4. Antipina G.S., Gaifullin B.N. Modern information technologies. Training and consulting. ─ M .: SINTEG, Interface-PRESS, 2000. ─ 187 p.

5. Trofimov S.A. CASE-technologies: practical work in Rational Rose. ─ M .: Publishing house BINOM, 2001 .-- 272 p.

6. Vendorov A.M. Software design for economic information systems: Textbook. ─ Moscow: Finance and Statistics, 2002. ─ 325 p.

7. Walker R. Management of software development projects. ─ M .: Lori, 2002 .-- 448 p.

8. Koburn A. Modern methods of describing functional requirements for systems. ─ M .: Lori, 2002 .- 288 p.

9. Sviridov A.S .. Methodology for conducting a pre-project survey for the purpose of designing an enterprise information network. ─ M .: Telecommunications, 2004. Issue. 4.

10. Danilevsky Yu.G. and other Information technology in industry. ─ L .: Maminostroyeniye, 2002.

11. Rogozov Yu.I., Sviridov A.S. The concept of building an enterprise information model. ─ M .: Technocenter, 2004.

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STUDY OF EFFECTIVE METHODS OF TEACHING CHEMISTRY

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The purpose of the study is to scientifically substantiate the effectiveness of teaching chemistry in secondary school using modular technology and to develop a specific methodology. The scientific and methodological foundations of the effective use of modular technology in the learning process" shows the educational process of its activation, the theoretical and practical significance of the development of learning technologies, the features of the use of modular learning in chemistry lessons in secondary schools, the problems of applying the principles and criteria for building a modular program, the requirements for a modern school not only for the assimilation of theoretical knowledge in chemistry, but also to the active methods and techniques of its assimilation. the application of modular chemistry teaching, improvement of the content of chemistry teaching at school has been established.

Key words: *high school, chemistry, modular technology, effective methods, practice works.*

Бұл мақалада – орта мектепте химияны модульдік технология арқылы оқытудың тиімділігін ғылыми тұрғыдан негіздеп, нақты әдістемесін жасау. Модульдік технологияны оқыту үрдісінде тиімді пайдаланудың ғылыми – әдістемелік негіздері» оқу процесі оны жандандыру, оқыту технологияларының дамуының теориялық және практикалық маңыздылығы көрсетілді, модульдік оқытуды орта мектептерде химия сабақтарында қолдану ерекшеліктері, модульдік бағдарлама құру ұстанымдары мен өлшемдерін қолдану мәселелері айқындалып, қазіргі мектепке қойылатын талап химиядан теориялық білімді игерумен қатар, оны меңгерудің әдіс – тәсілдерін белсенді іс – әрекетке үйрету, мектепте химияны оқыту мазмұнын жетілдіру, химияны модульдік оқытуды қолданылуы анықталды.

Тірек сөздер: *орта мектеп, химия, модульдік технология, тиімді әдістер, тәжірибе жұмыстары.*

В этой статье дается научно обосновать эффективность преподавания химии в средней школе с помощью модульной технологии и разработать конкретную методику. Научно – методические основы эффективного использования модульной технологии в процессе обучения» показан учебный процесс ее активизации, теоретическая и

практическая значимость развития технологий обучения, определены особенности применения модульного обучения на уроках химии в средних школах, Проблемы применения принципов и критериев построения модульной программы, требования к современной школе не только к усвоению теоретических знаний по химии, но и к активным методам и приемам ее усвоения. установлено применение модульного обучения химии, совершенствование содержания обучения химии в школе.

Ключевые слова: *средняя школа, химия, модульные технологии, эффективные методы.*

Currently, one of the features of pedagogical science is the wider application of new learning technologies aimed at the personal development of the student. In the practice of chemistry teachers, such basic tasks and goals may arise as the use of various teaching technologies, forecasting of its achievements, independent design and construction. From this point of view, we can say that the proposed problem is a system that does not find an adequate solution in teaching chemistry, but is in demand in life.

Currently, there are a large number of new pedagogical technologies offering effective methods of planning, application and control of the educational process. Their main goal is the formation of a personality capable of developing independently. In such a situation, an educational process is necessary in which a person can independently acquire knowledge, carry this knowledge forward and work creatively. It follows from this that instead of the traditional teaching methods, it is necessary to identify new pedagogical activity and carefully prepare it in theoretical and practical terms. Traditional teaching methods are largely limited to the organization and implementation of the educational process, and pedagogical technology is a system of phased and orderly activities. The new methodological system of teaching chemistry in secondary school emphasizes the need to change the traditional learning process in accordance with modern requirements. They are also based on a deep knowledge of new learning technologies and their effective implementation in the learning process [1, 35].

Chemistry, as a science that transforms matter, is inherently coded for stability. This puts the chemical profession in an important position to contribute to sustainable development. Education in the field of chemistry for sustainable development is necessary in order to convey the basic message that the material resources of the environment are finite, and therefore the socio-economic transformations of matter should be subordinated to this boundary condition. Relevant topics to achieve this goal include environmental chemistry and toxicology, environmentally sound chemical design (teaching chemistry), as well as broader context such as alternative business models and comprehensive knowledge of international policies and strategies to effect change in relation to the chemical industry, chemical industry. products and business (chemistry training) in favor of sustainable development. This document presents the first master's program of its kind, offering such content for specialists of a chemical enterprise (1-figure).

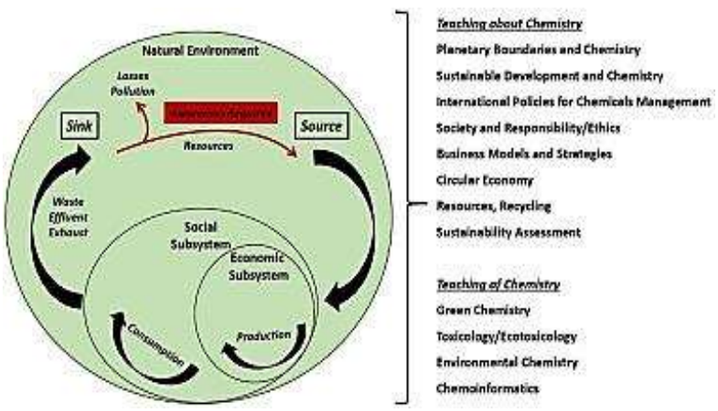

Figure 1. Study of effective methods of teaching chemistry

When solving and launching the designated tasks, we used the following research methods: theoretical and scientific analysis of philosophical, psychological, pedagogical and methodological literature on the studied problem; carefully observed the process of teaching chemistry in high school; conducted surveys, discussions, conversations with teachers and students; conducted and analyzed special courses in accordance with the studied problem; studied the methodological system of compliance with the goal and pedagogical effectiveness were tested experimentally [1, 44].

Reference educational institutions where the study was conducted. Almaty region, Sarkandsky district, Lepsy village, K. Ushinsky secondary school students of grades 9a, 9b.

The scientific novelty of the study is that:

определены the scientific theoretical foundations of modular chemistry education of the 9th grade in secondary school are determined;

the goals and objectives have been clarified and methods and techniques of modular chemistry teaching of the 9th grade in secondary school have been proposed;

The effectiveness of methods of organizing and conducting modular chemistry education of the 9th grade in secondary school has been tested and experimentally proven.

The theoretical significance of the study lies in the fact that effective methods of modular chemistry teaching and a methodical system of classes are offered at the school.

The practical significance of the study lies in the fact that the results of the study are important in schools, in the preparation of chemistry teachers, as well as in the practice of teacher improvement institutes.

Accuracy and validity of the research results:

adistemelik methodological and theoretical principles in accordance with the requirements,

using methods in accordance with the subject of the study,

педагог pedagogical expediency of experimental work,

with practical verification of their effectiveness and implementation into practice,

it is proved that the developed methodological system gives positive results of mathematical processing in school practice.

The structure of the thesis. The thesis consists of an introduction, two main sections, a conclusion, a list of references and an appendix. Figures and tables were given to reveal the content of the research work.

The introduction substantiates the relevance of the research topic, outlines the purpose, objectives, object, forecast, stages, scientific novelty and practical application, research methods, as well as the results obtained and their applied significance, approbation and implementation of research results.

The first part of the study "scientific and methodological foundations of the effective use of modular technology in the learning process" reflected the main aspects of modular learning, the process of its activation, the theoretical and practical significance of the development of learning technologies, identified the features of the use of modular learning in chemistry lessons in secondary schools, the application of principles and criteria for building a modular program, defined the requirements for modern school, along with mastering theoretical knowledge, actively apply methods and techniques of their assimilation – activity-based learning, improvement of the content of chemistry teaching at school, the use of modular chemistry teaching are demonstrated.

In the second part, "methods of teaching chemistry in secondary school using modular technology and the results of practical work", the methodology of modular chemistry teaching of the 9th grade, the structure of its use, the results of its application in the learning process and ways of implementation in practice are developed.

In conclusion, the general content of the theoretical and practical work carried out is analyzed, the main results and conclusions from them are presented, recommendations are given.

Modular chemistry training. This program sets out the learning objectives and the sequence of studying each topic. At the same time, a modular program is a student's activity program for studying a certain topic. Each lesson begins with a motivation procedure. The module is a target multifunctional node that combines educational content and methods of educational activities for

mastering this content. Each learning element (game, text, model, creative, etc.) is a stage to achieve the integrating purpose of the lesson, without understanding the content whose goal will not be achieved. Each student is provided with a printed module, which is a methodological tool that specifies the objectives of the lesson, the student's educational activity on each learning element, as well as training tasks, questions, exercises and recommendations for their implementation. With the help of printed modules, the chemistry teacher purposefully leads the student to achieve the goals of the lesson through his self-realization, self-expression. One of the mandatory elements in this case is the presence of various types of control of the student's activities throughout the lesson: self-control, mutual control, teacher control. In modular lessons , reflection takes place, the student's assessment of his activities, based on the goals of educational activity. The student becomes interested in the success of his work, there is a dynamic, activation in cognitive activity.

REFERENCES:

1. A. Shokybaev "inorganic and analytical chemistry". - Almaty, 2013-316 b.
2. Mukhina S. A."modern innovative teaching technologies". Moscow, 2008. 155 P.
3. N. V. Bordovsky pod.Ed. "Modern educational technologies". Moscow, 2010.
4. K. A. Sarmanova "method of use of propaedeutic knowledge and knowledge in the course of chemistry". - Almaty, 2018. 56C.
5. A. Myrzabayev "pedagogical bases of methods of teaching chemistry".Almaty, 2014-222 P.

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ӨНДІРІС ЖӘНЕ ТҰТЫНУ ҚАЛДЫҚТАРЫН ӨҢДЕУ БОЙЫНША ҚОРШАҒАН ОРТАНЫ ҚОРҒАУ САЛАСЫНДАҒЫ ҚЫЗМЕТТІ МЕМЛЕКЕТТІК РЕТТЕУДІҢ ҰЙЫМДЫҚ-ҚҰҚЫҚТЫҚ НЕГІЗДЕРІ

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Бұл мақалада қалдықтарды басқару саласындағы мемлекеттік қадағалау, қалдықтармен жұмыс істеу саласындағы лицензиялау және реттеу сияқты жария-құқықтық механизмнің жекелеген элементтерін байланыстырылды. Экологиялық функция мен өндіріс және тұтыну қалдықтардың қоршаған ортаға келтіретін залалдары туралы айтылды. Сондай-ақ халықаралық шарттар оның ішінде деректива талданды.

Тірек сөздер: *Өндіріс және тұтыну қалдықтар, қоршаған орта, экология, механизм, функция, директива, заң, құқық.*

В данной статье увязываются отдельные элементы публично-правового механизма, такие как государственный надзор в сфере обращения с отходами, лицензирование и регулирование в сфере обращения с отходами. Обсуждены экологическая функция и вредное воздействие отходов производства и потребления на окружающую среду. Также были проанализированы международные соглашения, в том числе директивы.

Ключевые слова: *Отходы производства и потребления, окружающая среда, экология, механизм, функция, директива, закон, закон.*

This article links individual elements of the public law mechanism, such as state supervision in the field of waste management, licensing and regulation in the field of waste management. The ecological function and harmful effects of production and consumption waste on the environment are discussed. International agreements, including directives, were also analyzed.