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Principles Of Improving Students ' Intellectual Skills In Teaching Chemistry

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Abstract: Modernity sharply raises the question of changing the pedagogical paradigm and introducing a new understanding of the essence of educational activity into public consciousness. The relevance of the use of innovative educational technologies is determined by the fact that a new educational system is being formed in modern Uzbekistan, aimed at entering the world educational arena.

Key words: chemistry, "Brainstorming" method, information and communication technologies, innovative approach, credit module, chemistry teaching methodology, independent educational assignments.

KIMYO FANLARINI O‘QITISHDA TALABALARNI INTELLEKTUAL KO’NIKMALARI OSHIRISH TAMOYILLARI

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Annotatsiya: Zamonaviylik pedagogik paradigmani o'zgartirish va o'quv faoliyatining mohiyatini yangi tushunishini ommaviy ongga kiritish masalasini keskin ko'taradi. Innovatsion ta'lim texnologiyalaridan foydalanishning dolzarbligi hozirgi paytda, yangilanayotgan O‘zbekistonda jahon ta'lim maydoniga kirishga yo'naltirilgan yangi ta'lim tizimi shakllanayotganligi bilan belgilanadi.

Kalit so’zlar: kimyo, “Aqliy hujum” metodi, axborot kommunikatsiya texnologiyalar, innovatsion yondashuv, kredit modul, kimyo o’qitish metodikasi, mustaqil ta’lim topshiriqlari.

Modernity sharply raises the issue of changing the pedagogical paradigm and introducing a new understanding of the essence of educational activity into the mass consciousness. The relevance of the use of innovative educational technologies is determined by the fact that at the moment, a new educational system is being formed in the updated Uzbekistan, aimed at entering the world educational space. In Uzbek education today, the rule of development is being followed, this change allows the composition of teachers of higher education students to choose and design a pedagogical process on any module. This direction of education is developing rapidly (including scientific development and the formation of new ideas). The problem is that traditional teaching technologies are not able to fully compensate for the satisfaction and development of students ' cognitive needs, their needs and opportunities for further development in the higher education system.

The use of developing educational technology, in the process of holistic learning and upbringing, helps to identify the reasons for the origin of the problems between the students ' ability to fully manifest and develop their abilities, the organization of the pedagogical process.

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The purpose of its activities in the development of education – on the basis of the cluster system carried out at the Chirchik State Pedagogical University, interoperational educational activities between the school and the University have been established consistently for several years[6,7]. In this direction, it consists in the formation of the intellectual potential of society, by identifying talented students from among the students of the General Educational Schools of Chirchik city, by developing their taste, training and intellectual abilities [8,9], by directing them to study at the Chirchik State Pedagogical University[10,11]. To implement a person-oriented approach to high school students, a system of Educational, Scientific and research activities of students is created, which is actively carried out in classes and after classes.

By research work, we understand the experimental and theoretical individual activities of students, which are associated with the study of phenomena and characteristics of real objects of nature and technology, aimed at identifying and developing the creative abilities of children. After all, only creatively oriented education allows you to form non-standard thinking people who, regardless of their specialty, are able to work effectively in various fields of knowledge. The purpose of introducing scientific research technologies in the Lyceum: is to

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determine the field of science or technology in terms of the choice of the next profession by students.

To achieve this goal, it is permissible to solve the following tasks:

* formation of deep and systematic knowledge of students, about the structure and properties of matter, the laws of the process of chemical reactions; deep theoretical and experimental preparation in the field of selected science or technology;
* accumulation and development of initial experience in theoretical and experimental research work; formation of interest and predisposition for research work;
• formation of high-level mental operations (analysis, synthesis, comparison, generalization, classification, etc.) manifested in the production of many ideas, options for solving the problem, free thinking; transition from the student's motivation for external knowledge to internal moral and volitional regulation

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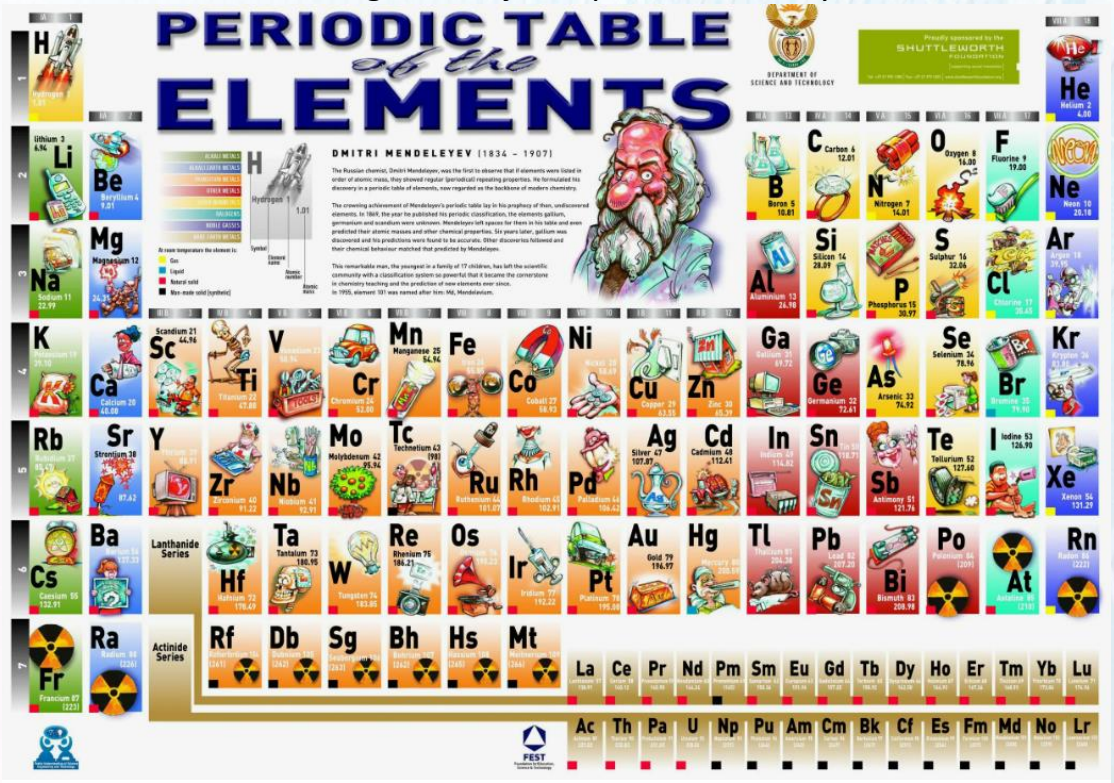
* practical mastering of the rules for the preparation, registration and delivery of work results in the form of reports, lectures, computer presentations, lectures at conferences

The possibility of early training in chemistry and the rational involvement of middle-level students in research work is based on the awakening of their natural curiosity for natural phenomena, technology and unusual forms of activity. Children studying at school want to make real progress in their studies, to have effective knowledge, without perceiving the lessons as violence against themselves. Students have the opportunity to practice their skills in independent activities. It is necessary to know how to distinguish the basic information necessary for their self-awareness. From an early age, they sought to know the world around them and intensified their interest and research activities. When choosing the content of the educational material, we mean the formation of concepts, support in the study of the course of chemistry so that it is more successful during the subject'sipulation activity.



Research technologies are actively used in extracurricular activities. For the possibility of conducting educational, scientific and research work, the Lyceum should have chemical laboratories equipped with the necessary reagents and equipment, with a good ventilation system. In the activities of students,

characteristic stages of research in the scientific field are carried out. To formulate a solution to the problem, study the theory associated with the chosen topic, advance the research hypothesis, select methods and practical mastering. Their conclusions consist in collecting, analyzing and generalizing their own material.

Research work of students begins with the choice of a topic, the formation of a research problem. The level of knowledge of schoolchildren allows them to be considered as a blank sheet in terms of research work; at the same time, the student may be interested in any topic of orientation that has the experimental capabilities of the leader. In order to maintain an interest in research work, we encourage students to make their proposals for choosing topics and wisely choose topics from the recommended list.

When independently choosing topics, students are attracted not by the essence of the work, but by its external design, the strength and display of tools, experimental settings. Preference is given to works with visible effects, as well as those that give results in a certain period. It is undesirable for middle-level students to work long, uniformly with long-term results. Those who expect a similar result, at least intermediate ones, are of great interest.

So, students traditionally work on crystals in which chemistry grows, where the solubility of substances in water, the influence of external conditions on the process of crystal growth (the effect of solution temperature and the environment, the concentration of the solution) , Light, time factors, air movement, etc.)... Students are often interested in questions learned in the classroom.

Thus, in Chemistry Lessons, the process of knowing the surrounding world is observed using the example of observing a burning candle and conducting experiments with candles. Readers interested in this work offer many situations that will help to delve deeper into this process, in general - to know the world around them.

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After the topic is selected, hypotheses are drawn up. Next comes painstaking work on data collection (collecting facts, observations, evidence), their analysis, synthesis, generalization.

In the entire process of execution of the work, the student keeps a journal of the work, and then lectures and lecture theses are drawn up for the conference.

For speech, the student prepares illustrative material in the form of sets, computer slides and presentations. Students lecture at 3 conferences after completing work on chemistry during the academic year. The conferences are attended by students, schoolchildren, work leaders, other teachers, parents, etc. At the end of the academic year, a general Lyceum conference is held, to which lectures are presented, which include elements of scientific innovation.

Research work teaches critical thinking, situational analysis, responsible decision - making, planning your steps-these qualities are necessary not only for each professional researcher, but also for any member of an open civil society.

Schoolchildren are sure that scientific knowledge is derived from experience; an experiment can be studied at any level of the experimenter's knowledge; through experience, respect and interest is aroused in the theoretical material

of the subject. Skills of individual and collective research work are formed. Educational knowledge approaches scientific knowledge by introducing scientific hypotheses into the latter as a form of scientific thought.

We know that the introduction of new innovative technologies as a result of updates at our third Renaissance School is very important in reforming the educational system . The opportunity arose to expand the material technical capabilities of educational organizations, to bring the effectiveness of knowledge delivery to the level of international educational standards, to change the system of training qualified personnel on the basis of modern requirements and world experience. We should look at innovation not as a novelty of any type, but as a factor that seriously increases the efficiency of the existing system. Contrary to common misconceptions, innovations differ from discoveries. Identifying systemic shortcomings that are an obstacle to the full and effective implementation of measures to increase the country's position in international rankings in the field of Science and innovation is one of the tasks before us to jointly develop solutions and proposals to eliminate problems. We need to develop proposals for the effective introduction of the results of scientific and startup projects for the development of digital technologies in the field of Science and innovation and establish research work to develop these works. Pedagogical studies over the years have found that a person allows you to keep in mind 10% of the data when he independently reads the source, 20% when he hears the Information, 50% when he sees the event, event and process that occurs, 50% when he hears the information about them, 80% when he transmits the data himself, and 90% when Therefore, in lesson classes based on modern pedagogical technologies, skills are formed in students, such as not only understanding, but also being able to apply the acquired knowledge in their activities, finding the most optimal solutions in problem situations. The most common and characteristic modern pedagogical technologies in the teaching of Chemistry are considered to be: conversation, argument (discussion), play, case-stadi, method of projects, problem method, mental attack, etc.

The following rules must be followed when using the "Brainstorming" method during the lesson:

- lack of mutual assessment and criticism;
- do not criticize - every opinion has equal force;

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The more thoughts you have before the person speaking, the better: the chance of a new and necessary idea will increase. For example, brainstorming questions on the topic of halogens.

1. The position of halogens in the periodic table and the structure of atoms
2. Specific physical properties for halogens
3. Chemical properties of halogens
4. Oxides and acids of halogens
5. Why are halogens named? What properties does this name relate to, and how do these properties relate to their atomic structure?
6. Describe the important compounds of chlorine, fluorine, bromine and their direct use in practice?

Demonstrating interesting chemical experiments during the lecture is one of the important factors of increasing the effectiveness of the lesson. In particular, adding potassium iodide solution to lead (II)-acetate solution and obtaining gold-colored lead iodide crystals. is one of the interesting experiences.

Currently, quality education in Uzbekistan is the preparation of qualified workers, employees and specialists in accordance with the best world standards; development of the educational system, modernization of educational programs, and the use of new and advanced technologies to ensure the flexibility and individuality of the educational process. Changing the role of the

teacher in the educational process in order to achieve the educational result (the teacher is a designer, constructor of pedagogical situations and educational tasks), increasing the independence of students (independently setting goals and tasks, searching for educational resources) . Diversification of the content (giving students the opportunity to build an individual educational path should have acquired knowledge during the educational periods. The professional direction of the chemistry education that forms the professional direction of the person, practice-oriented modeling and It is necessary to take into account the modeling of professional activities in the learning process. The above processes should also be used in the process of chemistry education, because it helps to prepare students for more focused activities during practice and practice. Between theoretical and practical training using an optimal balance (according to the standard, 40% of the time is theoretical, 60% is allocated to laboratory training, more of which is allocated to independent learning). It is important to increase the quality and level of independent education. With this, the online evaluation system was launched. Now, whether it is a student or a student, he completes the homework assignment and uploads it through a special online program, and also monitors the grades assigned to him through the same program. The convenience of these programs is not only the knowledge of assignment and grading processes, but also attendance, class schedule, and other unique things. At the root of these possibilities lies the introduction and continuous development of innovative technologies in our country. "Intellect map", "Quest", "Textual tasks", "Swot-Analysis" which allow to use and develop creative abilities, which allow to know chemical laws, use formulas, use reactions, and develop creative abilities in the process of placing independent education in the hemis program. ", "Case-Study" should be focused on the improvement of modern technologies and assignments. For this, the pedagogue and the student should learn advanced foreign experiences, be aware of the methods of introducing digital technologies and modern information and communication technologies.

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