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TEACHING TO SOLVE PROBLEMS ABOUT THE PERIMETER OF A RIGHT RECTANGLE AND A SQUARE. PROBLEMS ON CALCULATING HUNDREDS USING THE FORMULA

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Annotation: The concept of cross-sectional length is introduced based on the comparison of objects by length. For example, the teacher can ask the children to compare (find out which tape is longer and which is shorter) by placing two pieces of tape on top of each other, two strips of paper of arbitrary length, etc. Practical work is followed by their expressions with the help of words. The meanings of the words "equal in length" and "unequal in length" are defined by more understandable words such as "the same", "longer", "shorter".

Keywords: Perimeter, surface, capacity, volume.

1. Formation of students' perception of length. Methods of introducing lengths with units of measurement

The concept of cross-sectional length is introduced based on the comparison of objects by length. For example, the teacher can ask the children to compare (find out which tape is longer and which is shorter) by placing two pieces of tape on top of each other, two strips of paper of arbitrary length, etc. Practical work is followed by their expressions with the help of words. The meanings of the words "equal in length" and "unequal in length" are defined by more understandable words such as "the same", "longer", "shorter".

First, we learn to find the lengths of small objects, such as sticks, pencils, and other objects. The teacher says that a clear, universally accepted unit of length, centimeter, is used for this purpose.

In order for the students to get a clear (abstract) idea about the centimeter, they should prepare several models of the centimeter under the guidance of the teacher. To do this, they need to cut a long strip from a sheet of checkered paper with a width of one square, and then cut a 1 cm strip from it. By placing the strips on top of each other, the children make sure that they are equal to each other. The teacher says that each of these strips is a model of a centimeter.

Using the centimeter model, students will: 1) measure the given section; 2) they should learn to solve the problem of making (drawing) a section of a given length. There are two ways to solve these problems.

Acquaintance of students with a new unit of length - decimeter - begins with the study of the second decimal. The ruler (paper strip) seen above is actually an unnumbered paper model of a decimeter. It is important that each student makes several of these models. Students do the same things with the decimeter model as they do with the centimeter model, i.e. measure and make.

Here are some exercises on measurements using the decimeter model:

1. Line up the three models of the decimeter. What is the length of the strip?

2. Measure a piece of paper tape (string or hemp) with a length of 3 dm (or any other number) and cut this part of the strip.

3. Starting from a given point on a straight line, put a decimeter twice and put another point. State the length of the resulting section.

4. Find the width and height of the desk, table, and the length of the sofa.

2. The method of forming students' ideas about mass and volume, introducing them to the units of measurement

Even at preschool age, children get the first ideas about the mass of the body based on feelings.

Practical work on comparing the masses of different objects was followed by children with their expressions through words: "lighter", "heavier", "with the same weight".

The first unit of mass that children learn in grade I is the kilogram.

Children should get the idea of a mass of 1 kg only on the basis of their practical work. Children should hold objects with a mass of 1 kg (for example, a pack of sugar) in their hands and compare these objects with heavy or light objects. It is only on the basis of the comparison operation that children get a real sense of the mass of 1 kg.

In the very first lesson, the children weigh various objects (1 kg, 2 kg, 3 kg of sugar, salt, cereals and other things in a package) 1, 2, 5 kg of stones on a palla (lever) scale. it is necessary to introduce the pull using the nabor.

It is important that the children themselves participate in the drawing process. Of course, the teacher should explain the rules of weighing in advance. The drawing numbers are written on the board and in notebooks.

In the next lesson, children will get acquainted with the unit of volume (capacity) - liter. It is very important to have different samples of liters, i.e. a liter jar, a mug, as well as containers (jars, buckets, pots, glasses).

In the methodical guide intended for the teacher, it is recommended to "start the lesson with a conversation" - in this conversation, it is recommended to ask "before the children, who bought milk from them, and what does the seller measure the milk with." After that, it is recommended to indicate the liter and proceed to measure the volume (capacity) of various containers using the liter. Practical work can be done in different ways. Here are some of them:

1) "Store" game. One of the students will be appointed as the seller. "Milk" (water) was poured into the buckets. A few students buy cans and jars - they are buyers. At the request of buyers, the seller pours 1l, 2l, 3l "milk" to them. All the other students watch as the seller pours the "milk" correctly.

2) It is suggested to measure how much water can fit in a jar, saucepan (other container). First, ask the students what they think about how many liters of liquid can fit in a container. Let them write down the number they think, and after the measurements, check how correct they were.

3) Pour 5 l of water into one bucket and 3 l of water into the second bucket. What should be done so that the water in the buckets is equal? (1 l of water can be poured from the first bucket to the second, 2 l of water can be poured from the first bucket, and another 2 l of water can be poured into the second bucket).

The teacher can select some of these exercises, use their own exercises, but it is most important that the children practice measuring and visualizing the capacity.

In the second grade, students get acquainted with the new unit of mass - the gram. In this case, the method of work is the same as in getting acquainted with kilograms. For example, to get a clear idea of grams, children should hold a stone with a mass of 1 g and compare its weight with the weights of other objects. It is useful to tell children that a 1 soum coin has a mass of 1 g, a 2 soum coin has a mass of 2 g, a 3 soum coin has a mass of 3 g, and a 5 soum coin has a mass of 5 g, and that these coins can be used instead of stones. It is necessary to bring a pharmacy scale into the classroom and explain to the children that medicines are weighed on this scale. It says (and shows) that you need 1g, 2g, 5g, 10g, 20g, 50g, 100g, 500g pebbles to measure out the medicine. After that, it is necessary to carry out practical exercises on weighing: for example, to pull 300 g of sugar, 200 g of cereal, etc. It is important that students themselves participate in this process.

In the second grade, it is recommended to introduce students to commercial scales. For this purpose, it is necessary to organize an excursion to a nearby food store and introduce children to the construction and use of such scales.

In the third grade, firstly, the concept of "mass measurements" is introduced, secondly, students get to know new units for themselves - centner and ton, and thirdly, a table of mass measurements is introduced.

It is recommended to introduce the term "measures of mass" with the following explanation: "When comparing two cross-sections, which one is longer and which one is shorter, we compare their lengths by measuring them in the same unit, for example, centimeter. When it is necessary to know which piece of bread has more mass and which one has less mass, we solve it with the help of scales and stones. What units of mass do you know? How many grams are there in 1 kg?

Objects with a mass of 1 s and 1 t cannot be "held" by hand. Therefore, in order for students to have a clear idea about the new units of measurement, in the methodological literature, it is recommended to tell the students in advance, for example, such information: the mass of two bags of potatoes is about 1 s, the mass of the Moskvich car (without passengers) is about 1 is equal to t; the mass of all students in the class (30-35 students) is approximately 1 t.

After that, a table of mass measurements is drawn up and children are encouraged to memorize it.

3. Methodology of forming students' ideas about the face of geometric shapes, introducing them to the units of face measurements

The topic "Face of a polygon" is studied in class III. But proper preparation starts from I class.

Students of the 1st and 2nd grades are given exercises related to counting the cells in the forms, making the forms according to the given form according to the cells, cutting out the forms, and comparing the forms by putting them on top of each other.

The topic "Faces of shapes" should be studied based on the plan shown in the textbook.

1. Comparison, formation of general ideas about the surface of the shape based on determining which shape occupies more space on the plane.

2. Forming an idea of a unit square, with the help of this square it is always possible to determine which of the shapes has a larger face. Familiarity with square centimeters.

3. Finding the faces of various shapes in square centimeters. Pallet.

4. Calculation of the face of a rectangle in square centimeters.

5. Calculation of the face of a rectangle in square decimeters.

6. Calculation of the face of a rectangle in square meters.

A palette knife is a tool for measuring faces of various shapes. Every student should have a palette. A pallet is a transparent plate divided into squares (each square has a side of 1 cm). The square mesh can be draped or threaded onto the frame. It is useful to prepare such a palette in labor lessons. (The size of the pallet should not be less than 8cm x 8cm.)

The lines of the notebook can be used as a palette to find the faces of the shapes drawn on the notebooks. Must have demo palette to show. This pallet consists of a rectangular frame with a mesh. Each cell of this palette represents a square decimeter. A checkered board is very convenient for finding the faces of shapes by direct calculation. On this board, you can quickly draw curved shapes and quickly count the squares on it.

In order to overcome the difficulties arising from the use of the palette, it is necessary to conduct a series of preparatory exercises related to counting the number of full and incomplete squares of one or another shape.

The following practical assignments can be given:

1. Measure the length and width of the math textbook cover in centimeters and find its face. Express the face in square decimeters.

2. Measure the length and width of a newspaper page in decimeters and find the face of the page. Express the face of the page in square centimeters.

After that, it is important to train the students to calculate the area of the classroom (the area of the floor), the area of the plot, etc.

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