USE OF INNOVATIVE TECHNOLOGIES IN TEACHING CHEMISTRY AS A MEANS OF IMPROVING THE QUALITY OF TRAINING

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ABSTRACT

This article discusses the main directions of development of education. A new education system is being formed. Project technology that focuses on the training of a particular student requires a personal-oriented approach from me, a school teacher, in the educational process.

KEY WORDS: *technology, methodology, coordination, approach*

DISCUSSION

The main directions of education development are currently being discussed. A new education system is being formed. The key characteristic of this system is the formation of students ' creative competencies. The effectiveness of the educational process is determined by pedagogical technologies. The modern educational process is unthinkable without the search for new, more effective technologies that contribute to the development of students ' creative abilities.

Educational technologies have a huge potential for improving professional skills and achieving the goals that society sets for the education system:

• prepare the young generation for independent life and professional activity;

• educate students as citizens with a high degree of personal maturity;

• Orient students to humanistic values in solving any problems;

• Develop the ability to critically evaluate and present your achievements.

Technology (from the Greek word techne – art, skill and logic-science) – a set of techniques and methods for obtaining and processing materials.

Educational technologies are a set of operations for the construction, formation and control of knowledge, skills, skills and relationships in accordance with the goals set.

The material of the chemistry program does not develop creative thinking activity. The chemistry teacher faces the problem of how to develop students ' creative abilities and form creative competencies.

At the heart of teaching the subject of chemistry, I use a system of combining innovative technologies. Among them: technology of problem learning, technology of multi-level learning, technology of game learning, project technologies, technologies of integrative learning, technology of knowledge control, educational reflection of students.

As a teacher, I set a goal: to develop a child's creative thinking

Tasks:

• Use of modern educational and educational technologies in accordance with age and psychological characteristics.

• Designing an environment for self-realization and self-actualization of the individual.

• Co-management and self-management in achieving the goal of each lesson.

To solve these tasks, I use a person-oriented approach and a system of combining technologies.

In the process of applying pedagogical technologies, I am guided by the principle of creating success in learning. W. Glasser notes, "that a person

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will never succeed in life in the broad sense of the word, if once he does not know success in something important for him." Students from different schools who have not always been successful in studying the subject of chemistry come to the College. Having crossed out the past failures of students in the study of chemistry, I suggest that they test their capabilities at the present time. In working with such students I focus on their achievements on in each lesson, I encourage them to strive for success. Creating a situation of success encourages the student to achieve more and more success. Technology of problem-based learning.

Training goals: - activation of students ' thinking;

- Formation of interest in the subject being studied.

One of the most common methods of activating the activity of students is to pose a problem during a lecture. This can be done using a question, a question system, tables, diagrams, drawings, and photos. Working on a problem solution is sometimes more valuable than the solution itself and is successful when a problem situation arises, i.e. the student experiences an intellectual difficulty that directs his mental activity to solve the problem. There are various options for setting and solving the problem. The teacher sets the problem and solves it himself, presenting the lecture material, while the students seem passive outwardly, but the processes of understanding, acceptance, and memorization can take place intensively inside each of them. During the lecture-conversation, the teacher poses a problem and offers to solve it together with the students, by structuring, systematizing the answers and statements of students, leads them to the General correct conclusions. Also, with good training of students, problematic issues can be solved in small groups.

Problem-based learning permeates the entire chemistry course. Each lesson can become problematic. The teacher sets the problem and leads the students to its solution.

So, for example, when studying the structure of organic substances, I suggest that students independently solve the problem – how does the presence of single, multiple bonds, functional groups affect the chemical properties of organic substances? Students are asked to predict the chemical properties of these organic substances and, if possible, write down the reaction equations. I start studying the topic "Glucose" with the glucose formula. Students find out what functional groups are present in its structure? The glucose molecule has an aldehyde group. Students solve a problem, if it is, then why it does not react with faxencerie acid? In the glucose solution, there are molecules not only with an open chain of carbon atoms, but also cyclic. Molecules with an open chain of carbon atoms are not enough for them

to manifest themselves in the reaction with fuxinsuric acid.

Posing a question does not always lead to a problem situation, Problem situations do not arise if they are not interesting for students, or the student has a low level of knowledge, or Vice versa, he quickly finds a solution and is not interested in the further course of reasoning.

Technology of multi-level training.

Training goals: - activation of thinking of students with different levels of training;

- removing the uncertainty of weak students in front of strong ones;

- concept education.

The quality of learning the subject can be provided by the technology of level differentiation. The level of low training of students should be brought closer to the level of General education. The level of General education gradually rises to the level of advanced training, or in-depth study of the subject. The study of each subject in College is not a goal, but a means of developing the student. To assess the success of students, it is determined how the content is learned: at the level of reproducing facts, reconstructing them, or at the variable level (the level of mental operations). Example of a test work on the topic: "Chemical reactions»
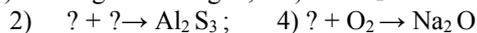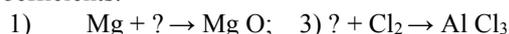
Option 1. (reproductive-level tasks).

Put the missing coefficients in the following equations:

1) $Zn + O_2 \rightarrow Zn\ O$;   3) $Fe + Cl_2 \rightarrow Fe\ Cl_3$
2) $Ag + S \rightarrow Ag_2\ S$;   4) $Na + Cl_2 \rightarrow Na\ Cl$
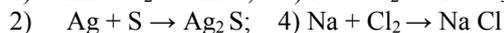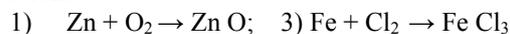
Option 2. (tasks of partially searching level of cognitive activity of students).

Write the equation, supply the missing coefficients:

1) $Mg + ? \rightarrow Mg\ O$;   3) $? + Cl_2 \rightarrow Al\ Cl_3$
2) $? + ? \rightarrow Al_2\ S_3$;   4) $? + O_2 \rightarrow Na_2\ O$

Option 3. (tasks of the research level of students ' cognitive activity).

Write the names of substances and reaction equations that you can use to get them:

1) $FeCl_2$;   2) $ZnCl_2$;   3) $P_2\ O_5$;   4) $Al_2\ S_3$
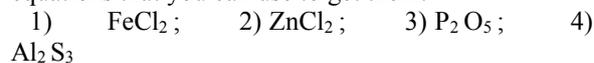
The technology of learning the game.

Training goals: - dramatization of the game teaches students to analyze and evaluate complex problems of human relationships in the workplace, in the profession, in everyday life,

- develop rules for cooperation;

- arouses interest in the subject.

The technology of game learning helps to increase the interest of students in various types of educational activities and cognitive activity. The desire of every teacher is to instill interest and love for the subject. The flow of information, chemical terms, definitions, and formulas creates an overload of students. Role-playing games help to relieve

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fatigue and emotionally adjust students to further perception of educational material. The attention of students is directed primarily to the game action, and already during the game it imperceptibly performs the training task. Psychologists note that learning the material during the game does not require any random memorization and this increases emotional perception, allows you to avoid overloading students. Role-playing games can be conducted in the lessons of repetition, generalization and control of knowledge. They can last the entire lesson or be fragmentary for 15-20 minutes. In my practice, I use game technologies, conduct game lessons on the topics: "Fats", "the Trial of carbon dioxide", as well as lessons - auctions of knowledge on the topics:" esters, fats"," Hydrocarbons"," Alcohols, aldehydes, carboxylic acids","the Main classes of inorganic compounds".

Among innovative pedagogical tools and methods of specialized training, a special place is occupied by technologies of the project method. The project method implements the main meaning and purpose of training-creates conditions for collaboration in the research community, thereby helping the student to become a talented student.

In my practice, I use information projects, in the implementation of which students study ways of obtaining information (literature, library collections, media, databases), methods of processing it (analysis, generalization, comparison with known facts, reasoned conclusions) and presentations: "Alcohol: for or against", " Smoking is harmful to health!".

The project method is focused on achieving students ' goals. It generates a large number of skills and experience.

Integration is a means of using all the above-mentioned pedagogical technologies.

Learning objective:

Integration: - helps students learn facts and phenomena, the General picture of the world;

- eliminates the fragmentation of academic subjects;

- increases students ' interest in learning;

It has long been noticed that not only those who perform poorly, but even many excellent students do not correlate the information about the outside world received in one lesson with the information about the same subject that they are told in other lessons, do not link together the disparate facts obtained in one subject. I perform integration as follows: 1. The lessons relate chemistry to mathematics, biology, physics, geography, and life Sciences. This gives the studied material a special appeal, develops interest, logical thinking of students, and also contributes to their heuristic activity in the lesson.

2. In the lessons, chemistry is linked to special disciplines: commodity science of food products, commodity science of non-food products, and cooking. The integration successfully links the topics "Esters" and "Soft drinks" (commodity science of food products). In chemistry classes, students learn that esters are organic substances that have a pleasant aroma, which can repeat the smells of flowers and fruits. They are used for making soft drinks that are carbonated with carbon dioxide. Integration helps students better learn the cooking course program. In chemistry lessons, having studied the properties of carboxylic acids, students can independently list the application of acetic acid in cooking as a seasoning for meat and vegetable dishes, as a means for preserving products, for quenching baking soda in confectionery. Or fats, oils, and margarine are used in the heat treatment of products to evenly heat the entire surface of the product during roasting.

3. The most effective form of integration is integrated lessons. The integrated process is characterized by signs of interpenetration of one educational subject in another, logical and content basis and pedagogical purposefulness, relative independence. The method of an integrated lesson differs from the method of a traditional lesson in that teachers simultaneously teach a lesson on a particular topic. It is necessary that the structure of an integrated lesson organically combines the personalities of teachers and students, their interaction with each other, so that this lesson represents an integral psychological and pedagogical system. Together with teachers of special disciplines, integrated lessons were held on the topics: "Chemical fibers yesterday, today, tomorrow", "Types of glass", "Fats", where the integration of chemistry and commodity science of food products and commodity science of non-food products was carried out.

Organizing the mental activity of students, I pay great attention to the control of knowledge.

Training goals: - testing of knowledge, skills, skills, mastering the system of chemical knowledge;

3)   - providing an opportunity for each student to report their progress to their peers;

- formation of the scientific picture of the world.

To evaluate the students ' performance, I use various forms and methods of control: individual interview, front-line monitoring conversation, seminars, tests, terminology and digital dictation, testing, control work, project protection. Systematic verification educates students in a responsible attitude to learning, allows you to identify individual characteristics of students and apply a differentiated approach to learning. I encourage students to participate in the assessment of their own activities. When conducting tests using group and collective forms of work, I use self-control, mutual verification of knowledge, and mutual assistance. Such methods of evaluating students ' performance increase their

motivation to study, help create a favorable psychological climate and an environment of cooperation.

Knowledge control should have stimulating functions, should stimulate the student's desire to study this subject. Students need to explain the teacher's approach to grading; what assessment criteria will be used in assessing knowledge; what will make up the final mark. The principle of open perspectives opens the road to success for students. Each student should be sure that they can correct the grade at any time.

Thus, the use of innovative technologies increases the competence of students, develops creative thinking, activates abilities, increases the effectiveness of teaching the subject.

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