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THE IMPORTANCE OF INFORMATION TECHNOLOGY IN TEACHING PHYSICS IN GENERAL SECONDARY SCHOOLS

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ANNOTATION

Implementation of computer models in the educational process using the opportunity of Information Technology in teaching physics in general secondary schools.

Keywords: Experiment, measurement results, applications, models of the company Fizikon, Crocodile Physics, sleeve, phed, virtual, simulator.

The organization of the educational process in general secondary schools using computer technology is reflected in the scientific research of many researchers, highlighting the process of impartial assessment of theoretical knowledge, practical skills and competencies mastered by students in the materials included in the curriculum.

The fact that students are engaged in praktikum classes in physics constitutes the most important and effective part of the process of teaching a physics course. For this reason, the correct Organization of praktikum training, the development of issues related to the problems of its development are of great importance in physics education. The difficulty of developing the methodology of laboratory praktikumi lies in its multicomponent nature, complex character. It is very important that the type of laboratories available in various general secondary school depends on the level of technical support, teaching technology, teaching technology, computer training programs and training programs of the students of the educational institution on the methods of teaching, the form of calculation, etc.

An important place in the study of physical science is occupied by the implementation of laboratory work. During classes on the implementation of laboratory work, students should improve their knowledge, consolidate the theoretical knowledge gained, achieve a deeper understanding and understanding of the basic concepts and laws of physics, develop skills and skills in solving experimental issues, work with physical instruments and devices, as well as measuring instruments, develop skills in observing and developing experimental results. In this, training using new information technologies gives good results. The development of such teaching methods relies on the theory of knowledge, the methodology of the studied science, the psychology of the cognitive process, the didactic processes of teaching and the pedagogical foundations of the upbringing and formation of a person.

In physical education, the knowledge gained through laboratory experimentation has a great swing in terms of its didactic properties. These opportunities should be widely used, especially in the secondary special and higher education stages.

Educational laboratory experiments allow students to study:

experimental acquaintance with the main physical phenomena and their laws;

study of methods for measuring physical quantities in all major sections of the general physics course;

acquaintance with modern measuring instruments;

acquaintance of measurement results with methods for developing mathematics;

the use of a computer in the experiment and the development of its results.

Three main stages of a physical experiment can be indicated:

1. Determining the purpose of the study;
2. Choosing a research method and ways to implement it;
3. Calculation of the results obtained in mathematical methods.

The successful solution of the experimental issues posed in the middle largely depends on the correct choice of the methodology for studying the phenomenon.

The method of studying the phenomenon includes dealing with device details and measuring instruments, features of the device structure and handling of selected measuring instruments, the procedure for performing measurements, as well as methods for optimal analysis of the results of measurements obtained for the selected method. Although Praktikum distinguishes laboratory work from scientific experiments and is called an educational experiment, it resembles scientific research in terms of a number of its characteristics. In the educational experiment, there is also a period of study of the subject, as in scientific research. They also include the processes of conducting design and measurements of the device, as well as generalizing the measurement results again. The reader should definitely have a clear idea of the structure and principles of operation of the instruments being used. It is reflected in the methods of conducting physics praktikumi classes and the volume of measurements. From the knowledge included in the Praktikum assignments, the reader should be able to clearly imagine in which areas he will be able to use practical in the future.

The use of information technology is of great importance in increasing the effectiveness of the sessions of the experimental practice of physics.

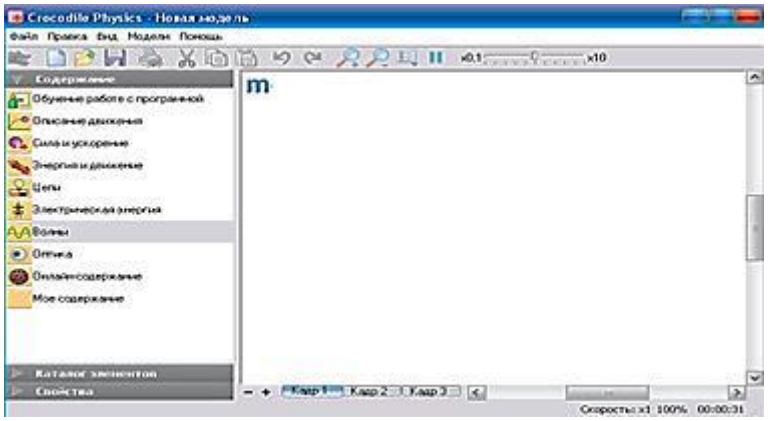
When using a computer, interest in Physical Science increases.

It is possible to spend the saved physical effort and time on the creative development of training.

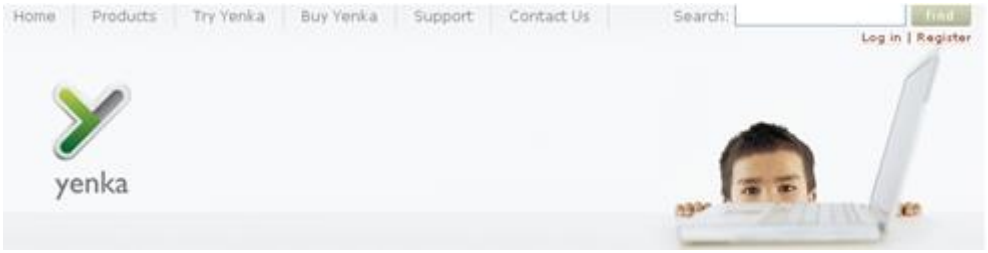
In the educational system, in the programs of the Fizikon company, there are ready-made models, in which the user can widely use several categories of work (laboratory work, estimation of issues, use of his animations in explaining a new topic) by entering the initial parameters. In addition to this type of dasur, there are also other types of software packages through which the user will be able to model certain physical processes himself. It is in teaching physics that such packages of programs are an important pedogagic weapon for the formation of thinking skills in students.

Applications that allow modeling of physical processes:

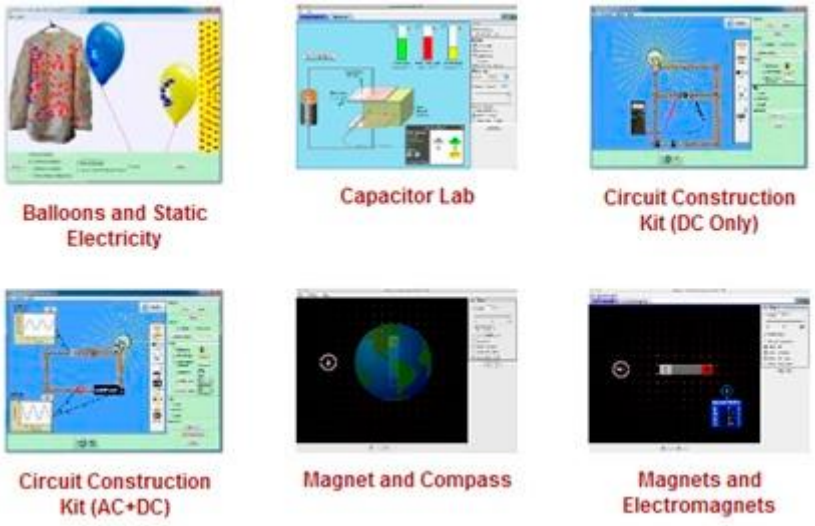
Examples of MatCad, MatLab, Maple, Matemateka systems, Crocodile Physics, Electronics Workbench, Interactive Physics and other application packages can be given.



(1. picture. Crocodile Physics program)



(2.picture - http://www.yenka.com website Internet Browser)



(3.picture.- In the PhET program)

The use of computer models in educational processes using the possibility of Information Technology pays off. The principles of applying computer models in educational processes are as follows:

1. The computer program should be applied when the experiment cannot be carried out or the experiment is moved beyond observation.
2. A computer program should help in determining the detail under study or in the illustration of the issue being addressed.
3. As a result of the work, students should be able to see both qualitative and quantitative links of the magnitudes characterizing phenomena using the model.
4. The task of students when working with the program is to work on tasks of various difficulties, as this allows you to work on yourself independently.

Today, the use of modern Information Technologies, which differ from the traditional appearance of teaching, provides an opportunity to achieve high efficiency. Regarding the teaching of physical science, it is important to develop in the minds of Students (Students) effective techniques for the formation of representations of the model regarding theories, familiarization with phenomena and processes.

When planning a physics lesson, it is necessary to use the computer curriculum correctly, since computers can be applied in any lesson. Therefore, it is essential to know when and how to use the computer when planning it and achieving a positive result. With the application of a computer program, the lessons taught on a computer give a better effect than a simple lesson. This will ensure the timely implementation of the training plan.

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