



**THE METHODOLOGICAL FOUNDATIONS OF DEVELOPING LOGICAL
THINKING IN PRIMARY SCHOOL MATHEMATICS LESSONS**

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Annotatsiya: Ushbu maqolada boshlang'ich sinf o'quvchilarining mantiqiy fikrlash ko'nikmalarini shakllantirishning zarurati, ularni rivojlantirishga xizmat qiluvchi metodik yondashuvlar va matematik darslarda qo'llaniladigan usullar haqida fikr yuritiladi. Mantiqiy fikrlashning shakllanishi nafaqat matematika fanini o'zlashtirish, balki o'quvchining kundalik hayotdagi muammolarni hal etish qobiliyatini rivojlantiradi.

Аннотация: В статье рассматривается необходимость формирования навыков логического мышления у учащихся начальных классов, а также методические подходы и методы, используемые на уроках математики. Формирование логического мышления способствует не только успешному усвоению математики, но и развитию умений решать жизненные задачи.

Annotation: This article discusses the importance of developing logical thinking skills in primary school students, along with methodological approaches and techniques used in math lessons. The formation of logical thinking helps not only in mastering mathematics but also in enhancing students' ability to solve real-life problems.

Kalit so'zlar: mantiqiy fikrlash, boshlang'ich sinf, matematika, metodika, o'qitish usullari, didaktik o'yinlar, fikrlash ko'nikmalari

Ключевые слова: логическое мышление, начальные классы, математика, методика, методы обучения, дидактические игры, навыки мышления

Keywords: logical thinking, primary school, mathematics, methodology, teaching methods, didactic games, thinking skills

The modern education system requires the formation of students' skills in independent thinking, analysis, and drawing conclusions. This is especially important at the primary education level, where developing logical thinking holds great significance. Mathematics is one of the most essential tools in this regard, as it





contributes to shaping analytical, algorithmic, and reflective thinking in students. Activities aimed at developing logical thinking among primary school students broaden their cognitive horizons, encourage deep thinking, and improve their decision-making skills.

From the very beginning of school education, it is necessary to properly guide children's cognitive development, helping them evaluate real-life situations, analyze them, and understand cause-and-effect relationships. From this perspective, fostering logical thinking through mathematics lessons is one of the pressing methodological challenges.

The Concept and Stages of Logical Thinking

Logical thinking is the ability to analyze cause-and-effect relationships, generalize, classify, compare, and draw accurate conclusions. These skills develop naturally in children, but a systematic methodological approach is required to nurture them effectively.

For primary school students, logical thinking develops in the following stages:

- **Visual-logical thinking (Grade 1):** understanding similarities and differences based on images.
- **Basic algorithmic thinking (Grade 2):** recognizing and applying sequences and rules.
- **Problem-solving-based thinking (Grades 3–4):** finding solutions using various methods, analyzing, and explaining.

Methods for Developing Logical Thinking

The following methods are considered effective in primary school mathematics lessons:

1. **Problem-based learning** – encourages students to make independent decisions. For example, at the beginning of a lesson, give tasks based on questions like “Why?” or “How?”
2. **Didactic games** – help students understand numbers, shapes, and logical sequences through playful activities. Examples:
 - “Find the increase”
 - “What’s missing?”
 - “Arrange correctly”
3. **Logical tasks and exercises** – assignments that encourage deep thinking:
 - Problems involving the fulfillment of two conditions simultaneously
 - “In what order?”
 - “Find the incorrect choice”





4. **Working with crosswords, diagrams, and logical chains** – develops analytical thinking, observation, and reasoning.
5. **Pair and group activities** – reinforce skills in exchanging ideas, decision-making, and logical justification.

Methodological Approach to Selecting Educational Materials

Educational materials must align with the age and psychological characteristics of the children. Tasks should meet the following criteria:

- **Simplicity:** use clear language and real-life examples.
- **Logical structure:** each task should involve a cause-and-effect relationship.
- **Engagement:** assignments should be thought-provoking and encourage reflection.

Examples:

- Find the sequence: 2, 4, 6, ?, ? (Each number increases by 2)
- Match by relationship: 3 – red, 4 – green, 5 – ? (Each odd number is associated with a color)

The Role of the Teacher

The teacher is not only a knowledge provider but also a guide for students' thinking. They must:

- Focus specifically on logical tasks during lesson planning;
- Choose approaches that consider each student's level of thinking;
- Engage students in reflective thinking through questions and problem situations during lessons.

Developing logical thinking in primary school students is a key factor in enhancing their intellectual potential. To organize this process effectively through mathematics education, various methodological approaches should be employed, including problem-based tasks, game-based activities, and reflection-based exercises.

This will not only improve students' mathematical literacy but also foster their ability to think logically in any situation. As a result, students will grow into individuals capable of making independent decisions, conducting analysis, and solving real-life problems effectively.

Foydalanilgan adabiyotlar

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