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Animated Teaching of Physical Processes to School children

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Annotation. New modern technologies and equipment, ie digital measuring instruments, virtual laboratories, animations, electronic textbooks in all subjects, lectures, laboratories and practical classes in the educational process in general secondary schools. , as well as the use of multimedia tools based on them, as well as the effective organization of websites, various scientific-practical, spiritual-enlightenment conferences held at school to increase the effectiveness of education. is becoming increasingly important.

Keywords: physics, physical processes, computer, information technology, animation, multimedia tools, multimedia, education, electronic means, technology, teaching.

Introduction

In recent years, in connection with the development of computer technology, new forms of lesson organization are emerging. One of the most widely used practices is the visual explanation of physical processes that are difficult to observe using special software on a computer through electronic textbooks, animations, virtual experiments, and presentations. These electronic tools are used to teach students about physical processes, electronic textbooks, animations, virtual labs, and experiments in science teaching. In particular, in modern secondary schools, new modern technologies and equipment, such as digital measuring instruments, virtual laboratories, animations, e-textbooks, as well as the use of multimedia tools based on them, as well as the effective organization of websites, various scientific, practical, spiritual and educational activities in the school to increase the effectiveness of education. the importance of reef conferences is growing.

In short, each of the practical classes taught in general secondary schools focuses on the animated teaching of physical processes. Physics has ample opportunities to develop as a subject. The fact that this subject is the basis of all technical devices is determined by the large number of opportunities to apply the acquired knowledge in real life. At the same time, the process of studying physics is carried out at all stages of student learning (observation, hypothesis, experiment, observation and generalization of results). The purpose of this is to increase the knowledge of schoolchildren in information technology at the same time as physics.

Literature analysis and methodology

Independent observation, experimentation, generalization of experimental results, and teaching students to use textbooks, manuals, and other additional literature play an important role in the study of physical phenomena. The use of computer technology in the teaching of physics and the use of multimedia tools based on them are of great pedagogical and psychological importance and lead to the following important results:

- The educational process will become more active and the effectiveness of lessons will increase;
- The presentation of educational materials in various forms attracts the attention of schoolchildren;
- High-level animated lessons are of great interest to schoolchildren in the subject they are studying;
- Ensures long-term memory of the studied material;

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- The opportunities for independent learning of schoolchildren will increase and the problem of time constraints will decrease.

From year to year, the provision of conditions and technical means for the organization of lessons using modern information technology in the educational process is growing rapidly. The school's educational environment includes a physics classroom and computer classes. Information resources for animated teaching of physical processes to schoolchildren are used: personal computer, projector, multimedia, scanner, video camera, printer, copier and special software.

Results

When physics is taught in isolation from production, students do not understand why it is needed and why it is necessary to study it. It aims not only to increase students' interest in physics, but also to strengthen their polytechnic training by developing their technical activity, highlighting the role and importance of scientific and technical achievements in modern production.

Examples of programs that allow you to model physical processes are: MatCad, MatLab, Maple, Crocodile, Physics, Electronics Workbench and other software packages. The education system has ready-made models in the above-mentioned programs, in which the user can enter a number of tasks by entering the initial parameters. The use of computer models in the learning process, taking advantage of information technology, is paying off. The principles of using animated physical processes in the learning process are as follows:

- computer software can be tested;
- a computer program helps to identify the detail being studied or to illustrate the problem being solved;
- As a result of the work, the student should know the qualitative and quantitative relationships of the quantities that describe the events using the model;
- Information technology or physical knowledge is widely used for computer modeling of physical processes.

Discussion

Another way to engage students in the process of teaching physics is through physical experiments during the lesson, in which students observe the physical processes in nature until the students themselves study physics. However, as a result of these observations, not all students are able to draw the right conclusions about their essence, of course. Also, not all students have seen all the processes that take place. Therefore, it is necessary to demonstrate specially organized physical experiments in the classroom within the school environment. Well-organized, demonstrated and interpreted experiments in physics allow the student not only to learn the structure and operation of instruments, but also to observe the laws in them. Physical education also stimulates students' interest in the subject.

Also important aspects of modeling are that you do not have to prepare different tools, depict events in a vivid and natural way, repeat the experience at any time in a short time, demonstrate processes that are difficult to observe and can not be observed at all. will be able to eta. Computer-assisted training is more effective than regular training. The use of computer programs in the teaching of physics, animated classes are convenient for the teacher and the student, and have a good effect on understanding the mechanisms and stages of physical processes.

Conclusion

Demonstration of the mechanisms of physical processes, their presentation in lectures, practical and especially experimental classes, and the conduct of these cases on the basis of computer technology are factors that increase the effectiveness of teaching students and developing skills in the basics of science. lib.

In conclusion, as a result of the use of the above programs in lectures and practical classes, it is possible to demonstrate the necessary information to teachers and students in a short time. This is an important factor in improving learning efficiency.

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