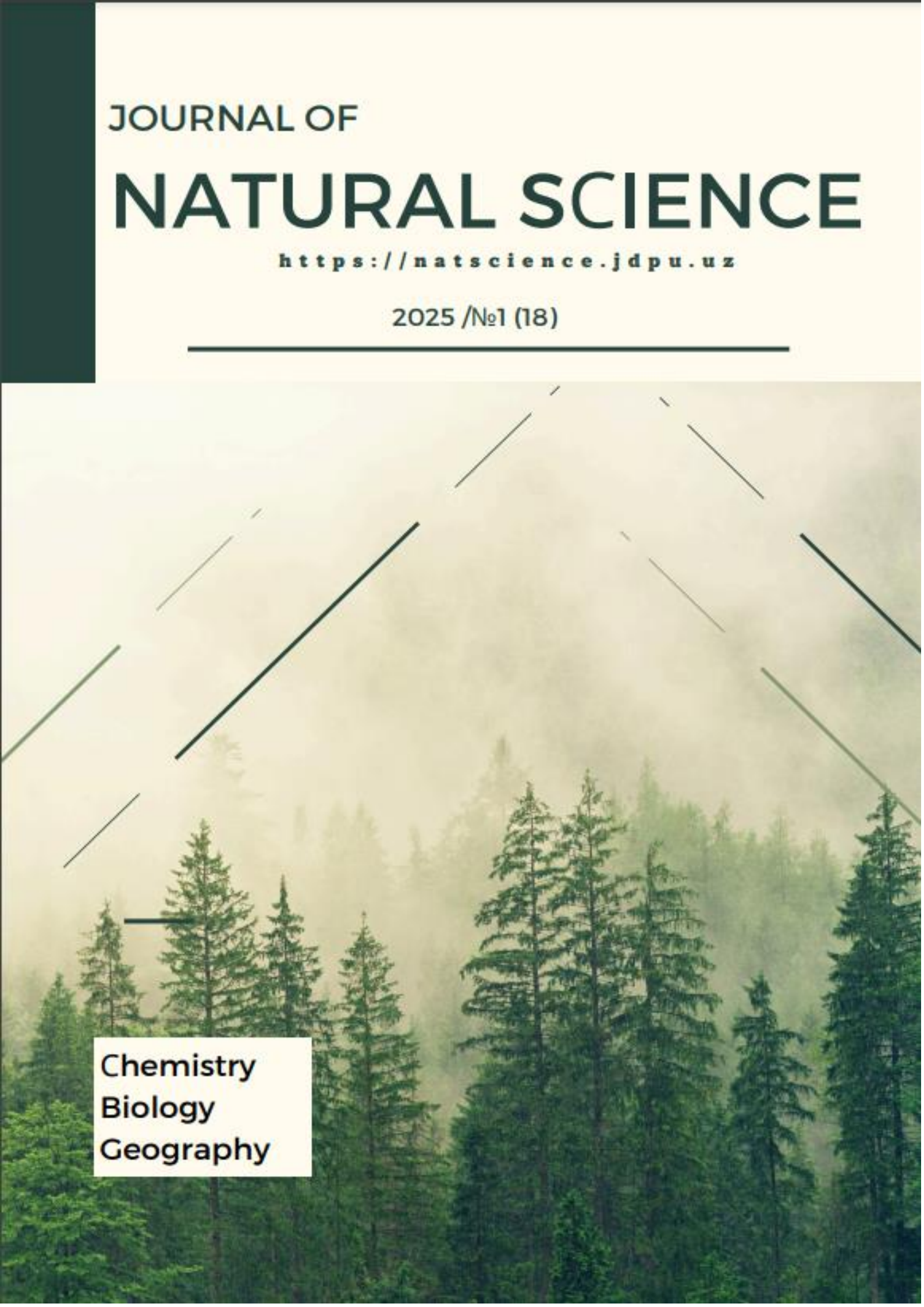


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**THE IMPORTANCE OF SOLVING SIMPLE AND COMPLEX PROBLEMS
IN CHEMISTRY**

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Annotation. The article presents the experimental pedagogical work the school teachers used when writing papers for the highest qualification category. The educational products of the internship site are not only the expositions created, the lessons conducted, but also the speeches of teachers at scientific and practical conferences of various levels, written abstracts on this topic, seminars for practical teachers.

Keywords: Modern lesson, methodical association, schoolchildren, knowledge quality, communication skills.

The ability to solve problems in chemistry is the main criterion for creative mastery of the subject. Therefore, at graduation exams and entrance exams to higher education institutions, problems, primarily on calculations, are always included in exam tickets. This is a convenient way to check knowledge in the process of studying the subject and an important means of consolidating them [1].

Somewhat more difficult, but not beyond the scope of the textbook for those entering higher education institutions, are usually used in entrance exams to chemistry, biology, medicine and other higher education institutions, where somewhat higher requirements are set for chemistry. When solving problems related to calculations on chemical formulas and equations, the concept of the amount of substance is used, not the method of constructing proportions, which is considered in detail in many other problem sets. In order to successfully study chemistry, it is necessary to diligently study any, both simple and complex, problems, as well as independently solve a sufficient number of them [2].

Chemistry can be called an industry of amazing transformations. It allows you to synthesize materials that do not occur in nature, use them to create various machines and devices, build residential buildings and produce consumer goods. The chemical industry produces synthetic rubber, plastic masses, artificial fibers, artificial fuels, paints, medicines and many other substances. In agriculture, mineral fertilizers, chemical means of plant protection, substances that regulate their growth, chemicals added to animal feed and food preservatives, many polymeric materials are widely used.[3]

Metals, which are the basis of the industrialization of our country, are obtained using chemical methods. They are also protected from corrosion. The possibilities of chemistry are inexhaustible. More than twenty thousand organic substances can be obtained from oil alone, and even more from coal. Chemistry can be used for various purposes to produce a wide and diverse range of consumer goods. The importance of chemistry in the development of scientific and technical progress was very clearly emphasized by the world's first cosmonaut Yu.A. Gagarin:- “We astronauts, by the nature of our profession, will learn about the wonders of chemistry earlier than others. For example: take the fuel that propels our rockets, the alloys and metals from which rockets are made, the thousands of large and small objects that accompany man on his journey through space, we will encounter chemistry everywhere.” On the path to mastering space, much more ambitious tasks lie ahead than those we have accomplished so far. Next on the agenda are the issues of flying to the moon, to other planets of the solar system, leaving the solar system, and establishing contact with other worlds [4,5].

But for this, even higher speeds, new spacecraft, new materials will be needed, and we are confident that they will provide us with everything we need. In the near future, environmental protection will remain one of the most important issues facing humanity. Chemistry plays a significant role in purifying wastewater, controlling the purity of water and air, and creating waste-free technology. Chemistry confirms the general laws in the development and cognition of nature and society.

Deep knowledge of chemistry is necessary for specialists in various fields of the national economy. Chemistry, along with physics and mathematics, forms the basis for training highly qualified specialists. With the emergence of man in nature, he develops the skills to study nature, the environment and use it. As a result of the development of life, man strives to study himself and the surrounding environment, the sciences of nature and society arise. One of such exact sciences is chemistry, which considers all the surrounding existence as substances, its organizational parts. It studies existence by studying substances. Therefore, chemistry is a science that studies the composition, structure, properties of substances, the causes and laws of their transition from one type to another.

The subject of chemistry is matter. Chemistry is studied in close connection with other exact sciences: physics, mathematics, biology, geology, and social sciences: philosophy, ecology, economics. The formation and development of chemistry as a science is a product of the following three components:

- a. Observations, research, evidence
- b. Concepts, theories, laws
- c. The product of a common practice.

There are areas of this commonality, the solution of problems related to which naturally requires physical knowledge, mathematical thinking and calculation, biological knowledge, and economic concepts. Therefore, knowledge of the above sciences is a must in the study of chemistry, and the more we have acquired and are currently acquiring knowledge in chemistry, the more problems we need to know in this science. Based on this, the purpose of studying chemistry is:

- To study the concepts, theories, and laws that exist in chemistry to date and to reach its essence. To perform chemical calculations.
- To develop sufficient skills in planning chemical experiments, implementing them, and using the necessary materials and equipment.
- To acquire experience and skills in collecting chemical information and exchanging them.

- To be able to use the acquired knowledge and skills when necessary and to the required level in professional activities and everyday life.

Knowing how to solve chemistry problems is one of the most important skills that high school students need in practical life. Sometimes, the word chemical problems mainly refers to quantitative problems. This is because such problems have to be solved in practical life. However, in chemistry, qualitative problems, problems related to chemical concepts, theories and laws, are of much greater importance. These problems allow the teacher to more easily determine the level of theoretical preparation of students, consolidate and deepen knowledge about substances and their transformations, apply theoretical knowledge in practice, expand the scope of students' thinking, and form chemical thinking in students. Only if students constantly solve chemical problems in a certain order (in a system of gradually increasing complexity) during the lesson can the ability to solve chemical problems be successfully formed in students.

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