



**Название публикации: «METHODS OF TEACHING GEOMETRY
WITH THE HELP OF INFORMATION COMMUNICATION
TECHNOLOGIES»**

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Abstract. *Decision on state support for the further development of mathematics education and sciences, as well as measures to radically improve the activities of the V.I.Romanovsky Institute of Mathematics of the Academy of Sciences of the Republic of Uzbekistan, and on May 7, 2020, "In the field of mathematics" "On measures to increase the quality of education and develop scientific research" was adopted. Of course, these are the stages of development of educational areas, aimed at increasing the quality and efficiency of the educational process.*

Keywords. *V.I.Romanovsky, Macromedia Flash, Microsoft Front Page, Geometry, Pedagogical education.*

Science and technology are rapidly developing, many changes are observed in the field of education, including the development of a pedagogical education cluster model. The cluster model of pedagogical education development operates in the general directions related to teaching, creating educational literature, increasing the scientific potential of pedagogic personnel, and the integration of education and training. This shows that the problem has a general methodological nature. At the moment, these general directions are specialized in directions such as management and organization of education, types and directions of education, ensuring coherence and integration, teaching methods and tools .. With coherence



and integration in education. it is necessary to update and revise the methods and tools of joint training. Various changes taking place in our society place important tasks before teachers. These tasks consist of raising well-rounded, independent thinking, creative, intelligent and tasteful young people, and they require from the modern teacher constant creative research, a new attitude to study and teaching, dedication. A number of tasks have been defined in the "National Personnel Training Program", which include ensuring the timely development and introduction of modern pedagogical and information technologies, as well as providing the material and technical base of educational institutions with new educational literature, modern equipment. , providing computer equipment is one of the important issues. The use of information and communication technologies in the educational system plays an important role in the educational process, not only in the theoretical knowledge, but also in conducting practical training, in preparing them as mature personnel in all respects. Information technology in education is a broad normative concept , and each topic requires the use of this technique and technology. Because the use of modern teaching techniques gives positive results. The reforms carried out in the education system envisage the teaching of subjects in general secondary schools in new ways. In this regard, along with all academic subjects, specific tasks were set for geometry. The use of information technology in working with stratified groups in geometry classes will greatly help the teacher. It is envisaged to use information technologies in the following forms during the educational process :

- ✓ computer lessons in teaching certain subjects;
- ✓ computer lessons as visual material;
- ✓ improvement of students' group and team work, etc.



In order to use new pedagogical technologies or information technology in the teaching of geometry in general education schools, the following programs can be used: HTML editors such as Macromedia Flash, Microsoft Front Page, and software tools such as Microsoft Word, Adobe Photoshop, Corel Draw. If geometry is taught with the help of information technology, the following will be achieved:

- ✓ using the possibilities of electronic textbooks, the opportunity to fully explain the subject to students increases;
- ✓ their knowledge, skills and qualifications increase;
- ✓ moving images and animations play an important role in expanding the imagination of students;
- ✓ more time is devoted to practical work, i.e. solving examples and problems, giving life examples, conducting question-and-answer sessions among students;
- ✓ creative thinking ability of students is formed;
- ✓ students get a positive lesson from the lesson, their interest in the lesson increases;
- ✓ provides students with opportunities to develop spatial imagination, logical thinking, and learn practical methods of geometric measurement and construction.

The use of information technology in geometry lessons gives students opportunities to learn practical methods of logical thinking, geometric measurement and construction. The main thing is that information technology



develops the ability to read information in the form of drawings, diagrams, tables, and provides an opportunity for independent reading and learning. Thus, the introduction of new pedagogical technologies through information technologies in general secondary schools leads to a sharp change in the activities of students and teachers, their roles and tasks in the lesson. At the same time, the effectiveness of the lesson increases, students receive knowledge based on their strength, ability and pace and learn it independently. In the science of geometry, information technology is a great opportunity to use ICT in the educational process and increase the effectiveness of education. In particular, it is not difficult to understand the difference between the teaching process and teaching using ICT from this slide. They will have the opportunity to observe in practice and research the innovation in the content of the subject. In order to use ICT in geometry lessons, it is first necessary to learn computer programs and how to use them. This means that computer programs help students not only to form their knowledge and skills, but also to develop their creative skills through the use of computers. (Fig. 2) The use of motion computer animations in depicting sections of spatial bodies has a number of advantages. For this, we can use several created computer programs. One of them is MsPowerPoint developed by Microsoft. Adobe Flash can also be added to this category of programs. The advantage of this program is that it has a high level of visibility, it is possible to prepare various animations with the help of Ms. Power Point program, it is possible to easily create electronic textbooks and tests related to any topic using this program [3]. The scenario of the lesson based on multimedia developments is drawn up in the classroom, and brief information is given on the subject and purpose of the lesson, as well as the technologies used during the lesson. In order to introduce new subject concepts, the questions and quick-solve tasks prepared in the form of an electronic visual aid are displayed on the screen to repeat, organize and focus on the learned geometric concepts and affirmations. The teacher evaluates the



students' answers and focuses on the active participation of all students in this question and answer. Question. Study of straight lines and planes in space . When studying the concepts of the mutual arrangement of straight lines and planes in space, their following cases are mainly considered: straight lines are parallel and perpendicular, intersecting straight lines, straight lines and parallelism and perpendicularity of a plane, mutual parallelism and perpendicularity of planes. In the process of learning these concepts, the students analyze the situations of straight lines and planes in space in general, and opportunities for the development of spatial imagination arise in them. When studying this topic, special attention should be paid to the following aspects: firstly, strict proof of the signs of parallelism and perpendicularity, and secondly, paying attention to reasoning on the basis of demonstrability; and thirdly, solving spatial issues of application. In addition, it is required to use the necessary system of exercises, taking into account the importance of this topic in the creation of sections and descriptions of spatial bodies. Revealing the differences and similarities between the position of straight lines in space and their position in a plane also allows students to better grasp these concepts. It is also useful to look at and discuss all the situations that arise here, and summarize them based on the relevant drawings. In order to develop the students' spatial imagination, it is appropriate to offer exercises on the visualization of theorems about straight lines and three perpendiculars. New topic: Students will be informed about polynomials and their simple sections with the help of an electronic visual aid, and several examples will be solved together. During the lesson, presentations are made with the help of electronic visual aids prepared using the Power Point program using multimedia capabilities. Regular plurals. Regular polynomials must satisfy two conditions: a) all sides consist of regular and congruent triangles; b) all angles of a polyhedron are equal to each other. It follows from the first condition that the sides of a regular polyhedron consist of polygons with the same name. From the second, it can be seen that all



the polygonal angles have the same name. For example, all sides of a cube, squares, all polygonal angles are three-sided. The question arises how many polynomials exist that satisfy these conditions. Answer: it is noted that there is no polyhedron consisting of regular polygons with sides greater than six . In order to organize and consolidate the knowledge of the students during the lesson, each student is given individually structured tasks through the screen. Students complete the tasks for 10 minutes and give them to their partner to check. When the teacher collects the notebooks, he checks the assignments and evaluates each student. At the end of the lesson, on the screen, students are given questions and tasks as homework to prepare for the topic of the next session. In addition, one of the aspects that reflects the effectiveness of the use of information and communication technologies in the course of the lesson is the Internet. The activity of pedagogues is increasing by using various Web sites on the Internet . The participation of our teachers and students in various examination contests conducted online and the exchange of experience in the implementation of various educational processes further increases the quality of education. Today, the creation of a personal website by pedagogues helps to share experience in the course of the lesson or quickly popularize some news. In addition, the equal participation of teachers and students in many online contests is the basis for increasing the effectiveness of education. In the high school mathematics program, geometrical material takes a large place. The main goal of studying geometric material is to create a complete system of

ideas about the mutual situations of straight lines and planes in space, spatial bodies, their elements, some of their properties. Spatial ideas about geometric figures, geometric figures with the help of drawing and measuring tools and without the help of these tools, the practical skills of measuring and making (visualization, manual drawing, etc.) are formed, and the students' speech and thinking are developed on this basis. Conducting classes with the use of ICT



creates the following skills in students: develops computer literacy, increases their interest in learning in the lesson, forms information culture, increases the level of knowledge of students, as a result of two- way conducting of the lesson such as increasing control, increasing the interest of students with low knowledge in the lesson, not having difficulties in evaluating students. The above-mentioned skills play an important role in the development of students in their future professional activities.

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