusing, it is appropriate to give students one to three minutes to independently think over the content of the problem. When working on the text of the problem, students should first focus their attention on the content of each word and each number in the text of the problem, help them imagine the scene described in the problem, after working on the text of the problem orally, the content of the problem should be translated into the language of mathematical terms and its mathematical structure should be expressed in the form of a short text (scheme, drawing, table). In the second grade, students gradually switch from full subject instruction to incomplete instruction when introducing new problems or solving complex problems, as in the first grade. When it is difficult to analyze the connections between the given conditions of the problem, it is advisable to use short writing when solving new types of problems. Let us dwell on the issue of choosing an action when solving a simple problem. This

ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

skill is formed in the 1st grade, and the formation of students continues in the 2nd year. Simple problems can be solved arithmetically, and arithmetically and algebraically. When a simple problem is solved arithmetically, an expression is formed and its value is found. For example: Ahmed read 15 pages of the book one day, and on the 2nd day he read twice as many as on the first day. Ahmed read 100 pages of the book on the second day. The solution to the problem can be written as follows: 15-2=30 (pages).

Answer: Ahmed read 30 pages of a book on the second day. Checking the solution of the problem consists in determining whether it is correct or incorrect. The following methods of checking are used in primary grades.

Establishing a correspondence between the conditions of the problems and the answers found. This method is introduced to students starting from the first grade, and this method is continued in the second grade. For example: Vali caught 12 fish, while Ahmed caught 2 times less fish than him: how many fish did they catch together?

Solution: 12+12:2=12+6=18 (fish).

Verification: according to the conditions of the problem, Vali caught 2 times more fish than Ahmed.

18-12=6 2. 12:6=2.

Introducing children to the problem itself and its structural elements is the next most important and very responsible stage in the teaching process. This work should be started using the subject demonstration. The teacher shows the numerical data and operations, but does not show the result, it is very important to hide it from the students.

For example: First, his brother gave 6 notebooks to Erk, then 2 more notebooks. How many notebooks did his brother give Erk?

Solution: 6+2=8 (notebooks).

Answer: His brother gave 8 notebooks to Erk.

Problems on increasing and decreasing a number by a number of units are introduced more widely in problems on finding the sum and remainder. In this case, preparation for solving simple problems begins before introducing them. This work consists in establishing these relationships. If one or more objects are added to a given group of objects, this increases the number of the original objects, and if it is removed, this decreases the number of the original objects. These relationships are taught using the same instructional materials. Didactic materials are used, children perform practical exercises of the following form:

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

1. "Put 3 squares, bring 2 more squares closer to them" How many squares will there be?
2. How did you know?
3. Did the squares increase or decrease? Then you can move on to working with plot pictures. Didactic games are also given for the pictures to consolidate. When checking knowledge, the task allows you to think about the development of the student's thinking, to think about the correct selection of necessary operations, and to think about calculation skills.

Each task has a condition and a question. The condition of the problem shows the connection between the given numbers and between the given numbers and the number being searched, these connections determine the choice of the appropriate arithmetic operations. The question indicates that the number is the number being searched.

Problem. There were 7 passengers on the bus. After the bus stopped for a while, the number of passengers on it increased by two. How many passengers were on the bus after it stopped?

From the first day of training, preparatory work begins to introduce more difficult problems on increasing the number by a number of units. In such problems, 2 sets of objects are compared: During the practical exercise, children learn to establish a one-valued correspondence between the elements of 2 sets of objects, and also try to determine which of the compared sets has more objects and which has fewer.

All arithmetic operations are divided into simple and complex problems, depending on the number of operations performed to solve them. A problem that requires only one arithmetic operation to solve is called a simple problem. A problem that requires several operations related to each other, whether they are the same or different, is called a complex problem.

Problem. A cotton picker picked 84 sr of cotton in 6 days. How many kg of cotton will this machine pick in 9 days?

Solution: 84:6=14 14-9= 126 (sr)

Answer: This machine will pick 126 sr of cotton in 9 days.

Questions on didactic materials on pictures are also solved. At this stage of training, it is advisable to switch to the use of conditional pictures when solving ready-made problems.

In this example of a problem, we will show how the corresponding work is performed! Therefore, in the text of the problem, there should be some kind of tool that shows the connection between the given numbers and the number being

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

searched, and this connection should be accompanied by the selection of the necessary arithmetic operations and their order. A complete solution to the problem consists of a plan showing the exactness of the condition, an explanation of how this or that value of the quantities is found and why it is found with this operation, performing arithmetic operations and giving an answer.

Checking the solution to the problem and determining whether the answer obtained is correct or not is also included. Often, problems allow students to acquire the skills to supplement their knowledge, improve skills, and become familiar with the structure of the problem. The ability to formulate a problem creates a basis for mastering its structure.

Children become familiar with the structure of the problem in the second or third lesson. They learn that there is a condition and a question in the problem, it is especially emphasized that there are at least two numbers in the condition of the problem.

The teacher addresses the children: I will now tell you what the problem is about, and you will show everything I have said. The children put two apples on the left side of the table, and three apples on the right side. They put three apples on the table in total. We have made a problem. Let's repeat it and separate what we know from what we do not know. What do we know? The children answer, "There are 2 apples on the left, and 3 apples on the right." The teacher explains this as the condition of the problem. What is being asked in the problem?

Children answer: How many apples are there on the table in total? We don't know. We need to find out. Each problem has its own condition and question. What numbers are we talking about in our problem? What question did you ask?

We repeat our problem: The teacher offers one of the children to repeat the condition of the problem, and ask the other a question. It is determined what two parts the problem consists of. They are offered to build 2-3 problems in this way.

After the children have learned to build problems without instructional material, it is useful to consciously compare it with a story and a riddle to consolidate their knowledge of the structure of the problem. It is better to compare the problem with riddles. Numbers, shown riddles are selected.

"One speaks, two watch, two more hears (mouth, eyes, ears) with the help of.

Four brothers live under one roof (table), etc.

The teacher discusses with the children what questions can be asked here:

INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

"What is this? Does the table have n legs?" etc. In the riddle, it is necessary to find out what kind of thing is being discussed. In the problem, it is necessary to know the quantity, the formation of n numbers or the presence of n things. Comparing the problem with the riddle allows you to emphasize the arithmetic content of the problem question. It is useful to teach children to use general methods that help them distinguish a problem from a story, a riddle. The text can be analyzed according to the following plan.

Are there numbers here? Are there n numbers here?

At the end of the lesson, the children are invited to think about what they need to do to reconstruct the riddle, story and problem. At this stage of learning, in the first lesson, children solve problems on addition and subtraction, problems on addition and subtraction are built sequentially. They find the answer based on the connection between numbers and the understanding of relationships.

Various problems play a significant role in developing the thinking skills of primary school students in mathematics lessons. We will dwell on some types of such problems below.

Staged problems. Much attention is paid to staged problems. In these problems, the actions observed by children, often performed directly by them, are reflected. Here, it is not a question of answering, but the given numbers can be seen on a visual basis. First-graders often do not know how to solve the problem, because they do not understand the meaning of the words expressing this or that action (spent, shared, gave, etc.). Therefore, special attention should be paid to explaining the meaning of the words expressing this or that action at school and in the preparatory group. For this purpose, it is necessary to consider what practical actions need to be included in the basis of the problem. In this case, it is appropriate to compare problems on finding the sum and remainder, which imply the opposite movement: came-went, approached-moved, bought-gave, lifted-lowered, brought-carried, flew away.

Demonstration problems. First, the children are told about the content of the topic, and pictures are shown with the given numbers. The first problem on the picture is made by the teacher himself. He teaches the children to look at the pictures, to distinguish the given numbers and the life actions that led to the change in quantitative relations. For example, the picture shows a boy holding 5 balloons, he gives 1 balloon to a girl. While showing the picture, the teacher asks: What is depicted here? What is the boy holding? How many balloons does he have? What is he doing? What do we know? Formulate the problem. What can be asked about?

ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

asks. The teacher changes the given numbers and encourages the children to come up with problems on the same topic related to finding the sum and remainder of different contents, and to create a problem based on the desired content, which is used to teach storytelling.

Mathematical problems are divided into simple and complex problems. Problems that can be solved with one operation are called simple problems. Problems that are composed of a series of simple problems and therefore can be solved using two or more operations are called complex problems.

For example: There were 6 birds on a tree branch. Did 2 of them fly away? This problem can be solved with 2 inverse problems.

1) There were a series of birds on a tree branch. After 2 birds flew away, 4 birds remained on the tree branch. How many birds remained on the tree branch?

2) 6 birds were perched on a tree branch, and after a series of birds flew away, 2 birds remained. How many birds flew away?

Among the simple problems, a directly expressed problem is distinguished.

Problem 1. There are 8 apples in a box, these apples are 5 more than in the second box.

There are 3 apples in the second box.

Solution: 8-5=3 (apples)

Answer: There are 3 apples in the second box.

Problem 2. Vali drew 6 pictures of rabbits. Vali drew 2 more pictures than Zakir drew. How many pictures of rabbits did Zakir draw?

Solution: 6-2=4 pictures.

Answer: Zakir drew 4 pictures of rabbits.

Problems on adding up and finding the remainder from simple problems.

Problem 3. Ahmad drew 3 dolls and two balls. How many toys did Ahmad draw?

Solution: 3+2=5 pictures.

Answer: Ahmed drew 5 toys.

Problem 4. Zakir picked 7 apples from the apple tree and ate 3. How many apples did Zakir have left?

Solution: 7-3=4 (apples). Answer: Zakir has 4 apples left.

Problem 5 There were 4 red pencils on the table and he added 4 blue pencils to them. There were 4 pencils on the table:

Solution: 4+4=8

Answer: There were 8 pencils on the table.

ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

**References**

1. Абдурахманов, У., Тошматова, О., & Мелиева, Х. (2022). Umumta'lim maktablarida matematika fanini o 'qitishning zamonaviy didaktik vositalari va muammoli ta'lim texnologiyasi. *Общество и инновации*, *3*(3/S), 231-238.
2. Sh, A. U. (2022). The main approaches to the formation of the control action in younger schoolchildren in the process of teaching mathematics. *INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429*, *11*(11), 142-150.
3. Shoqosim o'g'li, A. U., Xafizaliyevna, M. X., & To'lqinjon, G. O. (2022). MODERN DIDACTIC MEANS OF TEACHING MATHEMATICS IN SECONDARY SCHOOLS AND PROBLEM EDUCATIONAL TECHNOLOGY. *Galaxy International Interdisciplinary Research Journal*, *10*(4), 460-467.
4. Абдурахмонов, У. Ш. (2022, December). О ПОСТАНОВКЕ И ИССЛЕДОВАНИЮ ОДНОЙ КРАЕВОЙ ЗАДАЧИ ДЛЯ УРАВНЕНИЯ ТРЕТЬЕГО ПОРЯДКА ПАРАБОЛО-ГИПЕРБОЛИЧЕСКОГО ТИПА В ТРЕУГОЛЬНОЙ ОБЛАСТИ С ТРЕМЯ ЛИНИЯМИ ИЗМЕНЕНИЯ ТИПА. In *E Conference Zone* (pp. 118-121).
5. Абдурахмонов, У. Ш. (2022). О КРАЕВОЙ ЗАДАЧЕ ДЛЯ УРАВНЕНИЯ ТРЕТЬЕГО ПОРЯДКА ПАРАБОЛО-ГИПЕРБОЛИЧЕСКОГО ТИПА В ТРЕУГОЛЬНОЙ ОБЛАСТИ. *Conferencea*, 202-206.
6. Abdurahmonov, U. (2022). FUNKSIYA HOSILASI GEOMETRIK VA MEXANIK MA'NOLARI. *Журнал интегрированного образования и исследований*, *1*(6), 135-138.
7. Abdurahmonov, U. (2022). EKSTREMAL MASALALARNI YECHISHDA TENGSIZLIKLAR USULIDAN FOYDALANISH. *Eurasian Journal of Academic Research*, *2*(12), 1239-1242.
8. Shoqosim o'g'li, A. U., Rahimovna, T. O. R., Mamasiddiqovna, A. N., Mamasoliyevich, T. R., & Roxataliyevna, A. N. (2022). Technologies For Improving The Quality Of Educational Results Of Schoolchildren By Developing A Personalized Model Of Teaching Mathematics Through Interactive Stories. *Journal of Positive School Psychology*, *6*(11), 1354-1365.
9. Shoqosim o'g'li, A. U. (2022). The importance of didactic games in teaching mathematics in secondary schools. *Web of Scientist: International Scientific Research Journal*, *3*(6), 1566-1570.

10. Abdurahmanov, U. S. (2023). Application of Modern Information Technologies in Teaching Mathematics in General Education Schools. *INTERNATIONAL JOURNAL OF INCLUSIVE AND SUSTAINABLE EDUCATION*, *2*(3), 20-24.
11. Abduraxmonov, U. S., & No‘monova, D. (2023). UMUMTA’LIM MAKTABLARI MATEMATIKA DARSLARIDA ZAMONAVIY DIDAKTIK VOSITALARINING QO ‘LLANILISHI. *Новости образования: исследование в XXI веке*, *1*(9), 160-165.
12. Abdurakhmonovich, S. A. (2022). Technology of Critical Thinking in Russian Language and Literature Lessons in 5-6 Grades. *Middle European Scientific Bulletin*, *22*, 64-68.
13. Abdurakhmonovich, S. A. (2022). Informative-Target Analysis. *Middle European Scientific Bulletin*, *22*, 69-71.
14. Isroilova, G., & Abdurahimov, S. (2021, December). The socio-political activity of the youth of Uzbekistan. In *International conference on multidisciplinary research and innovative technologies* (Vol. 2, pp. 231-235).
15. Абдурахимов, Ш. А., Файзрахманова, А. А., & Шанина, Ю. А. (2020). ПУТИ ФОРМИРОВАНИЯ ПРОФЕССИОНАЛЬНЫХ КОМПЕТЕНЦИЙ УЧИТЕЛЯ-СЛОВЕСНИКА. In *Система непрерывного филологического образования: школа–колледж–вуз. Современные подходы к преподаванию дисциплин филологического цикла в условиях полилингвального образования* (pp. 2-8).
16. Абдурахимов, Ш. А. (2022, December). АНАЛИЗ ВИДОВ ЛЕКЦИЙ И ТЕХНОЛОГИЙ ОРГАНИЗАЦИИ НА ЭТАПАХ ОБУЧЕНИЯ. In *E Conference Zone* (pp. 34-41).
17. Sh, A. (2022). ISSUES OF FORMATION OF THE CENTER FOR MASTERING FOREIGN EDUCATIONAL PROGRAMS THAT FORM CIVIL EDUCATION IN STUDENTS IN THE SYSTEM OF PRIMARY EDUCATION IN UZBEKISTAN. *International Journal of Early Childhood Special Education*, *14*(7).
18. Sh, A. (2022). SOCIAL ORIENTATION AND INTEGRITY OF EDUCATION. *INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429*, *11*(09), 234-237.
19. Shokosim, A. (2022). THE ROLE OF THE FAMILY IN RAISING A HEALTHY GENERATION. *Galaxy International Interdisciplinary Research Journal*, *10*(12), 1113-1116.

ISSN: 2776-0987 Volume 6, Issue 5, May – 2025

20. Shokosim, A. (2022). PSYCHOLOGY OF FAMILY AND FAMILY RELATIONS. *Galaxy International Interdisciplinary Research Journal*, *10*(12), 1284-1287.