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Methods Of Teaching Elements of Geometry in The 4 th Grade

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Article History	Abstract
Received: 8th March 2026 Accepted: 7th April, 2026	This article analyzes effective methods, stages and didactic opportunities for teaching elements of geometry in mathematics in the 4th grade. The study covers teaching methods aimed at developing spatial imagination, logical thinking, observation and measurement skills in students. Also, modern approaches to organizing practical classes on recognizing geometric shapes, determining their properties, drawing and measuring have been developed. The article scientifically substantiates the active involvement of students in the lesson process, the development of independent thinking and analytical skills through the use of interactive methods, game activities and information technologies

Keywords: elements of geometry, primary education, mathematics, teaching methods, spatial imagination, practical training, interactive methods, game technology, measurement skills.

The smallest unit studied in the geometry course is explained by the concept of a geometric element. For example, a point, a straight line, a section, a ray, a circle, a square, a rectangle, a pyramid, a sphere, etc.

The concepts of “point”, “straight line” are the main undefined concepts of the school geometry course. Therefore, the questions “what is a point?”, “what is a straight line?” become meaningless.

The trace of a pencil tip on paper, the trace of chalk on a blackboard give an idea of a “point”. The formation of ideas about a straight line in students occurs when they perform various practical tasks.

If a string with chalk on it is pulled taut and released, an image of a part of a straight line is formed on the blackboard. It can be continued in both directions.

A straight line can be drawn using a ruler or other methods. For example, a straight line can be formed by folding a sheet of paper, and the fold line will be a straight line. It is important to draw the children's attention to the fact that even

when the sheet of paper is folded in different directions, the result is the same, and the image of a straight line is formed. It is also important to change the position of the straight line on the board, that is, draw it horizontally, vertically, and obliquely.

While introducing children to a straight line, it is also necessary to introduce them to a curved line. For example, if a taut string leaves a straight line on the board, and then this string is released and relaxed, the trace it leaves will give an idea of a curved line. Students are also trained to find straight and curved lines in the environment.

In the process of completing the exercises, students get acquainted with some of the properties of straight and curved lines. For example, children, having practiced drawing lines from a point, can draw as many straight and curved lines as they want through one point. This means that they can draw one straight line and as many curved lines as they want through two points.

Students also get to know the intersection in practice. If two points are placed on a straight line, the part of the straight line that is bounded by these points is called the intersection. The boundaries of the intersection can also be marked with dashes.

Students should learn how the image of a straight line differs from the image of a straight line segment: the ends of the segment are marked with dots or dashes.

Exercises to show the intersection of a straight line from the environment, for example, the edges of a cabinet, the junction of the floor with the wall, the junction of the ceiling with the walls, reinforce the concept of intersection.

Children have encountered polygons since preschool age. The teacher's task is to expand students' knowledge of geometric figures, teach them to distinguish the elements of figures, teach them to draw figures, and introduce them to some of the properties of figures. It is advisable for students to independently create models of geometric figures. Figure models can be attached to a magnetic board. The teacher introduces children to triangles using triangles of various shapes, colors, and sizes cut out of paper.

The introduction can be carried out in this way:

“These are triangles. Although these figures are different from each other, they are all called “triangles”. Who can tell why this figure (shows a large triangle) and this figure (shows a small right-angled triangle) are called triangles?” (Because they have three angles each). The teacher shows and says: “This is a side of a triangle, this is a vertex of a triangle. How many sides does a triangle

have, how many vertices does it have?". After that, the students separate the elements of a triangle in the triangle models they have. It is important for the students to clearly understand that a triangle is a point, and a side is a section.

When separating another element of a triangle - an angle - it is necessary to show it, as well as cut off a part of the triangle - its angle.

After that, you can work approximately on the same plan when introducing children to rectangles, pentagons and hexagons.

Figure models can be used to perform a number of exercises on distinguishing signs, comparing two or more figures, and recognizing figures by given signs.

Studying the current state of the educational process is to influence its condition and development through continuous observation of pedagogical activity, collecting, storing, processing and distributing information about it.

For example, by conducting continuous observations on the activities of teachers and students in the educational process, studying the current methods and results of teaching, it is possible to determine its condition, development, and prospects by collecting, storing, and processing information. As a result, based on the analysis of the information obtained, it becomes possible to scientifically determine measures to eliminate shortcomings in the pedagogical process and increase its effectiveness.

Based on the analysis of information and conclusions, corrections and changes are made to the activities of the school and teachers.

Initially, the general state of the mathematics teaching process was studied through observation. Interviews were conducted with teachers about their advanced pedagogical experiences. During the observation of lessons, the level of students' mastery of geometric materials, their interest and level of activity in these lessons, the teacher's use of various methods and tools in the didactic process, achievements and neglected aspects were studied. In this process, the orientation of the teacher's activities towards academic innovations, the real results of the teacher and student activities were determined, and the level of control of students' knowledge was studied.

In primary grades, the process of mathematics education can be developed by continuously studying, analyzing and improving the teaching material, methods and tools for studying it. As a result, the scientific potential of students also increases. Taking these factors into account, each of us as educators should get used to deeply analyzing our own activities and constantly work on our creative abilities.

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