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MENTAL ARITHMETICS

Abstract: This article discusses the importance of mental arithmetic in the intellectual development of preschool children. The essence of mental arithmetic and educational results are illustrated on the basis of examples.

Key words: mental arithmetic, curriculum, method, pedagogical technology, mental, creative, personal development.

Language: English

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Introduction

The country's global success depends in many ways on its ability to create innovative technologies, develop resources wisely, and formulate long-term strategies for economic development. Achieving such characteristics is directly related to the level of mathematics in general and the mathematical literacy of society in particular. The most effective and convenient way to develop the mind in this way is to teach mathematics.

At the present stage, the problem of intellectual development of preschool children is determined, firstly, by the contradictions of the existing curricula of preschool education, which does not always contribute to the disclosure of the intellectual potential of the child. Insufficient development of pedagogical techniques of teaching mental arithmetic to develop thinking processes and operations in preschool children. Therefore, the development of effective teaching methods and programs aimed at maximizing the opportunities for the intellectual, creative and personal development of children, depending on their age, is of particular importance.

The main part

Mental Arithmetic is an additional general development program designed for a group of children who want to improve their logical thinking and are interested in specific sciences.

Mental arithmetic is the only way to develop mental and creative abilities harmoniously, which

helps to fully reveal the intellectual and creative potential of the student.

It is known that learning new knowledge stimulates the brain. The more we use our brain, the more active the neural connections between the right and left hemispheres. Then things that seem difficult or even impossible become simple and clear. In addition, teaching in an additional general development program helps the student to develop logical skills, as well as the ability to think outside the box without being tied to any template, which allows them to solve various professional and life tasks in a unique way.

The Mental Arithmetic program aims to solve the following main tasks.

1. Develop students' logical thinking practical skills through the joint work of the left and right hemispheres of the brain.
2. Improving visual (auditory) and auditory memory.
3. Increase the ability to concentrate and attract attention.
4. Develop the creative potential of the student based on his / her natural abilities (for example, developing the ability to learn foreign languages).
5. Increase the student's general intellectual level, including interest in specific subjects, such as arithmetic and mathematics.

The program is designed for children ages 4 to 12, but can also be mastered at an older age. For more than 20 years, mental arithmetic has been successfully

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used in educating children in 56 countries around the world, especially in China, Canada, the United States, the United Kingdom, Austria, Spain, Australia, and the Middle East. Among the CIS countries, the teaching of mental arithmetic is widespread in Kazakhstan. This program is described as an ancient Chinese way to harmonize the brain and develop the body. This program is called "Mental Arithmetic". The mental arithmetic program is positioned as an effective program for developing children's mental abilities. This system of teaching oral counting is based on the use of an ancient abacus count that has existed for more than a thousand years, so the time and practice of many generations have been tested.

The abacus is used in the early stages of mental arithmetic. The students then perform calculations in their minds and create a fantastic image of the abacus. The abacus is a Chinese invention called the first wooden computer. This tool was used to add, subtract, multiply and divide, calculate fractions and square roots. Even though it was invented in China, it found the largest application in Japan. For example, there is an exercise in abacus or a lesson called soroban is mandatory for students in grades 3-4. Abacus is a rectangular shaped wooden abacus-vertical speaker divided by a longitudinal rod. Each row of knitting needles contains bones that allow the child to visualize the basics.⁴ From the age of 4, the child becomes familiar with the numbers from 1 to 10 years old and begins to use the abacus. In the process of performing arithmetic operations for simple arithmetic exercises, the child moves the wooden bones simultaneously with the thumbs of both hands, which contributes to the harmonious development of both hemispheres of the brain. In this case, the child learns to express numbers and mathematical movements in the form of a certain position of the bones in the knitting needles. Over time, the child's attachment to the abacus gradually subsides and his imagination awakens, as a result of which he is able to perform the simplest calculations in his brain after a few sessions, just by imagining the abacus in front of him. , makes mental movements with his bones. The child can perform mental arithmetic operations only after learning to replace the physical abacus with his own image. The child can perform mental arithmetic operations only after learning to replace the physical abacus with his own image. programs teach children to perform arithmetic operations at the level of physical perception. At the same time, they learn to reflect the numbers in their minds as a picture and begin to solve problems, adding pictures to the picture, not numbers. When working on an abacus, several types of perception at once work according to the leading analyzer. They are auditory, intuitive, visual. The abacus sharpens the edges of the bones, which allows the child to develop fine motor skills. Teachers do not recommend skipping classes as this can affect the results - the ability to calculate correctly and the speed

will decrease. The training is conducted in several stages; In the first stage of the lesson, the mechanical method of the abacus is used; then the children are taught to repeat actions on a conscious, intelligent level, using figurative thinking and imagination. Practice shows that for many children, the learning outcome improves not only the identified computational ability, but also attention concentration, memory ability, develops imaginative thinking, imagination and observation, improves the ability to analyze and generalize. At the same time, emotional and voluntary qualities are developed (independence, determination to achieve results, voluntary regulation of behavior, self-confidence).

Experts say that with the right approach to combining knowledge, preschool and primary school age children demonstrate excellent skills in performing their arithmetic operations with 2,3,4-digit numbers. An important factor in the effectiveness of the program is that the child almost always experiences a successful situation in the learning process. The preschooler becomes less dependent on the teacher, thus forming a cycle of confidence and motivation. This psychological aspect of teaching mental arithmetic cannot be ignored, as the psychological characteristics of preschool children include a high self-esteem, which means that the child is not afraid to learn the truth, they are still competent. engaging in non-profit activities and thus actively assimilating the social and objective world.

There is almost no serious scientific research in Uzbekistan on the impact of mental arithmetic on human intellectual or personal development, but there are many foreign studies. Michelle Frank, a professor at Stafford University, concluded after extensive research in India that mental calculations do not work in a linguistic, linguistic system, but are based on more visual experience, in particular the ability to group multiple objects in parallel to create visual representations. from Allows you to quickly encode objects in visual working memory. The scientist, together with his colleagues, was instructed to perform arithmetic operations, interfering with the performance of calculations in various ways (reading, reading a book aloud, etc.). As it turned out, a student of mental arithmetic schools showed the highest results in this program compared to group reading. The untrained group was more prone to verbal interventions. The walk of the abacus is not only a powerful computing tool, but also simplifies the visualization process (reflecting the image in the mind). Scientists note that children use the maximum number of brain cells during abacus movement and simultaneous counting in their minds, leading to the development of the right and left hemispheres. The left hemisphere of the brain is responsible for the development of logical, mathematical skills, language, while the right hemisphere is involved in

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creativity, art, imagination, visualization, and nonverbal aspects.

Conclusion

For children of preschool and primary school age, it is more interesting and understandable that knowledge is given on the basis of objective activity

rather than in an oral-theoretical form. In this case, the lesson turned into a fun game or competition that contributes to the faster and better acquisition of knowledge. can be an effective tool for developing the intellectual abilities of older preschool children.

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