

Use of Information and Communication and 3D Technologies with Elements of Healthcare in Biology Lessons

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Abstract - The article analyzes the possibilities of using modern information technologies and developed recommendations for compliance with the elements of health savings when using these technologies.

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In the modern world, as in Uzbekistan, health is one of the most important components of human well-being, happiness, one of the inalienable human rights, one of the conditions for successful social and economic development of any country. Therefore, this problem can be called a global problem of our century.

Health-saving technologies are a combination of techniques, methods, techniques, teaching aids and approaches to the educational process.

High technologies penetrate deeper and deeper into the everyday life of society every year. Multimedia, interactive, mobile and 3D technologies have created the Digital world with new types of communications. 3D technologies in education make it possible to diversify lessons and lectures, make the educational process effective and visually voluminous. The use of 3D content in the classroom makes it possible to clearly explain the school curriculum to students, promotes "immersion" in the subject of the subject studied during the lesson, and allows you to move mobile from the whole structure to its individual elements, from complex to simple and vice versa. Interactive educational content for secondary school education consists of a combination of tests, 3D-video, modeling, virtual laboratories, interactive tasks, games, as well as texts,

images and hyperlinks. The advantages of using 3D technologies are as follows: equips teachers with high-quality teaching materials, thus saving time on explaining complex concepts, visualizing "complex" topics of the school curriculum helps students better understand the material being studied, incorporating 3D (three-dimensional models) of processes and objects into traditional methods of teaching introduces innovation into the "routine" learning process, increases motivation for learning, facilitates the systematization of knowledge, helps to absorb more information, which positively affects the results of tests and exams.

Users of 3D technologies have the opportunity to study in detail both the external and internal characteristics of stereoscopic models, in addition, it is possible to travel along the nervous or digestive systems, separate the muscles in layers or penetrate into the cell, remove external shells for a detailed study of the insides of the object, and put your own labels on separate parts for a deeper understanding of the object. Interactivity is an important teaching method, since biological objects are very difficult to visualize. One of the promising educational technologies is "Virtual 3D-simulators". These are interactive 3D application models of technical devices or processes with built-in tasks and

scenarios, with the possibility of distance education and control. They not only have the advantage of a three-dimensional presentation of information, but also allow the student to interact with the virtual environment.

Examples of using 3D technologies in biology classes include the following: showing complex topics and lessons, thematic lessons and lectures; students create their own 3D images and 3D videos, students write 3D projects, presentations and works, organize extracurricular activities, interest clubs; holding contests and other events, quote.

These opportunities can be effectively used in biology classes, for example, in the lesson in the study of the new topic "Respiratory system organs". The use of a training video in 3D excites the student's interest in the material being studied. With the help of three-dimensional graphics, children see how a complex biological process proceeds inside our body, which we cannot see in real life. This video clearly shows the work of the respiratory system. In the process of 3D-learning, the student becomes a participant in the events and receives much more educational information. In biology classes, you can use Maxim - III simulator of cardiopulmonary and cerebral resuscitation. This simulator connects to a laptop on which an animated computer program is installed and through a multimedia project is displayed. Students monitor the first aid process. At the same time, you can see on the screen those mistakes that they can make when doing practical work. The simulator allows you to control the correct position of the head and unfastened belt, the correctness of indirect heart massage, the adequacy of the air flow during mechanical ventilation, the correctness of resuscitation of the victim by one or two rescuers, the condition of the pupils of the victim.

The 3D image allows the teacher to show the model not only in volume, but also from different angles, pay attention to the anatomical structure of the organ, work with terms, basic concepts, find these terms in a textbook and write them in a notebook. Thus, the teacher remains in the spotlight, controls the class, the views of the students are turned on him. If we consider the model of the stomach in the context, then we can distinguish several layers: the inner layer is the mucous membrane, as well as the submucosa. They are responsible for the production of enzymes and gastric juice, the absorption of certain substances. The middle layer is the muscle layer. Its purpose is to reduce walls, grind and mix food. The outer layer of the stomach is called the serous layer. Describing the internal structure of the stomach, the teacher raises a problematic question about

the significance of each layer, about the interaction of the cells of each layer with each other.

But there is a more significant problem, that is, how to use 3D technologies with health-saving elements. Children's developing body has its own characteristics. All these features are very important to consider when landing a student at a computer, at a desk, as well as when conducting lessons using an interactive whiteboard.

Education is hard, universal work that should be organized in the optimal mode of combining mental activity and discharge, changing activities, and taking into account the individual characteristics of students. Using computers and 3D technologies can sometimes do much more harm to the health of a growing body than in a regular lesson. The concept of technology of health saving is too broad and in the lesson to the maximum use the methods and techniques of teaching, which, if done, can create conditions for the maximum saving of the student's health. What should a teacher do to ensure safe cooperation between a child and a computer in a computer class? First of all, these are working conditions. It is very important to observe the temperature regime, to choose comfortable furniture. Computers should be installed in accordance with the standards, excluding to a minimum the effect of electromagnetic radiation on the child. The office should always be bright and fresh. The student, entering such an office, is, without any doubt, attuned to creative and fruitful work. The main task of pedagogy is to develop this attitude, not allowing it to fade during the lesson. After the call, during the organizational moment, when creating a working environment in the group, I try to catch the psychological state of each student: it is not known what problems he came from home with, who managed to quarrel at a change, who to be offended by. The favorable emotional climate created in this way is maintained throughout the lesson. Given the requirements of health-saving technologies, in order to maintain the health of students and work effectively in the lesson, dynamic pauses, physical minutes, and relaxation minutes are required. To relieve visual stress while working in a notebook or at a computer, I recommend that students throughout the lesson, with the first symptoms of eye fatigue, look away for a few seconds. After several lessons, they develop a stable habit, which in the future will help preserve visual acuity. In the lessons, it is necessary to perform the simplest exercises for the eyes, which must be included in the physical education session when working with a computer, with an interactive whiteboard, as they not only serve as a preventive measure for visual impairment, but also are beneficial for neurosis, hypertension, and

increased intracranial pressure. Charging for the eyes is not always standard: it offers children not only instructions for removing eye fatigue, but also stereograms. They are known to be recommended to people who work a lot at the computer. With their help, the eye muscles are strengthened, eye fatigue is excellently removed. Children love to identify the image hidden in the picture. An element of rivalry begins to be present at the lesson, in which charging for the eyes is not perceived as a serious stage of the lesson. On the Internet, the number of stereograms is not limited, and there are plenty of programs to create them. When fixing the studied material, various game moments are used to diversify the types of activities in the lesson and help students learn new material more easily. Some students find it difficult to remember even well-understood material. It's very useful for this and I try to develop visual memory, use various forms of highlighting the most important material (emphasize, circle, write in a larger, different color). All students in the class make several movements during the lesson. Thus, the conditions are created: for a variety of educational activities, the creation of emotional discharge, the activation of students' motor activity in the lesson, the alternation of sitting and standing positions, which helps prevent posture disorders.

In conclusion, it should be noted that at the present stage of the development of the education system, the regularity is clearly expressed that the learning process can in no case be built on the resources of the child's health, but should be aimed at its preservation and elimination of violations in the children's health, which should be achieved selection of appropriate pedagogical technologies.

REFERENCES

- [1] Bondar A.V., Lis P.A., Sliz V.I. Management of educational clusters in the context of the implementation of the concept of electronic government // Digital Transformation. - 2017. - No. 1. - S.24-30.
- [2] Vankevich E.V., Kastel-Branko E. Information and analytical system of the labor market and forecasting the need for personnel: content and directions of formation in the Republic of Belarus // Belarusian economic journal. - 2017. - No. 2. - S. 73-92.
- [3] Kupriyanovsky V. P., Sukhomlin V. A., Dobrynin A. P. et al. Skills in the digital economy and challenges education systems // International Journal of Open Information Technologies. - 2017. - Vol.5, no.1.
- [4] Leonovich, A. N. The use of human resources for the formation of an innovative environment // Labor and wages. - 2018. - No. 2. - S.4-12.