



**5-6 GRADES EXAMPLE GEOMETRIC CONCEPTS AT SCHOOL
INNOVATIVE APPROACH TO LEARNING**

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A B S T R A C T	KEY WORDS
<p>The article discusses the possibilities of using innovative pedagogical technologies in teaching geometry in grades 5-6 and their classification. The role of studying geometric material in mathematics lessons is characterized. Some types of pedagogical technologies from this classification are also highlighted. As a result, we analyzed the implementation of innovative pedagogical technologies in the study of geometry in grades 5-6 of secondary school.</p>	<p>Teaching, geometry, innovative pedagogical technologies, educational process, innovative learning, teaching method.</p>

Introduction

The role of studying geometric material in mathematics lessons. Geometric material in grades 5-6 is distributed throughout the subject of mathematics. It makes up the content of the so-called propaedeutic course of geometry. The main role of this course is to prepare students for the conscious assimilation of a systematic geometry course in high school, to study related disciplines.

Many modern methodologists, analyzing the preparation of a school course of geometric education, formulate the role of teaching geometry at school. For example, V.M. Tikhomirov noted . That the role of geometry in school is brain training and aesthetic development of the child. I.F. Sharygin, many of whose works are devoted to various aspects of school geometry, talked about the role of geometric education, notes that "the results of learning geometry are not limited to the scope of the subject the process of studying geometry has an unmet effect for the overall development of personality." Academician A.D. Alexandrov sees the role of teaching geometry at school "in the development of 3 qualities in students: spatial imagination, practical understanding and logical thinking."

You can cite many more authors whose works discuss various aspects of teaching geometry at school. At the same time, the role of studying geometry at school is to:the development of logical thinking of students; In instilling elementary skills of determining the simplest geometric concepts, skills of clearly formulating conclusions based on observations.The development of spatial representations in students. familiarization of students with the simplest deductive justifications (without the introduction of the concepts of "definition", "theorem", "proof").

Formation of skills and abilities to perform constructions with the help of basic geometric tools – compasses, ruler, square, protractor.

Formation of skills and abilities of measuring geometric quantities.

development of creative activity and independence of students.

The role of the propaedeutic geometry course determines its content, which includes many issues studied in the systematic geometry course of high school.

In primary school, the accumulation and development of geometric representations among schoolchildren is carried out. This is achieved by systematic practical work. The main role at this stage of training is played by students making models of geometric shapes, cutting, drawing, etc. Students get some ideas about definitions. However, they are not given an independent task of formulating definitions.

Thus, by the 5th grade, students accumulate a significant stock of specific geometric knowledge and ideas that need further generalization and systematization.

The purpose of teaching geometry to students of grades 5-6, as defined by the program, is to master the system of basic geometric concepts by schoolchildren and to form strong skills in performing geometric constructions using a ruler, a square, a compass and a protractor.

In these classes in the learning process:

1. the ideas about geometric objects and their properties acquired during elementary school education are being clarified and deepened;
2. new geometric shapes are introduced (ray, parallel lines, angle bisector, etc.), some shape transformations;
3. new quantities are studied, the carriers of which are familiar figures (circumference, angle value), a clear distinction is made between quantities and figures (segment and segment length, angle and degree measure of angle).
4. the range of geometric constructions and tools used in this case is expanding.

Schoolchildren are characterized by the perception of geometric shapes as a whole drawing, a model that is not yet separable from the perceived object. Acquaintance of students of grades 5-6 with geometric shapes, the relationships between them in most cases can be brought to the level of representations. These representations differ from each other in the degree of generalization. Many of them carry the features of concepts, but this is not yet a concept. For example, schoolchildren get a visual idea of a segment – they are able to highlight the ends of the segment, mark the points on the segment and count all the resulting segments, learn to measure the length of the segment, get acquainted with the segment as a carrier of magnitude. All this creates good prerequisites for the formation of the concept of a segment.

The geometry course is connected with the systematic planimetry course of grades 5-6 both in content and in ideological orientation. The geometry preparatory course introduces students to geometric technology and symbolism, which are also used in the systematic course. Familiarization with some types of representation of figures prepares students for the conscious assimilation of ideas of geometric representations.

In the 5th grade, students deal with such geometric quantities as length, area, volume (length of a segment, area of a rectangle, volume of a rectangular parallelepiped). They get acquainted with the values of the angle.

In the 6th grade, formulas for the circumference and area of the circle are introduced. As a result of performing some measurements and solving the corresponding calculation tasks, students have an idea of the value as a non-negative number. In the process of solving problems, students also get acquainted with the properties of geometric quantities.

In the course of geometry, much attention is paid to the development of students' skills in performing constructions with the help of basic geometric tools, as well as the formation of rational techniques for constructing geometric shapes. This skill will be necessary both when studying a systematic geometry course and when studying a drawing course. In the preparatory course of geometry, theory is connected with practice. Theoretical positions are revealed when solving problems of a vital nature. The geometry course for grades 5-6 includes tasks that allow students to develop spatial representations.

The study of the material of the propaedeutic course of geometry prepares students for the assimilation of some related disciplines studied at school. The geometric material of grades 5-6 lays the foundation for the study of this topic in high school. This is the main role of studying geometric material in math lessons of grades 5-6.

The requirement to take into account the age characteristics of children in the process of their education and upbringing was put forward by all the most famous teachers of the past: Ya.A. Kamensky, Zh.Zh., Rousseau, I.G. Pestalozzi, A. Disterveg – all stressed that education and upbringing should be built and conducted on the basis of a deep knowledge of the age and individual characteristics of children. "Everything to be taught should be distributed according to the stages of age so that only what is perceptible at each age is offered for teaching," wrote the great Slavic teacher Ya.A. Kamensky [7, p. 402]. K.D. Ushinsky pointed out that it was not necessary to build the educational process in such a way that it actively contributed to the mental development of the child.

Mastering the techniques of drawing, students master proportions, shapes, magnitudes, perspective projections, learn to arbitrarily build a known coordinate system of the depicted space and place certain objects in certain spatial relationships on the conditional space of the sheet. It is at the age of 10-12 years, according to psychologists, for example, B.G. Ananyev, that children can transfer by means of an image on the plane not only the three-dimensionality of three-dimensional bodies, but also the depth of space (perspective). By means of visual activity, the space displayed by a person is modeled on a plane, but volumetric modeling is also important (the production of spatial figures from paper, plasticine and other materials). These two modeling processes on the plane and in space contribute not only to the development of Projective representations, but also to the formation of spatial representations of students.

The organization of the learning process should be considered taking into account the development of the child's personality. "The younger adolescence," writes T.V. Dragunova, "is a period of intensive personality formation and further formation of a person's individuality, according to these signs it is called a second birth" [7, p. 15]. Among the many personal characteristics inherent in a younger teenager, the feeling of adulthood that is forming in him is particularly distinguished. The feeling of adulthood manifests itself in the desire for independence, in relationships with adults and peers, with the emergence of new interests that are not related to study. The attitude of a younger teenager to educational activities is changing, at this age stage, although it remains the main one for him, it ceases to be the leading one.

So, the psychological and pedagogical features of children of younger adolescence when studying the elements of geometry will be taken into account if:

- to study geometric objects and their properties on the basis of subject-practical and mental actions;
- the study of geometric shapes should begin with spatial figures, and then introduce flat ones as elements of spatial ones - this will allow you to combine sensory and rational cognition;

the main forms of cognition are observation, experiment, constructive and geometric activity (measurement, image, construction, modeling);

the simultaneous coexistence of elements of visually effective, imaginative and verbally logical types of thinking makes it possible to solve the tasks assigned to students in a way that corresponds to the level of their development;

when organizing the educational process, use reproductive, creative, game tasks; involve in the independent search for solutions, taking into account the experience and needs of practical activities of children.

Students get acquainted with the components of geometry in elementary school, and in the 5th-6th grade they receive the base necessary for further study of geometry. In search of an answer to the question, when performing tasks, students use their imagination, intuition, and try to justify their conclusions practically on simpler examples.

Geometry is a branch of mathematics where abstract and logical thinking play a huge role.

Therefore, this science is harder for students than algebra. In the conditions of transformation of the educational process and interpersonal relations in teaching, the problem of the implementation of innovative pedagogical technologies in the educational process occupies a special place.

One of the main trends in the development of the modern geometry course is the constant expansion of its subject area. The development of pedagogical science indicates that the main component of modern education is a person who is able to freely navigate in the modern information space. The effectiveness of the educational process, the effectiveness of teaching students largely depends on the level of development of technological conditions in the educational sphere.

All innovations that are introduced in the system of secondary school education are based on results that give high indicators. Simultaneously with traditional methods, innovative methods are also used in the classroom, one of such methods is pedagogical technology. Pedagogical technology is a system of methods that presupposes the development of ways to organize the activities of teachers and students and requires objective quality control of the pedagogical process aimed at the development of the personality of schoolchildren as a whole. The need for an innovative approach in teaching geometry is due to the fact that the training of students is of great importance for improving the quality of education - multi-level education of education. Application of some techniques in pre-developmental teaching of geometry presentation using

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