

**INFORMATIZATION OF EDUCATION IS A NEW OPPORTUNITY FOR TEACHERS
AND STUDENTS (AS AN EXAMPLE OF TEACHING HOW TO SOLVE
CALCULATION PROBLEMS IN THE TEACHING OF CHEMISTRY)**

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Annotaciya

Ushbu maqolada maktablarda kimyo fanini o'qitishda masalalarni echishni o'rgatishda axborot texnologiyalarini qo'llash imkoniyatlari yoritilgan.

Аннотация

В данной статье рассматриваются возможности применения информационных технологий при обучении решению задач при преподавании химии в школах.

Annotasia

This article covers the possibilities of the application of Information Technology in teaching the solution of issues in the teaching of chemistry in schools.

Kalit so'zlar: axborot texnologiya, electron nashr, Noorganik moddalarning asosiy sinf birikmalari, proporcya usuli, o'z-o'zini o'qituvchi.

Ключевые слова: информационные технологии, Электронная издание, основные классовые соединения неорганических веществ, метод пропорций, самоучитель.

Key words information technology, electron publication, basic class compounds of inorganic substances, proporcja method, self-teacher.

Enter

Relevance of the study. By the laws "On Education" and "On the National Program of Personnel Training", ensuring the continuity and consistency of the teaching of general education subjects, creating a modern methodology, developing a new generation of state educational standards, and organizing their implementation. for the decision No. 187 of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 "On approval of state educational standards of general secondary special vocational education" (1), Natural science education has always taken a leading place in the processes of education, upbringing and development of students [3]. Its

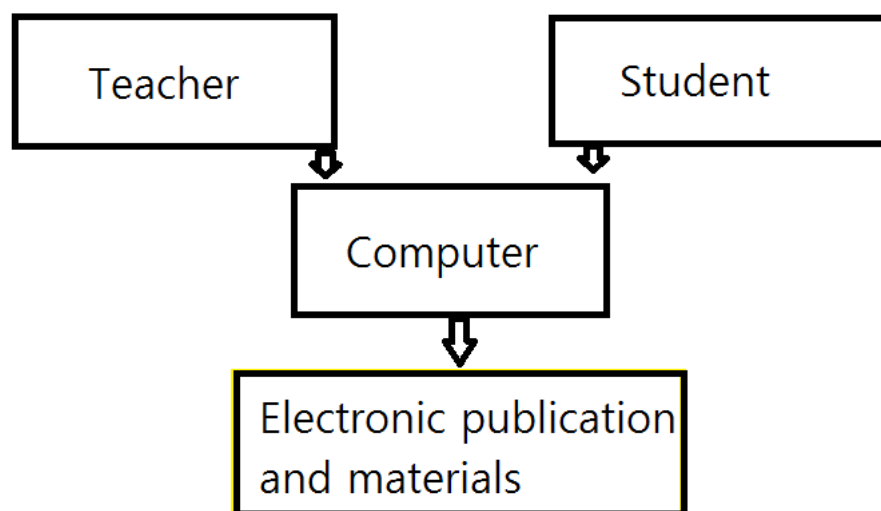
important component is chemical education, and its effectiveness and quality can be increased without acquiring the skills to solve chemical problems. it is impossible to stand. [4]. Currently, in the system of public education, it is necessary to deeply study the application of the latest achievements in the field of modern methods of organizing the educational process to the science of chemistry and to introduce modern educational technologies to the teaching process. This shows the need to radically update the state education standards, curricula, programs, and methods of chemistry. At the same time, the use of information and communication technologies and new generation educational literature, as well as the development of new forms and means of knowledge transfer, to increase the activity of independent work of students in modern educational conditions in the teaching of chemistry, to further develop their creative abilities. Knowledge and experience of information and communication technologies (ICT) and their use in the educational process provide students with high knowledge, intellectual potential, and mature skills. It is necessary to create a system for improving the efficiency of chemical education based on the creation of electronic publications in chemistry aimed at improving the continuous education system in the development of students' training based on information and communication technologies. For this reason, the development of instructional manuals and recommendations is one of the most pressing problems of today (2). In each of these documents, directions for the development of education in our country are indicated, and priority tasks are defined according to their stages. It is impossible to fulfill the tasks without using new methods and educational tools in which the information technologies of education play an important role [5,6,7]. Recently, the use of information technologies in the educational process has increased dramatically. Today, the informatization of the education sector is fundamentally gaining a new functional goal: the task of mass use of information technologies at all stages of the educational process is in the first place.

Material and methods

Using information technologies in solving problems in teaching chemistry in schools, "Chemistry: for schoolchildren (use of an interactive method in teaching solving problems related to the main classes of compounds of inorganic substances using the proportion method) self-education" electronic opportunities to use the publication, tracking; to have pedagogical experience with the analysis of personal experience, interviews, interrogations, analysis of received data.

Research results and their discussion.

In modern conditions, it is necessary to clearly imagine the role of computer technologies in the educational process. The emergence of each new means of storing, transmitting, and using information leads to the emergence of a new educational model and its dominant position in society, and the more perfect the educational tool, the faster the process of formation of the model. It can be seen that the computer with the above-mentioned function is several times more perfect than large tablets and books. On this basis alone, it can be asserted with sovereignty that computer technology will ultimately lead to a change in the educational model that dominates today. And these changes can happen much faster than now. The new educational model can be imagined as a combination of four components in the educational process. Computer (source of information, teaching, practice, control) - teacher (selecting materials for teaching, organizing group and individual work, managing the process of independent learning activities of students, organizing objective forms of control) - educational information materials (traditional, electronic) - the student performs tasks (perception and assimilation of educational material,



independent work, self-control) (Fig. 1).

Figure 1. Interaction scheme of teacher, student, computer, electronic publication, and materials.

As can be seen from the above diagram, the use of EN teaching reduces the importance of the teacher in the educational process and only changes his functions [8,9]. Not a single electronic publication can completely replace it yet [10]. It is possible to change the place of both of them

only in the absence of a teacher to a certain extent. With the advent of the computer, the boundary between the classroom and independent work began to disappear, a new form of educational activity based on self-assessment was formed, and all educational components were integrally connected. [11,9]. Working with a personal computer implies independent learning. However, this does not rule out conducting lessons in the computer classroom under the supervision and meaningful participation of the teacher. On the other hand, the computer is considered to be an intelligent device capable of performing the functions previously characteristic of a teacher, which can ask questions and receive answers on specific topics in the field of science [12,13]. The learning process in the classroom and at home is divided into small parts, which can be associated with independent learning or communication with the teacher [14]. Such areas are teaching to solve chemical problems.

Using the electronic publication "Chemistry: for schoolchildren (using an interactive method to teach solving problems related to the main classes of compounds of inorganic substances using the method of proportions) self-education" expands its possibilities, and students' mental activities provide new tools for independent formation of performance skills. The research was conducted in 2022 with students of schools No. 17 and No. 23 of the city of Nukus, Republic of Karakalpakstan. According to the results of the research, the opportunities of the teacher who uses the computer to solve chemical problems in schools have significantly expanded: this can be justified by the fact that his audience is significantly expanding, it is no longer limited to a class of 25-30 people. As students' capabilities expanded, they analyzed the solution to the problem an infinite number of times, comparing it with the one they came up with.

As a result of the experiment, to learned to solve problems in the educational process, both in the classroom and in extracurricular activities. It was found that the possibilities of using electronic publications for self-study are also used by students when doing homework and preparing for exams. In this way, the "student-computer" interaction system was developed, and methodical approaches to its application were formed. At the same time, the analysis of educational-methodical and scientific literature on the topic of research was continued, assumptions were made and some laws were identified. In this case, it was found that even if there is only one computer in the classroom or the display classroom, EN can be used during the explanation in a regular lesson. Chemistry: for school students (using an interactive method to teach solving problems related to the main classes of compounds of inorganic substances using the method of proportions) self-study e-edition manual useful for parallel work in small groups it has been.

Attitude of students to learning to solve chemical problems with the help of computer technologies. 1. I liked working - 88. 2. I did not like working - 5% 3. The idea did not work - 7%. Later, this assumption was confirmed experimentally.

Summary

Thus, learning with the help of information technologies has expanded the possibilities of information exchange, new forms of education have appeared, the assimilation of knowledge by students has been activated, and qualitatively new for learning and self-education. opportunities have been created.

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