

USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN MATHEMATICS LESSONS AS A MEANS OF STUDENTS' CREATIVE THINKING DEVELOPMENT

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Abstract. This article explores the role of information and communication technologies (ICT) in mathematics education to develop students' creative thinking. It highlights digital tools like interactive whiteboards, presentations, and simulators, demonstrating how they enhance visualization, individualize learning, and improve overall lesson efficiency through practical classroom examples.

Key words: mathematics, information and communication technologies, computer, mathematics lesson, interactive whiteboard, presentations, lesson plan, function, interest, creative thinking.

Mathematics, like no other science, can make a significant contribution to the implementation of the tasks set for the school, since the activity of a mathematics teacher is aimed at developing the skills of spatial imagination, logical thinking - in a word, the development of intelligence. In mathematics lessons, various pedagogical technologies can be used: modular training, project activities, information and communication technologies. In this case, learning becomes active, the emphasis is on learning through practice, the productive work of students in small groups, the use of inter-subject relationships, and the development of independence.

Statement of a question. The competency-based approach to teaching mathematics forces the teacher to constantly review the arsenal of teaching and upbringing tools, choosing the most effective forms and developing them together with students, based on the knowledge and experience of students gained in mathematics lessons. Using a computer allows you to create an information environment that stimulates the interest and inquisitiveness of students.

The form and place of using computers in the lesson, of course, depends on the content of this lesson, the goal set by the teacher. What are the functions and

features of the application of educational programs? The following functions can be distinguished: instrumental (making visual aids); demonstrating (showing ready-made demonstration programs, slides, presentations, etc.); training (simulators); controlling.

Various types of lessons are possible with the use of information technologies: lessons-conversations using a computer as a visual aid; lessons in setting up and conducting research; practical work lessons; lessons-tests; integrated lessons, etc.

In recent years, along with computer technology, schools have received interactive whiteboards, which are a touch screen connected to a computer, the image from which is transmitted to the board by a projector. Special software for interactive whiteboards allows you to work with texts and objects, audio and video materials, Internet resources, make handwritten notes directly on top of open documents and save information.

A lesson in mathematics using ICT is visual, colorful, informative, interactive, saves the time of the teacher and the teacher, allows the teacher to work at his own pace, allows the teacher to work with students in a differentiated and individual way, and makes it possible to quickly monitor and evaluate learning outcomes.

The goals of ICT in the process of teaching mathematics are: the formation of skills to work with information, the development of communication skills; preparation of the personality of the "information society"; the opportunity to give the child as much educational material as he can learn; the formation of research skills, the ability to make optimal decisions.

The computer can be used at all stages of the learning process: when explaining new material, consolidating, repeating, controlling ZUN. At the same time, for the student, he performs various functions: a teacher, a working tool, an object of study, a collaborating team, a leisure (game) environment.

The main means of ICT in the study of mathematics are: a computer as a universal information processing device; A printer is a device that allows you to capture information on paper.

The use of ICT tools is a necessary condition for the modern educational process, when the main thing is not the transmission of fundamental knowledge, but the development of creative abilities, the creation of opportunities for realizing the potential of the individual. ICT is used not as a goal, but as another pedagogical tool that contributes to the achievement of the goal of the lesson.

Computer in the lessons in the following forms: the use of media resources as a source of information (disks); computer support for the teacher's activities at different stages of the lesson; using a computer to perform technological maps; portfolio creation.

Multimedia accompaniment of lessons increases the efficiency of obtaining knowledge by students. The term "multimedia" is a tracing paper from the English word multimedia, which can be translated as "many environments" (from multi - many and media - environment). Multimedia technology allows you to simultaneously use different ways of presenting information in the form of numbers, text, graphics, animation, video and sound.

Basically, when studying mathematics, various types of multimedia products are used: this is a computer presentation that is created using the Power Point program, it is a sequence of slides, with the help of this program a presentation is created to study new material.

The advantages of presenting information in the form of a presentation over information in the form of speech: a large amount of time is released, but the presentation must match the pace of assimilation, student recording; the computer allows you to show a complex experience safely, to explain its essence, but this should complement, not replace. The presentation greatly facilitates the management of the lesson, the organization of the work of students, but requires the teacher to be confident in technology, knowledge of programs, and readiness to work as usual.

If necessary, in the learning process, the student can independently return to that part of the information that he did not learn without distracting the teacher, for example: the formula is erased from the board, and if the student did not have time to write it down, then the teacher will have to interrupt the story and return again to the formula. And vice versa, commenting on the material that is on the slides, the teacher can dwell on certain points in more detail. For example, when studying the topic “Prime and Composite Numbers”, you can introduce students to the construction of the sieve of Eratosthenes using a presentation. This will interest students, and they themselves will be able to try to build the sieve of Eratosthenes in their notebooks.

Presentations-surveys: questions, tasks that activate students for further work in the lesson, create a favorable climate. So, when repeating the topic “Ordinary fraction” at the beginning of the lesson, you can repeat the theoretical material using the presentation and immediately check the correctness of the implementation.

Presentations for organizing both frontal and group work. With the help of presentations, it is also possible to create routes for students, i.e. see the end result of their work. For example, compiling a travel map, or playing by stations.

Presentations for self-testing of knowledge, skills and abilities of students. At any stage, using the presentation, you can carry out independent work, and then students can check it. After completing the work, students can exchange notebooks and mutually check the work.

Advantages of using e-learning tools: digital educational resources: screen and sound manuals; technical teaching aids are

- the ability to repeatedly repeat, stop, which allows the teacher to focus the attention of students;
- refer to theoretical material, make historical references, work with definitions and laws;
- clarity of processes, clear images of installations and models, uncluttered;
- modeling of processes and phenomena;

- Obtaining and analysis of graphic dependence.

ICT outside school hours can be used in the form of: virtual excursions, creative homework: make a crossword puzzle, anagrams, rebuses, a question; work with tests; student conferences.

The use of computer technology in teaching makes it possible to differentiate educational activities in the classroom, activates the cognitive interest of students, develops their creative abilities, and stimulates mental activity.

The use of ICT contributes to the growth of the teacher's professional skills, increasing the efficiency of mastering the skills of independent search, processing and presentation of knowledge, developing the personality of students and preparing for a comfortable life in the information society.

Therefore, the main directions for improving the quality of mathematical education are: increasing the professional competence of the teacher; use in the educational process the integration of the content and cognitive activity of students, i.e. active approach: a) to form skills; b) use computer technologies, modern pedagogical technologies, problem-based teaching methods, research and design technologies; It is advisable to carry out control using ICT in a differentiated manner at the basic level (reproductive), advanced and high

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