

# DEVELOPING MATHEMATICAL IMAGINATION IN PRESCHOOL CHILDREN THROUGH GAMES

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## Abstract

This article delves into the importance of utilizing mathematical games and activities to develop mathematical imagination in preschool-aged children. It examines effective strategies for implementing these tools in educational settings, emphasizing the establishment of a dedicated mathematics corner within the group room to encourage interactive learning. Furthermore, the paper outlines methods for fostering collaboration with parents to support the child's mathematical development at home. By integrating games, practical tasks, and parental involvement, the study underscores the role of engaging approaches in shaping foundational mathematical concepts and enhancing preschoolers' cognitive and imaginative abilities.

**Keywords:** mathematical games and tasks, organization of a mathematics corner, cooperation with parents, mathematical calculations, mathematical knowledge, cognitive functions, competitive games.

## INTRODUCTION

It is important to pay great attention to sufficient mathematical knowledge in children from preschool age. Because a person often encounters mathematical calculations during his life, that is, mathematical knowledge is needed at every step. If the pedagogue-educator is able to introduce children from preschool age to the world of mathematics using various interesting methods and equip them sufficiently with mathematical knowledge, they will get good and excellent grades in school, achieve high results, and will not have difficulty in choosing a useful profession during their life and mastering it deeply. Mathematical knowledge is definitely needed to perform it skillfully in any field or profession. For this reason, it is important to give children age-appropriate mathematical knowledge through various educational methods, interesting poems, riddles, and games. How clear and perfect the first mathematical concepts are, ensures that children's logical thinking and reasoning processes are strong. That is, mathematics teaches children to think logically - to think correctly, to

draw correct conclusions from correct thoughts, and at the same time, it greatly contributes to the improvement of speech. Along with general knowledge, children develop such qualities as self-confidence, independent thinking, and the ability to express their thoughts beautifully.

The game is the main activity of a preschool child, and it is an important tool in the child's all-round development. The game as an activity successfully solves the problems of forming mathematical ideas, because it involves rules and problems that allow not only to reach a high level of game skills and meanings but also to test and practice children's mathematical knowledge and practical experience.

### **Materials and methods**

Knowledge of numbers and relationships between them, time and space, as well as their cognitive functions (memory, thinking, speech, thinking) are easily developed and mastered in the form of a game. At the same time, the child's personality is formed, and moral qualities such as goodness, kindness, friendship, honesty, truthfulness, and intelligence, are formed. The positive impact of the game on children and its correct organization largely depends on the personality of the pedagogue, his ability to direct the game correctly, and his ability to use it as an educational tool. Each game implies communication of the child with adults and other children. This is a cooperative school, where he studies and rejoices in the success of his peers and bravely overcomes his failures. Knowledge of each other, and interesting information brings children closer and reveals their common interests. A happy situation of children's friendliness, support, thinking and imagination - in such conditions, games are considered useful for the development of preschoolers. Speech plays an important role in the development of the thinking of senior and preparatory group children. That's why there are many games with words for 5-7-year-olds. Some of them are focused on the development of logical thinking [2].

In the game, children exercise their social rights, learn to state and follow the rules of the game, monitor their implementation by opponents, communicate, defend their point of view in controversial situations, and take into account the interests of others. , they try to teach each other. How well the rules of the game are explained determines the success of the game. After making sure that all children have learned the rules of the game, the teacher offers them to play the game independently. When choosing a game, it is necessary to pay attention that it should not be too difficult and not too easy; in this case, the game brings joy and benefit to children. The offered games have complex gameplay issues. When organizing a game, the pedagogue should pay serious attention to the children: if they perform quick and easy tasks, more complex tasks can be offered. The forms of organization of mathematical games are different

- collective (- "Say the missing number", "How many and how much?");
- a small group of children (active children are combined with inactive children in groups: they imitate their peers and begin to perform tasks easily ("Where is the right, where is the left?");

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- competitive ("Which number is missing?", "Do it differently")

In competitive games, both are active in a match pair. One of them explains the task clearly to his opponent, the other must listen to the task carefully and give the correct answer.

Games can be played both indoors ("Spread as I say", "Date and make no mistake") and outdoors "Yes or no", "Count of the year"). Various play equipment increases children's interest in the game and encourages them to perform games related to mathematical operations [1].

Today, it is important to teach preschool children the basic concepts of mathematics based on the basic program. This is based on several reasons: the amount of information received by children, the increasing attention to computerization, the desire to further strengthen the educational process, teaching the child as much as possible numbers, calculations, solving problems, parents' interest in this matter directing their actions. Adults focus on the main goal: to encourage children to think, to have a good attitude towards everything that surrounds them, to correctly assess the various situations they face in life, and to form the skills of being able to make independent decisions. But they are often in a hurry to give ready-made knowledge and judgments to children. But does it always give the expected result?

The practice of preschool education shows that not only the content of the offered material but also the forms of education that arouse the child's interest and harmonize his interest in knowledge have an effective effect. It is necessary to organize direct communication of the child with adults (direct educational activity). Today, a new system of preschool education is being created in our country. This system is aimed not at the development of specific knowledge and skills of children, but at the development of the child's intellectual qualities. One of the goals of preschool education is to follow the principle of education for the comprehensive development of children. For this reason, it is necessary to search for new forms, tools and methods that are the most convenient for determining the potential cognitive ability of each child and for its implementation. It is necessary to accelerate the thinking process of preschool children without harming their health. The game is the most convenient activity for children, it is a way of processing impressions and knowledge received from the outside world. Intellectual games play a key role in the development of mathematical and intellectual abilities. The game reflects the characteristics of the child's thinking and imagination, his emotions and activities. Children's joint game activities and specially selected game tasks contribute to the development of mental processes (attention, memory, thinking), stimulate the child's activity and control his mental activity to find ways to solve the set tasks. In the course of program implementation, logical and arithmetical exercises, and the appeal of mathematics content are actively used, which greatly help in the development of independent thinking, and the ability to prove, and perform mental operations (analysis, synthesis, comparison). Today, in the era of the computer revolution, the saying "Not everyone is a mathematician" is obsolete. Purpose: To develop children's intellectual potential.

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**Duties:**

- development of imagination, and creative thinking (adaptive, original thinking ability);
- emotional and logical development of children;
- games that require mental ability, to arouse interest in intellectual activities, to form mathematical expression skills, and speech skills;
- formation of internal learning motivation and other educational goals through training sessions and studying problems;
- to strengthen the sense of responsibility and the ability to work in a team;

**Areas of work:**

- work with children;
- work with parents;
- work with teachers;

**Working with children:**

- didactic games;
- mathematical games and exercises.

A variety of interesting mathematical materials for preschool children is important in the organization of didactic games, the main purpose of which is to separate, and differentiate, sets, numbers, geometric shapes, and directions and apply them. Through didactic games, children have the opportunity to form new knowledge, to introduce children to movement methods. Each of the games solves a specific problem of working with mathematical expressions for children. Didactic games and game exercises help develop curiosity and mental abilities (interesting questions, riddles, riddles). Development of interest and mental abilities in children, creating images of objects from special groups of geometric shapes is enhanced during the game.

Mathematical games and exercises. Mathematical exercises teach children to think logically and expand their knowledge about the environment. It is important to be interested, decorated in the form of fairy tales, small stories, and interesting problems, to listen to the conditions of the problem, to pay attention to the child's correct answers to questions, and to find out what needs to be done for accurate calculation. In the process of solving problems, attention is paid not only to skills but also to the shape, colour, size and other aspects of objects. All children love to have fun and be curious. Interesting experiences increase the vitality of the issue, unite children, and create a cheerful mood [4].

**Interesting math corner**

A spatial environment is an object that creates the necessary conditions for the development of a child's mathematical creativity. First of all, there are interesting educational games and various game materials. For the development of children, the tasks that need to be completed with the help of interesting materials are collected, and in this, the children play and develop at the same time, for this, it is necessary to organize a pedagogical process: - equipped with games, educational guides and materials Children have the opportunity to choose their own

children and plays alone or together with other young children. "Corner" is not only a place to provide materials for creativity and cooperation with children but also creates a collective environment [3].

### Working with parents

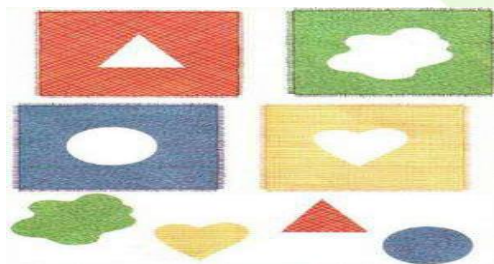
Family and pre-school educational organizations are inextricably linked. Each of them, in turn, provides children with social experience, but only in strong connection with each other, creating optimal conditions for a small child to enter the big world. A child with developed logical thinking is more likely to succeed in mathematics, even if he learns elements of the school curriculum, and the development of logical thinking is more likely to occur through play. Working with parents allows for the formation of skills that enrich children spiritually and emotionally, play games together with children, teach them the need to communicate with loved ones, and strengthen confidence in their own strength. Work in this direction is carried out through the following forms of mutual cooperation.

- tips;
- meetings with parents;
- designing folders;
- presentations;
- mathematical games store;
- open days;

Working with teachers:

- creating mathematical files;
- participation in pedagogic councils, and methodological seminars;
- conducting open training;

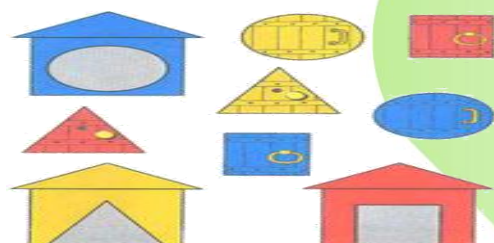
Figure 1. Tasks for mathematical games (for 2-3 years old)



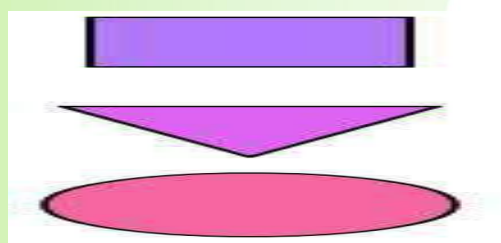
Find the right patch for each rug.



Choose chairs for teddy bears.



(for 3-4 years old) Choose a door for each house



What shapes are depicted in the picture?

### **Conclusions**

In short, a person who does not master mathematics does not understand the deep structural relationships between complex variable objects. At the same time, learning mathematics helps to form the personal qualities of a person, helps to fully justify each judgment and avoids unreasonable generalizations.

The formation of mathematical ideas in children develops effectively under the guidance of a teacher (pedagogue) in the course of purposefully organized activities. Under the guidance of a teacher (pedagogue), the knowledge of generalization, thinking, and logical connection is formed in the educational process, and this is reflected in the pedagogical process.

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