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## Ways to develop logical thinking of primary school students

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**Abstract:** This article discusses the effective methods of developing logical thinking skills of elementary school students, forming their geometric imagination.

**Key words:** Thought, logic, logical thought, comparison, concept, thinking.

Along with material factors, the level and potential of developing the logical thinking of elementary school students is important in improving the continuous education system, improving the quality of education and ensuring its effectiveness in the Republic of Uzbekistan. As the head of our state said, "Education of our children as independent-minded, modern knowledge and professions, strong patriotic people is a matter of urgent importance for us" [1].

In order to make primary school students interested in reading and help them to develop skills, the teacher should not only present the educational material, but should also take an active and creative approach based on the interest of the students. There should be such a spirit of creativity in the classroom that everyone should be able to freely express their opinion. This type of teaching encourages the student not only to think, but also to be able to criticize. In such conditions, we can hear such thoughts from the students that you can feel proud of educating great scientists in the future.

One of the biggest problems that need to be solved today is how to develop the ability to think in primary school students, to form the ability to solve problems independently, and to develop their logical thinking skills. A person's ability to think develops gradually. It appears on the basis of existing theoretical knowledge and previous practical actions.

In fact, the child's thinking is formed as a result of getting to know the environment, choosing the right one from different toys, sorting them into colors, starting to recognize animals, simulating their sounds, and learning various similar processes. Gradually, watching cartoons, listening to fairy tales, and critically reacting to life events while playing games will develop the child's logical thinking.

According to Farabi, an early Islamic philosopher, scientist and mathematician, "A person's body, brain, sensory organs are present at birth, but intellectual knowledge, spirituality, soul, intellectual and moral qualities, character, traditions, education, external environment, and communication with others are created. A person's mind and thoughts are the most mature product of spiritual growth"[2].



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The great scientist and famous Czech pedagogue Jan Amos Comenius in his work "The Great Didactic" says: "First of all, things themselves are learned through external senses, because things directly affect the senses. Then, in turn, the internal senses act, reflect, embody and express the perception of what is learned with the help of the external senses, as well as with the help of memory, with the help of hand movements and speech. Then the mind goes to work and, thinking in detail, measures and compares all the things in order to thoroughly study their mutual relations. This allows you to understand things and thoughts about them correctly. Finally, in all this, the will must show its legal power. Because the will unites and controls all human actions"[3].

The thinking process is always based on basic knowledge. The ability to think logically is useful for everyone. Without logical thinking, it will not be possible to make discoveries in the field of science, manage companies, create new inventions. Teaching elementary school students to think logically can be done in all subjects. For example, in mathematics lessons, we can see how the first stages of forming students' ability to think logically.

Just as regular exercise makes the body healthier and stronger, regular math improves brain function, intelligence, and cognitive ability, and broadens one's outlook. A person who is engaged in mathematics learns anything else quickly and efficiently.

Modeling is one of the effective forms of classroom work that develops students' logical thinking. The didactic advantage of such exercises is that they not only facilitate the formation of an idea about the spatial properties and relationships of the depicted object, but also help to better understand all the other information based on the drawing. The essence of this method is that it forms the mental activity characteristic of the process of imagination. In the process of making a model, the practical transformation of images is the basis for the formation of the necessary mental activity. In the process of making a model, the student perceives the shape of the body not only by seeing, but also by skin sensation, and acquires such activities as logical analysis.

Elementary school students first get acquainted with the concepts of the simplest geometric shapes: point, straight line, ray, cross-section, and later these concepts are useful tools for mastering the subject of the coordinate plane. Students will be able to use coordinate systems found in everyday life to determine the locations of real objects: audience in a theater, passengers on an airplane, and chess pieces.

By light, we mean endless continuous lines coming from one point. If a point A is placed on a straight line, two rays are formed. A ray is a part of a straight line starting from a certain point [8]. The points lying on this ray are called point coordinates, and the points are denoted by capital letters. The teacher described the shape of a rectangle with right angles on the blackboard, let's think about which points of this geometric shape are located on the blackboard. (opinion of 4th grade students):

- The depicted geometric shape is located on the back of the board.
- Located on the edge of the board.
- It is located in a quarter of the board
- Located in the middle of the board.

In the formation of logical thinking in students, the location of objects is estimated through the concepts of left, right, back, front, high, low. The vertices of the right-angled rectangle are determined by the coordinate angle relative to the sides of the board (vertical and horizontal). The location of any points is determined by two coordinates: the first coordinate is OX along the horizontal axis, and the second is along the vertical axis OY[8]. For example, the first coordinate of



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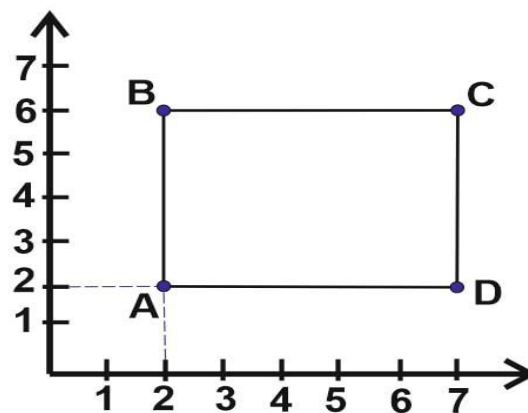
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point A is 2, the second coordinate is 2. It is written as follows: A is (2; 2), point D is (7; 2), and point O, the origin of coordinates, has coordinates (0; 0) (Fig. 4). find the coordinates of the points.

*Figure 4. Coordinate angle*



Logical thinking formed during primary education is the most positive and effective. There are two sides to the teaching process. The teacher teaches, the student learns, the success of teaching is the success of the teacher. The teacher's scientific and methodical knowledge is important in developing students' thinking ability. In the educational process, we set goals for students such as concentrating their thoughts, directing them to logical thinking, and shaping their thinking.

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