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The Role of Tasks with Practical Chemistry Content in Improving Natural Scientific Literacy of Students in Secondary Schools

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Despite the development of modern technologies, successes in obtaining new chemical compounds and composite materials with desired properties, today a negative attitude towards chemistry is more and more clearly expressed. The reasons for the new social phenomenon "chemophobia" (phobos - "fear", hence chemophobia "fear of chemistry"), along with objective reasons (environmental pollution, man-made disasters), is, first of all, insufficient chemical literacy of all segments of the population.

At the same time, despite the strengthening of the practical orientation in updating the content in the concept of modern chemical education, in recent years there has been a decrease in the quality of assimilation of chemical knowledge by students. This is primarily due to the reduction of teaching hours in chemistry [1, p. 3-5].

Basically, these reductions are carried out by reducing the teaching hours of laboratory work and practical exercises, excursions to chemical enterprises, solving experimental and computational problems in chemistry. The ability of students to apply the acquired knowledge when explaining production processes, biological phenomena, as well as processes occurring in the human body is limited. All this lowers the motivation for studying the topics of the chemistry course, transfers such a science rich in experiments and interesting facts into the sphere of dry abstractions.

To expand the worldview of students, to enhance the influence of the acquired knowledge in chemistry in explaining the phenomena of everyday life, to change the negative attitude towards the study of chemistry, it is necessary to strengthen the practical direction of teaching chemistry [2, p. 12-15, 3, p. 61-63, 4, p. 27-32].

One of the ways to strengthen the practical orientation of the school chemistry course is to solve problems of practical content. Chemical problems reveal the qualitative and quantitative connections of the sides of the content of chemistry, when solving them, chemical concepts are determined, ways of thinking are developed (reasoning, hypothesis, proof), the formalism of knowledge is eliminated. Solving problems fosters diligence, striving for goals, self-control skills, and independence. In addition, the tasks of practical content can really help a teacher of chemistry in the formation and development of the need for knowledge, in increasing interest in the study of chemistry. Students can have the opportunity to use the knowledge gained in the lesson in explaining the phenomena of everyday life, in solving problems that are far from chemistry, such as medicine, biology, archeology, construction, etc. These tasks can be used in the classroom and extracurricular activities, as well as involve the students themselves to formulate such problems.

The main didactic possibilities of assignments with practical content are:

- reflection of the role of practical knowledge about the substance and its properties in the development of various crafts;
- familiarizing students with the substances of everyday life;
- disclosure of the chemical content of the processes of making food and drinks, cleaning home furniture, processes taking place in living organisms, the actions of pharmaceuticals;
- implementation of interdisciplinary connections (physics, biology, ecology, etc.);
- familiarization with ways to solve vital problems;
- familiarization with the rules of conduct in various emergencies, the negative impact of alcohol and tobacco products, drugs on the human body;
- increasing students' interest in mastering various chemical specialties (main branches of the chemical industry, scientific foundations of chemical production, specialties related to chemistry).

The analysis of chemistry textbooks of secondary schools of our Republic showed that among the tasks for consolidating and repeating chemical knowledge and skills in chemistry, tasks with practical content are very small. For example, in a chemistry textbook for 7 grades there are 28, in an eighth grade textbook there are only 22.

Consider the methodological foundations of increasing motivation for learning, drawing up tasks of practical content and using them.



Based on the requirements of the curriculum, students mainly solve design problems in the classroom. In the course of solving these problems, they develop the skills of logical thinking, translating abstract knowledge into a certain context, solving by algorithm, systematizing and classifying problems. But in the content of these tasks, instead of the practical content, the role of concepts fixed in the condition of the tasks in everyday life, in everyday life, abstract tasks are set before them. As a result, the student does not see the importance and practical significance of the assignment behind the task. And tasks with practical content in their content have concepts related to real processes and objects, they are familiar to students and thus they arouse interest in solving these tasks.

In the course of performing scientific and methodological work to determine the effectiveness of the influence of tasks with practical content on the assimilation of the course of chemistry in general education schools, we have developed a system of tasks using information that is familiar or interesting to students.

Below are examples of these tasks [5, p. 21-25]:

Topic: Natural families of chemical elements

1. The body of an adult in the form of compounds contains up to 95 grams. chlorine. Calculate in n.u. volume, quantity and number of chlorine molecules of this mass.
2. 1 liter of sea water contains up to 19 grams of chlorine. If a person's daily chlorine requirement is 6 grams, calculate the amount of seawater needed to meet the needs of all students in your class.
3. If the human body weighing 70 kg contains 0.03 g of iodine, calculate its mass fraction in the body.
4. If each liter of human blood contains 2.89 grams of chlorine ions, calculate how many chlorine ions are contained in 4.8 liters of this blood.
5. Bromine ion is an antagonist of iodine ion, which controls the production of thyroxine, a thyroid hormone. If a human body weighing 70 kg contains 200-300 mg of bromine, calculate its mass fraction in the body.
6. The bleaching properties of hypochlorite acid are provided not by chlorine, but by oxygen, which is released during the decomposition of this acid. Write the decomposition equation for this acid.

The use of tasks with practical content can serve as a means of forming a generalization of motivation for educational material, the basis for setting a problem situation in the classroom [6, p. 142-147]. As a result, students assimilate educational material better, learn to use popular science literature on chemistry, and the number of students with a stable motivation to study a chemistry course increases. At the same time, tasks with practical content serve a wide awareness of the scientific picture of the world, creative activity, and prevent mental fatigue.

REFERENCES

1. Martynenko B.V. Hemophobia and the realities of life // Chemistry at school. - Moscow, 1992. - No. 3-4. - S. 3-5.
2. Kendivan D - S., Namy A.L. Problems of Chemistry with Practical Content // Education in the Modern School. - Moscow, 2006. - No. 3. - S. 12-15.
3. Gabruseva N.I. On the practical orientation of teaching chemistry // Chemistry at school. - Moscow, 1999. - No. 6. - S. 61-63.
4. Ermakov D.S., Zharikova E.A., Lenina O.F. Tasks with practical content in the initial stage of studying chemistry // Chemistry at school. - Moscow, 2006. - No. 5. - S. 27-32.
5. I.R.Askarov, K.G. Gopirov, N.Kh. Tukhtabaev. Chemistry. Textbook for grades 8. -Tashkent, publishing house "Yangiyul polygraph service". - 2019– 208 p.
6. B.M.Dumanov. Communication Principle Role of Teaching by Life in Process of History Developing Teaching Chemistry. Eastern European Scientific Journal. Düsseldorf – Germany. Ausgabe. 6-2018. pp.142–147.



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