

Methods of Studying one-Dimensional Geometric Figures in the Course of Mathematics of Elementary Grades

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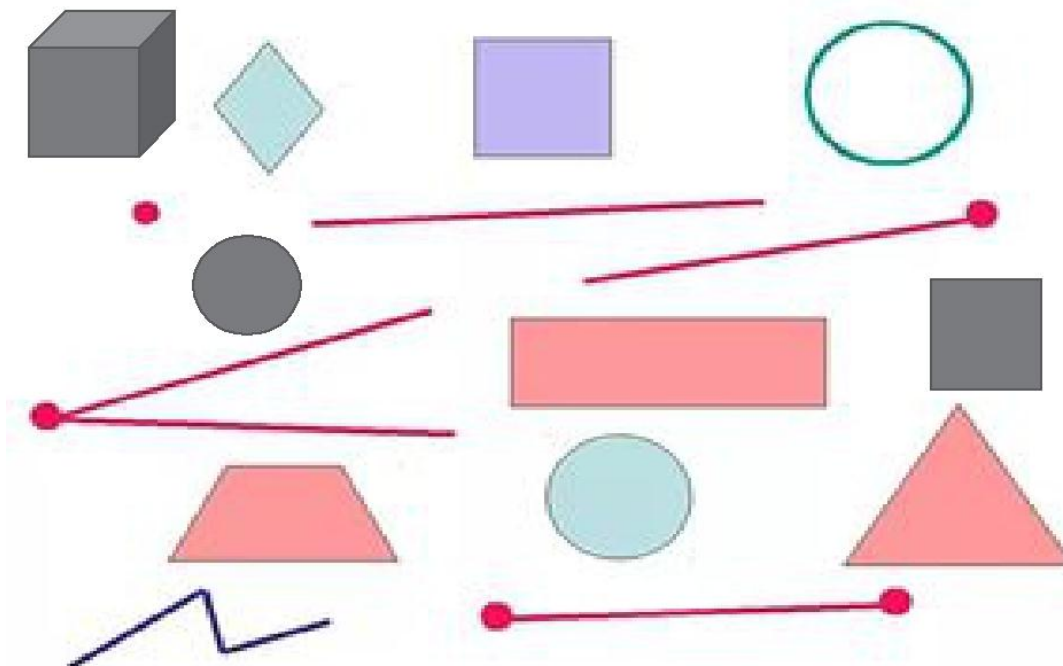
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ANNOTATION

The leading role in the study of geometric material is played by systematically conducted practical work on the formation of skills related to the use of drawing and measuring tools, with the implementation of the simplest drawings with the construction of geometric figures. At the same time, it is necessary to form the ability to give a verbal description of the actions performed, the ability to apply symbolism and terminology.

KEYWORDS: *shapes, point, line, straight line, curve, ray, segment, broken line.*

One of the goals of the initial teaching of mathematics is the development of the surrounding space, the development of spatial representations. This is the study of geometric material: familiarity with bodies, surfaces, lines, the selection of figures of a certain shape, some characteristics of these figures.



Geometric material is not singled out as an independent section.

The main objectives of its study in grades 1-4 are :

1. the formation of spatial representations and the development of imagination, the ability to observe, compare, abstract and generalize;

2. development of practical skills for students in measuring and constructing geometric shapes using measuring and drawing tools;
3. the formation of skills to use visibility in the acquisition of knowledge
 - The teacher must ensure that the children master the names of the studied geometric shapes and their properties, as well as form the ability to build them on checkered paper;
 - The properties of all the studied figures are revealed experimentally in the course of the corresponding exercises;
 - Such types of work should be carried out systematically, such as the manufacture of geometric shapes from paper, sticks, plasticine, their cutting, modeling, etc. ;
 - It is important to teach children to distinguish between essential and non-essential features of figures.

When studying geometric material, a variety of visual aids should be widely used. These are demonstration models of geometric shapes made of colored cardboard or thick paper, posters depicting figures, drawings on a blackboard, etc.

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In grade 1, students already have certain spatial representations: left - right, front - behind, top - bottom, above - below, etc. During the preparatory period, the teacher once again clarifies these ideas with objects, drawings from the textbook. It also clarifies the knowledge of the names of the simplest geometric shapes: triangle, quadrilateral, circle, etc.

Students' general ideas about geometric shapes are clarified when mastering the topic "**Studying numbers within 10**", first these figures (circles, triangles, squares, and others) are used as counting material. Children operate with them, chastising, for example, 5. triangles, 3 squares, 8 circles, counting large and small circles, red and blue triangles. At the same time, the names of geometric shapes are specified.

In the traditional elementary school curriculum, the study of geometric material begins with the study of a point and a segment, they also get acquainted with concepts such as a line, a straight line, a curved line, a ray, a polyline, polyline links, closed and open lines.

Consider how a student can be given a rudimentary idea of these figures.

When studying geometric shapes, you should follow the sequence:

- obtaining a figure;
- familiarity with the name of the figure;
- recognition of the figure in the environment;
- building a figure;
- study of properties.

With the **point** in the very first lessons, as soon as they pick up a pencil.

With the concept of a **segment** and its length, students get acquainted in the 2nd grade. After receiving a visual model, they show which objects in the class have the form of a segment (pointer, table edge, desks, etc.). After that, draw a segment.

Mark two points by applying a ruler to them, connect them with a line and get a segment. Initial

ideas about the segment can be given to students already in the 1st grade in connection with the image of the conditions of the problem with their help.

In grade 2 on the topic segment, you must perform the following exercises:

- 1) Mark three points on paper and connect them in pairs with segments. How many cuts will it make?
- 2) What figure do the constructed segments form?
- 3) Mark point C on segment AB. How many segments are there in the resulting drawing? What segments does segment AB consist of?

The study of geometric material in this program is provided from grade 1. The range of ideas formed in children about various geometric shapes and some of their properties is gradually expanding. It is assumed that students are familiar with such geometric shapes as a point, lines (curve, straight line), segment, broken line. When forming ideas about geometric figures, great importance is attached to the implementation of practical exercises related to the construction, drawing of figures, with consideration of some properties of the studied figures.

1. Getting a figure

In one lesson, students, together with the teacher, through practical work, receive a point, a curve and a straight line, a segment and a ray.

(M1 Mch.1, p.40)

2. Acquaintance with the name of the figure

After the students have received the figure, the teacher announces its name.

3. Figure recognition in the environment

Next, the teacher is offered to look around and find elements in the environment that are similar to the studied geometric shapes. Also, for the recognition of figures in the textbook, pictures are presented, where students are asked to find curved lines, segments, rays. (M1 Mch.1, p.41). Here, the authors of the textbook invite students to look at the margins of the page and divide the geometric shapes into two groups (segments and rays).

4. Building a figure

The teacher introduces students to the fact that a straight line, a segment and a ray are drawn on a ruler. Students get acquainted with the image of these geometric shapes in the textbook and learn to draw them in a notebook using a ruler. The teacher draws on the blackboard.

5. Study of properties.

- Further, the students, together with the teacher, relying on practical actions with the thread, come to the following conclusions:
- a straight line can be extended in both directions;
- points are the ends of the segment and it cannot be continued, because it has a beginning and an end;
- the beam has only the beginning and it can be continued in one direction;
- an infinite number of straight lines can be drawn through one point;
- Only one straight line can be drawn through two points.

When forming ideas about figures, great importance is attached to the implementation of practical exercises related to the construction, drawing of figures, consideration of some properties of the studied figures; exercises aimed at developing geometric vigilance (the ability to recognize geometric shapes).

This connection is based on the possibility of establishing relationships between numbers and figures. This allows the lesson to use figures in the process of forming mathematical concepts, they also serve as a visual illustration of arithmetic patterns, relationships, dependencies. Conversely, numbers are used to study the properties of geometric shapes.

With the help of visual material and the question: What are the similarities and differences between the figures (line and ray), students get acquainted with the concept of a ray and its distinguishing features. Based on the material of the exercise “Which rays will intersect and which will not”, students come to the conclusion that the ray can be extended in one direction. Here, the guys will learn that the beam can also be denoted by one capital Latin letter. After that, they move on to the image of the beam in the notebook.

For the formation of the highest motivation of the educational process and the development of all forms of thinking of the younger student, it is important to assign a special role to geometry, because this age is considered one of the sensitive periods in the development of the child’s thinking. The need to form concepts is one of the first places in the learning outcomes of the Federal State Educational Standards, so the student at the exit from primary school must master them.

As a result, in the course of mathematics in elementary school, it is necessary to increase the role of geometric methods, geometric material, to give the initial course of geometry greater independence, both in terms of study methods, and content and volume, concentrating on the formation of elementary spatial representations among schoolchildren.

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