

THE IMPORTANCE OF COMPUTER TECHNOLOGY IN TEACHING BIOLOGY

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Abstract:

This article provides information on improving students knowledge through the use of information technologies in teaching biology, and the advantages of using computer technologies in biology classes.

Keywords: biology, teaching methodology, computer technologies, information, education.

Introduction

The use of pedagogical and information technologies is defined as an important task in the normative documents adopted in order to increase the effectiveness of the teaching process organized in the continuous education system. In fact, in the era of globalization of information, increasing the effectiveness of teaching using pedagogical and information technologies in the educational process is considered an urgent problem. In order to use information technologies in the teaching of natural sciences, including biology, it is necessary to take into account the specific features of the content of biology education. By using information technologies in teaching biology, it is possible to develop students learning motives, organize differentiated education, control and evaluate students acquired knowledge, organize independent and creative research.

Information technologies used in teaching biology perform the following tasks:

1. The educational task is to provide students with comprehensive knowledge of basic and additional materials on the subject, basic concepts and their explanations, various tables, diagrams, experiments of a complex scientific and industrial nature there is an opportunity to give.
2. The task of guiding the educational activities of the students - while working with educational, modeled and control programs that are products of information technologies, as well as animations, these programs organize the cognitive activities of students and It also includes management, that is, it directs students to get deep and solid knowledge.
3. Demonstration function - unlike other teaching tools, information technology; Animations with products have an invaluable role in the teaching process, as students have the opportunity to immediately describe biological processes in motion and dynamics.
4. Control task - all forms of biology education: control and assessment of students acquired knowledge, skills and competences in lessons, extracurricular activities, extracurricular



activities, as well as at all stages of the biology lesson, accuracy of control, implements regularity, comprehensiveness, reproducibility.

5. The task of the developer is that according to the level of difficulty of the educational tasks in the programs of controlling the acquired knowledge, skills and abilities of the students: reproductive, productive, partially-exploratory and creative, the students knowledge of the tasks, increases his desire to complete the tasks of the next stage in accordance with his needs and interests, creates an opportunity to develop as a person by creating a foundation for solid mastery of the basics of science.

6. Educational task - as a result of students work with information programs, educational and mental work skills are developed.

7. The task of developing a scientific worldview is to study nature and its objects in 2 worlds: macro and microworld, according to its content, biological science, in most cases, microworld: cell, tissue process, chemical elements molecule, atom structure , for example, by learning materials about matter and energy metabolism, photosynthesis, protein biosynthesis, biotechnology and genetic engineering through animations, abstract thinking and scientific outlook are developed and ultimately broadened.

Taking into account the above-mentioned functions of information technology in teaching biology, determining the ways of using it in the educational process and putting it into practice is considered one of the urgent problems of today. The use of information technologies in the teaching of the subject of biology prepares the ground for the implementation of the following didactic goals:

1. Information technologies create a basis for the collection, sorting, didactic processing, distribution and use of educational material that enables the realization of the educational, educational and developmental goals envisaged in the teaching of biology.

2. In accordance with the talent, needs, interests and educational motives of each student, it is possible to determine the learning trajectory and pace, and if necessary, to repeatedly use information programs.

3. It fundamentally changes the structure of biology lessons, the course of the lesson, the character, the cognitive activity of students from the object-subject relationship to the subject-subject relationship, that is, students become an active participant in the pedagogical process to achieve educational goals.

4. Prepares the ground for the development of independent, creative, logical and systematic thinking skills in students.

5. Virtual demonstration of experiments in cases where it is not possible to implement them at the educational institution (the necessary equipment is not available, the experiments conducted are harmful to the health of students, they are long-lasting, learning the technologies of production enterprises) allows.

6. It prepares the ground for the development of students creative abilities, the activation of students learning activities, and the acquisition of learning motives.

7. In order to determine the effectiveness of the educational process, there is a feedback, that is, an opportunity to determine and evaluate the acquired knowledge, skills and abilities of students in a short period of time.



One of the important tasks of a teacher working in the continuous education system is to increase students interest in mastering the basics of science, and to ensure their perfection during the development of independent and creative thinking skills. Information technology products play an important role in solving these problems. Lessons using information technology products are rich in information, interactive, effective use of time, each student learns at his own pace, and the teacher is differentiated with students and an opportunity to implement individualized education is created, and at the same time, it creates a basis for monitoring and evaluating the results of teaching. Students will not have the opportunity to directly observe the processes related to cell, tissue, chemical elements, molecule, atomic structure, matter and energy exchange, photosynthesis, protein biosynthesis, biotechnology and genetic engineering in the content of biology gives the result.

students will be able to create, abstract and memorize the processes of cell, tissue, chemical elements, molecule, atomic structure, matter and energy exchange, photosynthesis, protein biosynthesis;

provides the opportunity to repeat learning and fill gaps in students knowledge in necessary cases, taking into account students motivations and level of mastery;

virtualization of biological processes in the form of animations prepares the ground for students to think visually and fully master the educational material;

the use of animations in the biology lesson leads to the activation of students cognitive activity at all stages of the lesson.

Realizing the possibilities and importance of didactic games, modular, problem-based learning, cooperative learning technologies used in biology teaching at a special methodical level, information technology, organization and management of students cognitive activities, demonstration, o Possibilities of combining functions such as controlling and evaluating students knowledge, activating students cognitive activity and increasing their interest in lessons were given in the form of a table. As can be seen from the table. In conference classes based on didactic game technology, it is not possible to implement this function because the cognitive activity of students is organized and controlled according to the plot and rules of the game, but the information technology provides information, demonstration, control of students knowledge and it is possible to implement such functions as assessment, activation of students cognitive activity and increasing their interest. Due to the fact that in the presentation lessons of didactic game technology, students think about the actual problems of a specific chapter or subject, it will not be possible to implement the functions of information technology, such as information source, organization and management of students cognitive activities. Since students solve creative problems in game classes, all the functions of information technology can be implemented. The game belonging to didactic game technology involves monitoring and evaluating the knowledge, skills, and abilities acquired by students in exercise-based classes due to the eclipse, information technology will not have the opportunity to perform the function of information source. All the programs of modular educational technology are used in lessons to fully implement the functions of information source, organization and management of students cognitive activities, demonstration, monitoring and evaluation of students knowledge, activation of students cognitive activities and increasing their interest.



Conclusion:

In these lessons, the biology teacher should store the module program and modules created based on the content of the subject in the computer memory, program the questions of the module program and the content of the modules to be displayed sequentially during the lesson. In the classes using the method of teaching in small groups of cooperative teaching technology, the biology teacher explains the topics that are difficult for the students to master, and it is assumed that the students will master the factual and additional educational materials independently that is, it can perform such functions as a source of information for a specific part of the subject, organization and management of students cognitive activities, demonstration, monitoring and evaluation of students knowledge, activation of students cognitive activities and increasing their interest.

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