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FORMATION OF MATHEMATICAL REPRESENTATIONS OF YOUNGER SCHOOLCHILDREN IN THE PROPAEDEUTIC PERIOD

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Annotation

Teaching mathematics begins with preparatory classes. Their necessity is dictated by the extreme heterogeneity of the composition of first grade students, both in terms of their psychophysical data and readiness for learning. It is important to instill optimism and confidence in a child, to form the ability to overcome difficulties, to stimulate his compensatory abilities, to focus on positive qualities and at the same time develop the ability to critically evaluate his actions and deeds.

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INTRODUCTION.

The tasks of the preparatory period are, firstly, to identify the knowledge that children have, secondly, to prepare for the study of a systematic course in mathematics, and thirdly, to master general educational teachings and skills, as well as the rules of behavior in a team (listen, correctly understand and fulfill the requirements teachers, sit correctly at the desk, get up, leave the desk, repeat the teacher's tasks, ask questions, answer the teacher's questions, and so on), which creates the opportunity to work with the class at school. In the lessons in the preparatory period, students learn to distinguish notebooks, textbooks in various subjects, recognize notebooks and math textbooks by special features, work with typesetting canvas, didactic material, perform preparatory exercises for writing numbers, work with a ruler, and so on.

Depending on the readiness of students, the propaedeutic period can last from one to two months, that is, the entire first quarter. [1] To study the state of knowledge in mathematics, didactic material, the first pages of the textbook, objects of the surrounding reality, toys, pictures, and so on are used. Spatial representations of students are revealed by presenting tasks of a practical nature ("Take a pencil in your right hand", "Hold the notebook with your left hand", "Show the top (bottom) of the board", "Who is sitting closer to me, further away from me?", "Sit next to Aziz", "Stand between Lola and Temur").

Along with spatial representations, it is necessary to identify an understanding of the features of objects that characterize their size: large - small, more - less, equal in size, long - short, longer - shorter, equal in length, high - low, higher - lower, equal in height, wide - narrow, wider - narrower, equal in width and so on. It is necessary to check the knowledge of geometric shapes: the ability to find a geometric figure according to a model (circle, square, triangle, rectangle), the ability to name a figure, show the figure named by the teacher, draw a figure without changing its pattern .[2]

MATERIALS AND METHODS.

When studying arithmetic knowledge, the teacher pays attention to the general development of the child, to how he accepts help. He establishes how well the child is oriented in his environment, what is the state of his speech development, the presence of a general and special arithmetic dictionary, notes the existing speech defects, which will have to be worked on in the future.

It is equally important to establish the degree of development of the child's motor skills. The imperfection of motor skills, which is a characteristic feature of a child with disabilities, makes it difficult to master writing, work with didactic material, and work with a ruler.

For propaedeutic classes, there is a special program in the general program in mathematics. It provides training in comparing objects in size, severity, shape, the development of quantitative and spatial representations.

Most students entering the first grade do not know how to compare objects. When comparing objects, they sometimes try to superimpose objects on top of one another or apply them to each other, but do not know how to superimpose or apply.[3] Therefore, no comparison is possible. For example, when comparing two ribbons along the length, students do not connect their ends, but apply a short ribbon to the middle of a long one. All this suggests that in order for a child with disabilities to see the essential features of objects, to distinguish them, to be able to compare and contrast objects, special classes are needed. The purpose of the lessons in the preparatory period is to identify, clarify and develop concepts about the size, shape of objects, spatial representations of students, enrich the vocabulary of students with new terminology, activate the passive vocabulary, develop speech, enhance their cognitive activity, the formation of social skills and abilities.

When forming ideas and concepts about sizes, it is important to determine the sequence in which these features should be studied. Research by I. G. Radysheva showed that the most familiar and accessible to children with disabilities are the concepts of big - small, fat - thin, more difficult for them are the concepts of long - short, high - low, wide - narrow and others. Obviously, in a special school, one should first work on clarifying and forming ideas and concepts of big - small, thick - thin, and then other signs of objects.[4]

The formation of ideas and concepts of size requires careful selection of visual aids, didactic material, as well as objects of the child's environment that he encounters on a daily basis. For the first lessons on the formation of a particular concept, it is necessary to select didactic material, objects that would differ from each other in only one sign. For example, when forming a sign of the length of objects, one should choose ribbons, strips of paper, ribbons that would differ only in length, and all other signs (width, material, color) were the same. Such a selection of visual material prevents the confusion of essential and non-essential features.

RESULTS.

Classes on the formation of concepts of size should be carried out in such a sequence that would give the greatest effect, which would be able to teach children to use the knowledge gained in life, in work activities available to them, and not just enrich their memory with certain concepts.

Clarification or formation of a sign should take place on handouts, natural objects, and those in which this sign protrudes in relief and in which these objects differ from each other (all other signs are the same). For example, a large and small ball, a thick or thin pencil (length, color are the same), long and short twine, high and low vase, wide and narrow ruler (length, thickness are the same).

Performing practical work, the student must give the subject the specified qualities. This requires him to have a fairly clear idea of one or another feature of the subject. It is proposed to select all long pencils or all thick ones.

It is very important to teach students to compare objects, applying them to each other or laying one on top of the other.

In the lesson, the purpose of which is to clarify and form the concepts of long - short, the teacher creates a certain life situation, putting students before solving a household problem. "You need to stick a colored strip on the lid of two boxes. (The teacher shows one box is long, another is short.) Which strips will you choose for each box (stripes of different lengths: one is long, the other is short)? Why did you choose stripes like that?" With this practical task, the teacher shows that in life, in everyday life, one has to take into account the length of objects when performing certain work. To clarify the concepts of long - short and to compare objects in length, special didactic material is used: width, thickness.

First, students compare two objects, identifying objects that are long, short, or equal in length. The number of items for comparison should be gradually increased. For example, build a ladder of strips or blocks, placing them one under the other from the longest to the shortest.[5] Then the students compare the length of the objects according to the idea, that is, without seeing them at the moment. For example, the corridor is longer than the classroom, and the classroom is shorter than the corridor, the tomato bed is longer than the cucumber bed, and the cucumber bed is shorter than the tomato bed, the road and sidewalk of our street are equal in length, and so on.

To consolidate the concepts of long and short, students first draw by hand, and then long and short segments along the ruler, cut long and short strips, and so on.

DISCUSSION.

Similar requirements apply to the selection of visual aids and didactic material, as well as to the methodology of conducting lessons when getting acquainted with such concepts as "high - low, equal in height, wide - narrow, equal in width, deep - shallow, equal in depth" and comparison of benefits on these grounds.

Observation and study of the state of knowledge of students show that the muscular sensations of students in the first grade of a special school distinguish only objects that differ significantly in severity. It is necessary to organize such exercises that would allow gradually developing the muscular sensations of children. As aids, objects of the reality surrounding the child, toys, for example, two rulers (or buckets) of the same size (empty and with water), balls of the same size, metal, wooden, plastic and different in severity can serve as aids.

Students distinguish between objects of different severity for muscular sensation, as a result of which they receive the initial concept: heavy - light, heavier - lighter.

The teacher, including students in the subject-practical activity, constantly emphasizes the relativity and reciprocity of these concepts. Comparison of objects according to gravity and with the help of pan scales should be shown, without the use of weights. The scales with a heavy object will go down, with a light one they will go up. If the objects are the same in mass, then the scales are balanced (they are on the same level, "the noses of ducks look at each other").

For the development of spatial representations of students, special lessons should not be assigned. The entire system of educational and educational work in the first grade should be aimed at developing the spatial representations of children: in the lessons of mathematics, rhythm, singing, manual labor, in games, in conversations with a teacher, educator, when performing any tasks of a practical nature, the concepts of "close - far, up - down, right - left, front - back, between, about. Already on the first day of classes, seating students at their desks, the teacher organizes a conversation with them, which allows you to identify and clarify the spatial representations of students. Together with the students, the teacher finds out what items are in the classroom below, above, and so on.

Next, the teacher outlines which spatial representations need to be refined and formed in the first place. Work is systematically carried out on their formation in all lessons, in games. For example, when forming the concepts of "left, right", the teacher first finds out whether the students know which hand is left and which is right, what they do every day with their right hand, left hand. Then he asks to show the left and right legs, the left and right eves, the left and right ears, the cheek, and so on. All classroom furniture is

correlated by its spatial arrangement, first relative to the student, and then to any row of desks. To consolidate this spatial concept, students are lined up and neighbors are identified to the right and left of each of the students. Mobile and didactic games ("Who is your neighbor", "Put the figures in order" and so on) will help clarify and consolidate these concepts.

It is useful to work on examining plot pictures and determining the spatial position of objects on them. In this case, the teacher also works to expand the vocabulary, horizons, and development of students' speech. The creation of life situations, special games, everyday activities of students with an emphasis on the spatial arrangement of objects, physical education, manual labor allow developing and improving the spatial representations of students.

During the propaedeutic period, lessons should be organized in such a way that they contribute to the awakening and instilling of interest in mathematics. Therefore, the form of organization of classes should not be homogeneous. Excursions are organized to school workshops, to the school site, to the park, and so on. Some part of mathematics can be carried out in a game room, gym. In the game, students could consolidate the acquired knowledge, as well as use it in practice. In the lessons, such life situations should be created in which students would show both their orientation in space and the ability to distinguish objects by size. It is desirable to organize games with a building constructor. Such games contribute to a better orientation of students in space. Mathematics lessons during this period should be equipped with a sufficient number of visual aids and didactic material. It is necessary to use: colorful didactic material, wall tables, illustrative typesetting canvases with a set of stencils depicting fruits, vegetables, trees, mushrooms, birds, animals; a sandbox, various toys, especially voiced ones, sets of games such as picture loto, dominoes, mosaics, building kits and more, as well as real-life objects: educational supplies, fruits, vegetables, natural materials.

CONCLUSIONS.

Visualization, sensory perception and practical activities of children are the basis for the conscious assimilation of knowledge, the best means of developing children's thinking.

A first grade student of a special school cannot listen, observe, draw, sculpt, and even play for a long time. Therefore, the alternation of teaching methods, the change of one type of activity to another during the lesson increases the effectiveness of learning. In the propaedeutic period, in mathematics lessons, the teacher widely uses the methods used in preschool institutions: work on imitation, and sometimes joint activities of the student and teacher, work on the model, work on verbal instructions, didactic and outdoor games. Along with these methods, a demonstration-demonstration of actions with an explanation of the teacher, conversation, observation, practical work (tracing, hatching, coloring, modeling, working with a textbook, etc.) is used. readiness to learn mathematics and at the same time clarify and form their ideas and concepts of the size of objects, spatial and quantitative representations. During this period, much attention is paid to the formation of general educational skills and abilities of students: how to sit, stand, ask questions, answer questions, listen to answers a friend, follow the instructions of the teacher exactly, prepare teaching materials for the lesson, work with handouts, etc. The subject of constant attention of the teacher is: the development of students' speech, the enrichment and refinement of their vocabulary, the formation of skills to talk about their own activities, and so on.

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