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THE VALUE OF TEACHING PRESCHOOL CHILDREN THE SIMPLEST MEASUREMENTS

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ABSTRACT

In the mental development of children, classes on the development of elementary mathematical concepts are of great importance. The teacher must know not only how to teach preschoolers, but also what he teaches them, i.e. he must be clear about the mathematical essence of the ideas that he forms in children. In kindergarten, preschoolers are introduced to counting. Mathematical tasks and exercises teach children to think, think logically, expand their ideas about the environment.

Keywords: principle, preschool education, teaching principles, personality-oriented activity.

INTRODUCTION

Elder preschool children show a spontaneous interest in mathematical categories: quantity, shape, time, space, which help them to better navigate things and situations, organize and connect them with each other, and contribute to the formation of concepts.

Kindergartens and kindergartens take this interest into account and try to expand children's knowledge in this area. However, acquaintance with the content of these concepts and the formation of elementary mathematical concepts is not always systematic, and often one wants to wish for the best.

In the mental development of children, classes on the development of elementary mathematical concepts are of great importance. The teacher must know not only how to teach preschoolers, but also what he teaches them, i.e. he must be clear about the mathematical essence of the ideas that he forms in children. In kindergarten, preschoolers are introduced to counting. The concept for preschool education, guidelines and requirements for updating the content of preschool education outline a number of fairly serious requirements for the cognitive development of preschoolers, of which mathematical development is a part.

METHODOLOGY AND LITERATURY REVIEW

The measurement activity is quite complex. It requires specific skills, familiarity with the system of measures, the use of measuring instruments. The use of conditional measures makes measurement available to young children. The term "measurement by conventional measures" means the ability to use measuring instruments.

Conventional measure (measure) - an object used as a means of measurement, a kind of measurement tool. At the same time, it acts as a measure (unit of measurement) in this particular case. With tape, rope, stick, step, the length of the path in the garden can be measured. A spoon, a cup, a jar, a glass is used to determine the volume of liquid and bulk substances. The measurement of objects with conventional measures is peculiar: the unit of measurement is chosen arbitrarily, depending on the situation and specific conditions (this does not require knowledge of the generally accepted system of measures), the assessment of the value is private and less accurate than when measuring with generally accepted units.

The use of conventional measures, although it simplifies the activity of measurement, does not change its essence, which consists in comparing any quantity with a certain quantity of the same kind, called a unit of measurement. A conditional measurement is selected taking into account the characteristics of the measured object. In this case, the child is provided with sufficient, but not unlimited freedom of choice. Uniformity, "kinship" of what is measured and by what, is a necessary condition on which the choice of a particular measure is based.

The need for the simplest measurements arises in children in practical matters: to make beds of the same length and width, stand one after the other in height in gymnastics classes, determine whose building was higher, who jumped further in physical education classes, etc. Most often, it is required to make a measurement to perform various tasks of a constructive nature, in building games, in classes in visual activity and physical education, in everyday life. In the daily life of the kindergarten and at home, situations of the most diverse nature arise that require elementary skills in measuring activity. The better the child masters them, the more effective and productive this activity proceeds. Having learned how to measure correctly in special classes, children will be able to use these skills in the process of manual labor, creating applications, designing, when laying out beds, flower beds, paths, etc. The purposeful formation of the elements of measuring activity in preschool age lays the foundations for the skills and abilities necessary for a future working life.

The question of the role of measurements in the formation of the first mathematical concepts has long been raised in the works of outstanding teachers: J.J.

Russo, I.G. Pestalozzi, C.D. Ushinsky. Progressive representatives of the Russian methodology of arithmetic also paid considerable attention to this problem (D.I. Galanin, A.I.Goldenberg, V.A.Latyshev, etc.).

The first Soviet methodologists in the field of preschool education (E.I. Tikheeva, L.V. Glagoleva, F.N.Blekher and others) pointed out the need to teach children, starting from preschool age, to be measured by generally accepted measures. E.I. Tikheeva believed that children from 5-6 years old should be involved in different types of measurements. It is easy to introduce them to the meter and teach them how to handle it. L.V. Glagoleva held about the same opinion, believing that seven-year-old children should learn to measure with a centimeter ruler and decimeter lines, sides of a square, rectangle; meter length and width of the class, the length of the path in the garden or garden beds; they should be able to draw a line of a certain length in a notebook, measure a board, a strip of paper of the specified size, etc. She introduced children to the following measures: meter, decimeter, centimeter, recommended teach to measure with hands, steps, cups, glasses, spoons, etc.

The problem of teaching preschool children to measure activity was posed with particular urgency in the 60s – 70s. An idea arose about measuring practice as the basis for the formation of the concept of a number in a child (P.Ya. Galperin, V.V.Davydov, etc.). And although at present teaching measurement is carried out on the basis of the development of ideas about the number and counting skills, this concept served as the basis for the development of many theoretical and methodological issues.

Thus, the practical and play activities of children and the economic activities of adults are the basis for getting acquainted with the simplest methods of various measurements.

Learning to measure leads to the emergence of more complete ideas about the surrounding reality, affects the improvement of cognitive activity, contributes to the development of the sense organs. Children begin to better differentiate length, width, height, volume, i.e. spatial signs of objects. Orientation in individual properties, the ability to distinguish them are required when choosing a conditional measure adequate to the measured property. In measurement, the objective side of reality appears before the child from a new side, still unknown to him.

Clarification of children's ideas in the process of measurements is associated with the development of visual perception, the inclusion of survey actions, the activation of speech and thinking. Sensory, thought and speech processes interact closely with each other. Mastering the elementary methods of measurement improves the eye.

The simplest measurements contribute to the emergence of an indirect approach to some phenomena of reality. In this case, the assessment of the value is based not on subjective impressions, but on mastering special methods that ensure the objectivity of indicators. Under experimental conditions, using measurement, it was possible to qualitatively restructure the child's perception and thinking, to raise them to a higher level (V.V.Davydov, P.Ya. Galperin, L.F. Obukhova).

Measurement practice activates causal thinking. Combining practical and theoretical activities, measurement stimulates the development of visual-effective, visual-figurative and logical thinking of the preschooler. Methods and results of measurement, highlighted connections and relationships are expressed in speech form.

Mastering the simplest methods of measurement has an impact on the learning activity of preschoolers. They learn to be aware of the goal of an activity, to master the ways and means of achieving it, to obey the rules that determine the nature and sequence of actions, to solve practical and educational tasks in unity, to exercise self-control during measurement, etc. At the same time, children develop accuracy and accuracy.

RESULTS AND DISCUSSION

Measurement by conventional measures of length, mass, capacity of vessels is part of mathematical knowledge. Counting objects and the simplest measurements are two types of activities that are closely related to the elementary needs of a person. F. Engels points out: "Like all other sciences, mathematics arose from the practical needs of people: from the measurement of the areas of land and the capacity of vessels, from the reckoning of time and from mechanics."

A characteristic property of a quantity is that it can be measured, i.e. in one way or another it is compared with some definite quantity of the same kind, which is taken as a unit of measurement. The very process of comparison depends on the properties of the investigated quantity and is called measurement. As a result of the measurement, an abstract number is obtained, expressing the ratio of the value under consideration to the value taken as a unit of measurement.

Measurement expands our understanding of objects and phenomena of the surrounding reality. The practical measurement of time, various types of length, mass, capacity of vessels deepens our temporal and spatial concepts, contributes to the further development of logical thinking in unity with sensing.

A measurement, in the process of which a shorter measure is used, which is postponed along the measured length a known number of times, includes, as Piaget

points out, two logical operations. The first is the separation process, which allows the child to understand that a whole is made up of a number of parts put together. The second is an offset or replace operation, which allows him to attach one part to another and in this way create a system.

On the basis of this characteristic, Piaget comes to the conclusion that "dimension develops later than the concept of number, because it is more difficult to divide a continuous whole into interchangeable units than to enumerate the already separated elements."

The study in recent years of the ideas and concepts of older preschool children and students of the first grade convinces of the great importance of measuring skills and abilities. Measuring continuous quantities has been shown in many studies to help students deepen the concept of a unit. Indeed, when counting discrete sets, children often form not quite correct connections: a unit is perceived as a separate object, as a separate entity. Therefore, it is so important and necessary when counting the elements of sets to teach children to count not only individual objects, but also entire groups (subsets that form a set).

The inclusion of the activity of measuring continuous sets along with the activity of counting discrete sets makes it possible to further deepen the mathematical concept of number. Counting and measurement should not be opposed to each other. Each of these types of activity solves its own problems and mutually deepens the concept of number. To measure, you must already have an account, for example, count the number of measurements when measuring the length, mass, capacity of vessels. Therefore, J. Piaget is right, who emphasizes that the development of counting and the concept of number somewhat precedes measurement.

Later studies also testify to the possibility of acquainting children with various units of measurement (meter, liter, kilogram).

Measurement activity provides the formation of new associative series of connections between counting and measurement; the power of this or that number is associated with ideas about length, with the development of baric feeling (weight) in children.

In practical life, children are often faced with the need to measure (select the necessary parts for constructive activity, measure planks for working with wood, measure their height, etc.) - These types of measurements are still empirical, these are not "real" measurements, but in They clearly show the attempt of children to grasp the quantitative essence of quantities and to use quantitative indicators in their activities.

The school curriculum provides for the formation of measuring skills in the first half of the first grade, along with the skills of counting elements of discrete sets. Counting and measurement contribute to the development of an understanding of quantitative relations, both discrete and continuous quantities. "Measure" becomes a criterion for the quantitative expression of quantities.

Considering that in school, already in the first half of the year, children should be able to draw segments and figures according to the specified number of centimeters and make various measurements with a meter, it is necessary that already in the preparatory group the children understand the meaning and meaning of the words they use, the names of linear measurement units (meter, centimeter).

The task of preschool institutions is to prepare children for schooling. For these purposes, in particular, it is necessary to teach children of six to seven years of age to measure by conventional measures so that they more deeply understand in school the meaning of generally accepted measures (measures of length, mass, volume).

How do children imagine measuring mass? The study of the answers of children and their methods of weighing shows that children of five to six years old clearly understand that the mass is determined using the scales. When asked how to find out how much cereal, granulated sugar, etc. in these bags, children, as a rule, answer: “We need to weigh on the scales”, “We need to measure on the scales”, “Put on the scales and count”, etc. But there are answers that reflect the everyday experience of measuring bulk solids: "You can measure with cups", etc. However, these children also know that in stores all products are "weighed on the scales."

Children also know that weighing is done with the help of weights, but many of them do not know the masses of the weights themselves (“Weights are large and small, heavy and light”); and some point not so much to the mass of the weights themselves, but to variants of different masses of the weighed products (4 kg, 12 kg, 15 kg, 20 kg, 40 kg, 100 kg, etc.); only a few children named the weights correctly (1 kg, 2 kg, 5 kg).

If we compare the answers of children about measuring mass and length, it turns out that knowledge about measuring mass is more complete. This is due to the richer experience of observing the weighing of various products in stores. However, the knowledge and skills of children need serious clarification and systematization through systematic training.

The skills and knowledge of children about measuring the capacity of blood vessels (measuring liquids and bulk bodies), as studies show (RL Berezina, L. Georgiev and others), are at the lowest level. Most children do not know, for example, how you can measure milk in a jug: “With a centimeter”, “With a ruler”,

“Measure on a scale”, “Measure with a thermometer”, etc. Their answers indicate that they are far from the practice of measuring volumes of liquids, and the very word measure evokes only familiar associations in them. Children, as a rule, do not know the name of a measure for measuring volumes of liquids. Some name only those measurements that adults use in their everyday life (ladle, ladle, glass with a handle, long glass, etc.). In their stories about shopping, children say that they bought a liter of milk or kvass with their parents, but they usually don't know that a liter is a measure. Children also lack clear ideas about the different capacities of blood vessels, and they do not know how to compare their volume.

The ability to measure various objects is of great importance for the general mental development of children, therefore, in the program for working with older preschool children, training is provided for measuring the length, mass and capacity of vessels by conventional measurements.

During the learning process, children learn that:

1. measurement allows you to give a more accurate quantitative characteristic of the measured object;

2. there is a functional relationship between the number of measurements and their size;

3. the number of measurements is inversely related to the size (the smaller the measure, the greater their number when measuring the same length, mass, capacity of the vessel).

The experience of measuring with conventional measures leads children to understand the meaning of generally accepted measures and measurement as a mathematical operation by means of which the numerical relationship between the measured quantity and a preselected unit of measurement, scale or standard is established.

So, learning how to measure the length, mass and capacity of vessels showed the full possibility of developing in preschool children the ability to compare different types of lengths, masses of objects, not only on the basis of sensory perception and discrimination, but also understanding the mathematical value of a quantity as its quantitative indicator.

The empirical knowledge of children, acquired by them in life, is gradually systematized in learning conditions, developing the mental activity of children. “… The effectiveness of mental activity, - writes Yu.A. Samarin, - depends not only on knowledge as such, but also on their more or less systematized. "

CONCLUSION

Diverse spatial, quantitative and temporal representations can be fixed in different games. For example, children are playing “to the store”. They count the items that they will sell, put numbers (the value of goods) on them, then receive money from buyers, perform arithmetic operations, “write down” their calculations, etc. Selling bulk goods, they measure them by conventional standards; when offering fabrics, ribbons, they are measured by eye or with a conventional measure. In games on the theme "Railway station", "Our street", etc., children set the routes of trains, buses, trams, number them, measure the distance from one station to another, keep track of the departure time of trains, trams, buses (using an hourglass) , determine the cost of tickets for different types of transport in different directions.

Reflecting the activities of adults in their games, children are convinced of the wide application of mathematical knowledge, how important it is to be able to accurately count, measure, determine the direction, etc.

To consolidate knowledge about quantitative, spatial, temporal relations, about the shape and size of objects, didactic games should also be used: various types of loto, exercising counting and calculating skills, deepening children's ideas about the set, number, number, about the natural series of numbers; subject lotto on the form; various paired pictures for the number and numbers, for the size of objects and shape, for the spatial arrangement of objects, plot pictures for recognizing the season or part of the day; various geometric puzzles, arithmetic puzzles, etc.

Entertaining didactic games not only contribute to the consolidation of the material known to children, but also awaken curiosity, develop mental mobility, initiative, and independence of thought.

Elementary mathematical knowledge of children should be consolidated in everyday life. Based on the developed "sense of time", it is necessary to teach children to regulate their activities and behavior: to finish dressing for a walk, or eating, or cleaning the bed, etc. on time. in preparation for the lesson, in the selection of walking allowances, etc.).

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