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PREPARATION OF TASKS RELATED TO THE DEVELOPMENT OF NATURAL-SCIENTIFIC LITERACY OF CHEMISTRY STUDENTS

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ABOUT ARTICLE

Key words: Chemistry, students, functional literacy, knowledge, skills, skills, information, assignments.

Abstract: In this article, there are ideas about the methods of preparation of tasks related to the development of natural-scientific literacy of chemistry students and their methods.

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INTRODUCTION

In today's fast-changing and information age world, natural-scientific literacy is becoming one of the main factors that help people to actively participate in social, cultural, political and economic activities and receive regular education. In recent years, in a number of developed countries of the world, including the USA, Germany, China, Russia, Korea, Great Britain, India, Japan, etc., improving the process of teaching chemistry along with all natural sciences, carrying out theory and practice in a harmonious way, "knowing - "understanding - practical application" is reflected in the activities aimed at developing the areas of using didactic games selected according to the student's age and interests to organize teaching, conduct lessons in an interesting way, and develop motivation [1].

ANALYSIS OF LITERATURE ON THE SUBJECT

About the development and application of didactic materials in the teaching of chemistry and its departments, the methods of effective organization and management of chemistry education, the use of algorithms and programs in the teaching of chemistry, the forms of organization of chemistry education, the connection of the science of chemistry teaching methodology with other subjects, the use of innovative methods in chemistry classes E.G. Polupanenko, V.A. Kuzurman, I.V. Zadorojniy, E.E.

Minchenkov, M.S. Pak, D.K. Bondarenko, S.S. Kosmodemyanskaya, S. The works of I. Gilmanshina are noteworthy [3; 4].

Uzbek scientists A.Mamajonov, J.Fayozov, T.Gulboev, G'.Boymurodov, M.Umarov, A.Azimov, Sh.Quvvatov, J.Mamajonov, F.Alimova and L.Zaylobov conducted a number of scientific studies on improving the teaching of chemistry. those who went[1;2].

ANALYSIS AND RESULTS

It is known that natural-scientific literacy is presented as the ability to apply knowledge, skills, and methods outside of educational settings, in contrast to the tasks from which these knowledge, skills, and methods were obtained, in solving a wide range of problems. For example, according to the description of the PISA assessment study, science literacy is "the ability to apply science knowledge in practice, understand science problems, develop conclusions using scientific sources, understand decisions about natural and human-induced changes in nature"[2, p. 63] is described.

Natural scientific literacy is considered the most important factor in the development of human capital. Literacy in natural sciences is understood as a person's knowledge of ideas related to natural sciences, being able to solve problems related to natural sciences as an active citizen. A person who is literate in the natural sciences is able to participate in the discussion of issues related to the natural sciences and technologies based on scientific evidence.

It is very necessary for science teachers in the natural direction to pay special attention to the formation of scientific research directions for students. An analysis of the Singaporean curriculum revealed that students in the curriculum study natural sciences as researchers. The task of the teacher is to initiate the student to research. Every natural science teacher should know how to implement the knowledge skills of a scientific researcher.

A person who is literate in the natural sciences can participate in scientific evidence-based discussions of natural sciences and technology. The following competencies will be formed in it:

describe phenomena scientifically;

scientific research, design and evaluation;

scientific interpretation of data and evidence.

As an important basis for the formation of functional literacy in society, we can consider the wide application of educational technologies, that is, problem-based education, interactive education, cooperative education, research education, modular education and other educational technologies in the educational process.

The organization of education in a problem-based form focuses the student's activity on the formation of the ability to independently search, identify, apply and solve problems. The teacher does not provide a ready-made solution to the problem situation, he creates a problem situation related to the educational content, and the student looks for ways and means to solve the problem, performs observation and measurement, develops a model, reflects, and creatively approaches the solution of the problem.

The basis of problem-based learning is the problem. The word "problem" is derived from the Greek word "probe", which means task. A problem is a theoretical or practical problem that does not have a ready answer, requires study, research, and finding a solution.

How and what should be taught to future chemistry teachers today in order to form the natural-scientific literacy of schoolchildren and be successful in the future? Various forms, methods and means of functional literacy formation are used in pedagogical practice. Let's look at some of them:

types of formation of functional literacy in the field of career guidance:

the ability to analyze the specialties required in the labor market;

the ability to independently work with various sources of information (reference books, booklets, mass media, etc.), collect and update information about educational organizations, specialties, terms and forms of study, upcoming exams in academic subjects, etc.;

the ability to choose tools and self-diagnosis to assess individual typological characteristics, trends in professional activity;

the ability to create a resume taking into account the qualification requirements reflected in the professional standard or uniform qualification reference;

the ability to independently send a resume to potential employers, prepare for a job interview;

the ability to plan a professional path (individual direction of professional development);

soft (flexible, soft skills) skills (higher than professional) – the ability to communicate, be responsible and disciplined[3] .

One of the ways to solve the problem of functional literacy development can be seen in the unity of lessons and extracurricular activities, including tasks that contribute to its development in each lesson or extracurricular activities.

The "Intellect map" [5] method can be used both for explaining a new topic and for strengthening a previously learned topic. In the middle of the map, the "Central concept" is placed, then primary networks are drawn from it, which can support the essence of the central concept, and, if necessary, secondary networks that explain the idea presented in the primary network. This method uses as many different colors as possible to better focus attention. Various pictures and symbols can be used in order to further strengthen the image of this method.

This method, which has a high degree of visuality and can attract attention in its own aesthetic, is a creative design work in which the sequence of concepts existing in the human mind is placed in an orderly form [6; p. 96-100].

Since natural-scientific literacy is considered as the level of ability to apply the knowledge, skills and competences that a person constantly acquires during his life in finding solutions to comprehensive life issues and in socio-economic relations encountered in various fields of his activity, it is appropriate to use more heterogeneous tests according to the field of science covered. Based on this conclusion, it is necessary to pay attention to polymorphic tests according to the type of included test tasks.

Linear tests should be selected according to the assignment scenario. While the teacher is giving knowledge on the topic, "Why?" should also answer the question. "Does the student need this knowledge?", "If necessary, in what situations can he use it?". When creating tasks, he should know clearly for what purpose he is presenting them to the student.

Purpose: "To assess the student's fundamental knowledge?" or "Evaluation of the formation of functional literacy?".

"Contextual text assignments" should be used in classes to develop the ability to perform modern creative tasks related to the application of acquired knowledge in real life situations, which reflect the competence of putting theory into practice. If the student's age, interests and worldview are taken into account when creating such tasks, it is appropriate if the taught topic is created in connection with an

incident or incident that occurs in our daily life [6; p.120]. Tasks involving fairy tales, cartoons or famous movie characters are especially interesting to younger 7th graders. An example from the "Contextual task": In ancient times, in one of the remote villages lived an old man, his kind, intelligent and hardworking daughter Zumrad, her stepmother and stepsister. Stepmother tried to torture Zumrad as much as possible, giving her impossible and impossible tasks.

Even today, the stepmother gave her daughter Zumrad the following tasks:

Task 1: This substance is formed as a residue when plants are burned, it can be used to clean household items. It contains 56.5% potassium, 8.7% carbon, 34.8% oxygen. Identify the substance and use it to clean objects. (Answer: potash K2SO3)

Task 2. There are mice in the kitchen. They transmit many diseases. Therefore, it is necessary to lose weight. In this case, you can use a substance that consists of X2O3. Identify the substance if the mass fraction of the unknown element in its composition is 75.7%. (Answer: As2O5)

Using this method is very effective in teaching chemistry, which is theoretically quite complex, rich in many interrelated concepts and terms.

When creating a task, it is necessary to use situations that are suitable for the age of the student and that he will encounter in his life. Based on the student's experiences and previous knowledge, motivation is formed to find a solution to the problem that is interesting to him.

H. Schecker and J. According to Gerdes, "constant repetitive tasks included in the scheme provide the opportunity to apply the learned knowledge in a limited amount [6, p. 31]. Also, as a result of their research, they state the following conclusion: "Students learn to solve tasks, but rarely learn to solve problems" [7, p. 38].

Based on the above-mentioned points, the task of assignments in educational sessions requires changing the attitude of students to solving problem situations.

According to H. Gudjons, "knowledge becomes systematized by performing increasingly complex tasks. By performing the tasks related to its application in practice, it combines with other knowledge and connects to basic knowledge"[8, p.31].

It is necessary to use scientific research methods such as observation, experiment, measurements, analysis and synthesis, induction and deduction, comparison and analogy in the formation of small research skills in students.

CONCLUSION

It is important not only to form natural-scientific knowledge and skills in students, but also to acquire the competencies to apply them in life situations. The use of the above-mentioned innovative methods of teaching in the formation of students' natural-scientific literacy competencies in the educational process is an important factor in the quality and effectiveness of education.

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