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The Role of Effective Use of Information Technologies in Teaching Natural Sciences

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ABSTRACT

This article focuses on the enrichment of biology with various creative ideas in connection with information technology, the development of theoretical and practical knowledge competence, the use of specific methods of the educational process through the application of animated simulations in the educational process, theoretical and practical cooperation. to establish.

KEYWORDS: Competence, live cards, 3D, modeling, animation, virtual lab, platform, computer graphics, creative mode, simulation

Today, the training of qualified and well-rounded personnel has risen to the level of state policy. Given the current opportunities for education, collaborating with information technology and the natural sciences will certainly lead to a collaborative solution to address a number of issues in a positive way. Among the many disciplines, the development of chemistry and biological sciences, improving the quality of education and the effectiveness of science in these areas has been identified by the President as one of the priorities of the State Program.

In-depth training of our students, the younger generation in chemistry and biological sciences, the establishment of new production facilities in the regions, the rapid development of the food industry, schools and kindergartens, as well as our young people in higher education. our main goal should be to nurture a strong and able to think freely in a variety of creative ideas. In the end, our people will lay a solid foundation for improving the living conditions and incomes of our children, who are our future, and for them to stand shoulder to shoulder with the youth of the world and make a worthy contribution to the development of our country.

At the same time, given the fact that the quality of teaching chemistry and biology in secondary schools does not meet modern requirements, some of the teaching methodologies and laboratories are outdated, a new unique approach to teaching among students we need to put it in order. The age we live in is the age of globalization and new ideas, and the connection of the natural sciences with information technology is yielding fruitful results.

That's when I remembered Albert Einstein's wonderful phrase, "Theoretically, when everything is known, but nothing works. In practice, everything works, no one knows why. We combine theory and practice. ”

Based on the above considerations, let us try to combine our theory and practice in some way in the methodology of teaching our natural sciences. That is, we know that the subjects we teach are divided into theoretical and practical parts. This allows you to practice all the

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topics, to understand the topics being understood more fully, in a broader context. To do this, students will gain in-depth knowledge and skills in biology based on computer models, along with the use of modern tools in the study of science.

According to the concept of development of the public education system until 2030, the development of didactic materials and multimedia products for the study of foreign languages, exact and natural sciences, the creation of electronic textbooks on biology is the most relevant and searchable is one of the main issues. Resolution of the President of the Republic of Uzbekistan No. PP-4805 of August 12, 2020 "On measures to improve the quality of continuing education and scientific efficiency in the field of chemistry and biology" is aimed at solving this problem. Well, it depends on how you look at it and research and create news. We are currently interviewing students on a variety of topics with varying degrees of difficulty. As the teacher listens, the student interprets the topic from his or her own perspective. Explaining the topic using animations, videos, virtual labs, and a variety of programming techniques creates a unique creative atmosphere in the audience, broadening the horizons of understanding and imagination.

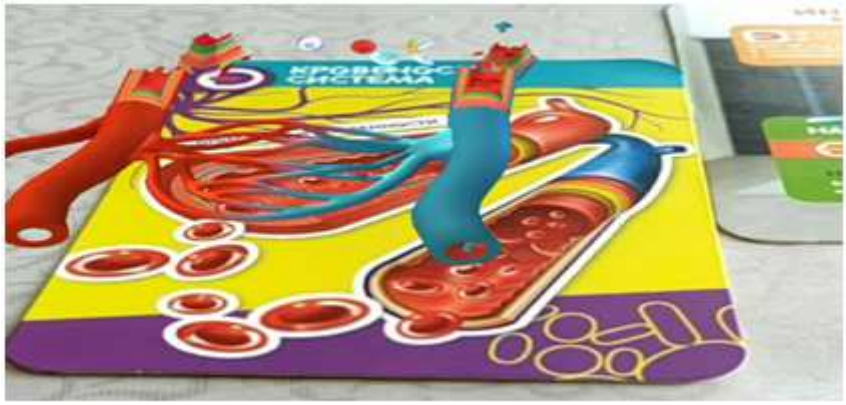
From a scientific point of view, we need to use different types of information technology competencies, virtual laboratories, visual animations in the field of science. Based on photo and animated graphics, it serves as a bridge to develop scientific and creative opportunities in the student audience.

These include:

1. Such methods allow to model the received information.
2. Visual animations of the data are formed.
3. Audio, animated simulations allow the use of cognitive technologies in educational materials.
4. Animation analysis using 3D images in the learning process is the basis for the use of methods.

Practical examples

1. Description of the process of the circulatory system.



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2. The image of the metabolic process in the skin in the human body.

Conclusions and practical suggestions

Radical improvement of the quality of education in chemistry and biological sciences, the introduction of a completely new system of teaching these subjects in secondary schools today, the provision of educational institutions with modern laboratories, textbooks and other teaching equipment, Involvement of qualified teachers and trainers in these areas, training and implementation of effective use of scientific results in education, close dialogue and cooperation between industries

In order to form quality educational resources in students, we need to establish a link between each topic in virtual laboratories.

Students should have practical skills to explain each topic with practical examples and expand their creative understanding.

It is a good opportunity for students to master the topic independently.

The sciences associated with technology will stimulate social and economic change, increasing the demand for skilled, self-employed personnel.

Creates independent and creative research in the teaching of biology, along with the organization and management of students' learning activities and stratification.

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