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THEORETICAL FOUNDATIONS OF USING THE POSSIBILITIES OF INFORMATION TECHNOLOGIES IN MATHEMATICS LESSONS

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The purpose of using a computer in a math lesson is to develop an interdisciplinary relationship between mathematics and computer science, develop computer literacy, and develop the student's self - study skills in the classroom. The use of ICT in mathematics lessons allows the teacher to save time on teaching materials due to visibility, test students ' knowledge in an interactive mode, develop intelligence, and improve the student's information culture [1].

The concept of using information technologies means using various computer programs and technical means and making them as effective as possible for use. Multimedia technologies can be considered as an explanatory and illustrative method of teaching, which is used to convey educational material to students through the use of vision and to make their perception more productive. The use of multimedia technologies in the classroom does not radically change the structure of the lesson. In the structure of the lesson, all the main stages are preserved for a long time, only their description changes over time. It should be noted that in this case, the motivation period increases and becomes cognitive [2].

This is a necessary condition for the result of learning, because imagination is essential for the creative activity of the student in order to replenish knowledge. Structural convergence of a multimedia presentation with the use of hypertext links develops consistency and the ability to analyze. Thus, the multimedia presentation effectively and effectively corresponds to the didactic purpose of the lesson. In mathematics lessons, you can consider two types of ICT applications:

- multimedia illustrations;
- use the ability of multimedia tools for interactive communication.

When analyzing the basics of the theory of information technology in mathematics lessons, of course, along with the requirements for any subject, subject features should be taken into account.

Computer technologies provide the following opportunities: to gain time in more intensive learning, to make the lesson attractive and diverse, visual, to involve all students in the learning process, to introduce innovations using computer technology, to develop creative abilities and skills of independent work of students.

Today, as practice shows, with the right type and ability to use a set of information technologies, it is possible to achieve the required level of quality of education.

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INTERDISCIPLINARY CONNECTIONS IN EDUCATION: HOW TO INTEGRATE PHYSICS AND COMPUTER SCIENCE

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The modern education system requires innovative pedagogical approaches aimed at fostering comprehensive and systematic knowledge among students. One of the most relevant strategies in this context is the implementation of interdisciplinary integration within the learning process.

Physics and computer science are naturally interconnected through shared methods and tools such as modeling, measurement, numerical data processing, and visualization. Integrating these subjects supports the development of students' critical and systems thinking, while enabling them to connect theoretical concepts with real-life experiences.

Despite often being taught separately within school curricula, the potential for synergy between physics and computer science remains underutilized. The increasing digitalization of education and the growing emphasis on digital literacy further underscore the importance of interdisciplinary teaching [1].

Programming languages—particularly Python—offer effective opportunities for modeling physical processes such as motion dynamics or heat transfer, solving problems using numerical methods, and visualizing results graphically. This approach enhances not only subject-specific knowledge but also promotes algorithmic thinking and analytical skills.

Virtual laboratories allow students to safely conduct experiments without the need for costly equipment. This is particularly valuable for schools with limited resources. One prominent example is the PhET Interactive Simulations platform, which enables students to explore various physical phenomena—such as Newton's laws, electrical circuits, and wave motion—through interactive animations.

Simulations help learners better grasp theoretical content by presenting it through clear, visual models. Moreover, by integrating this platform into computer science lessons, students can be tasked with designing their own simulations to model specific phenomena [2]. This fosters creativity and deepens their understanding of inter-subject relationships.

Through such interdisciplinary activities, students can develop applications that model the motion of objects or thermal processes, gaining deeper insights into physical laws. Processing