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Existing Problems of Teaching Organic Chemistry in Academic Lyceums and Ways to Overcome Them

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Annotation: The purpose of this work is to interest students of the academic lyceum in organic chemistry and find solutions to the problems they face in order to quickly master science.

Key words: lesson, textbook, teaching, space, curriculum, educational system, activity, didactics, technology, methodology.

Problems in the teaching of chemistry, as in all areas, and their elimination is one of our achievements in the future. In order to improve the teaching of chemistry, academic lyceums operating in this field must adapt the knowledge and professional skills of chemistry teachers to the requirements of the time, be aware of innovations and reforms taking place in the field of education at the international level, and adopt the most effective of them, it is extremely important to ensure their support in educational activities.

In organic chemistry, there are many concepts that students need to know, and it takes a lot of effort and hard work from the teacher to fully convey them to the student. Getting the attention of the student, ensuring that he does not get bored in the lesson, increasing his attention to the subject is the main goal of an effectively started lesson. The main task of a chemistry teacher today is to organize an interesting lesson and teach students new methods of transferring knowledge using interactive methods and innovative technologies. It is also important to clearly set the first goal and define the expected result so that it can be clearly achieved in order to teach science and increase its effectiveness. Academic lyceums based on traditional teaching methods do not provide an opportunity to prepare graduates who are fully compatible with modern production and other areas. Therefore, the search for the most effective ways to improve the educational process, increase student interest, and improve learning outcomes continues.

Today, academic lyceums pay special attention to the introduction of new pedagogical technologies using information technology to conduct classes in a new way. The new pedagogical technology is the process of developing and designing rational ways of the educational system, in which the teacher is the main responsible person. Because its main task is to quickly, clearly and understandably convey information to students. Despite the fact that students have different ways of receiving news, their inclinations and characters, the teacher should teach them to think, observe and draw conclusions for themselves. In this case, the student is the driving force, and reading and reading are his main tasks. It should be noted that during the educational process, the teacher should help students master the content of the subject. To do this, the teacher can use non-traditional teaching methods in the lesson. After all, chemistry has become the standard of state education and an indicator that determines the content and basis of the curriculum approved on its basis, as well as a criterion that determines the level of knowledge and practical activity of students. In modern conditions, rapidly developing science, technology and production, the changing social and environmental situation, teaching chemistry in academic lyceums in a new way is a necessity and requirement of the time. First of all, the teacher should first determine the characteristics of each person in the group of students he teaches, his interest in chemistry and his creative attitude to this science. The organization of teaching chemistry is differentiated, that is, it allows helping students with low academic performance and raising them to the ranks of masters. But when students

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verbally answer questions about their concepts, they tend to get distracted and have difficulty. Therefore, the goal of abandoning this method is to involve all students in the lesson.

As a result of observations and analysis, the following problems in teaching organic chemistry were identified and ways to solve them were developed:

1. If we consider the period before the arrival of students to study at the academic lyceum, then chemistry begins in the 7th grade of a comprehensive school. In grades 7-8-9, students study basic chemical concepts, chemical elements, formulas, basic laws of chemistry, the periodic table, properties of inorganic substances, chemical reaction processes, electrolysis processes, redox reactions and everything they receive an initial chemical education. So, for three years, students study only inorganic chemistry. However, they can study in grades 10-11 of the school or continue their studies at an academic lyceum. At this time, they get acquainted with information that is completely new to them, which they have not encountered before in the process of studying chemistry. Schoolchildren begin the first difficulties in the study of organic chemistry.

2. The topics studied in the school curriculum of organic chemistry are very numerous, contain a large amount of information, each class of organic compounds is studied thoroughly, but in academic lyceums, with an in-depth education system, topics are studied quickly with very little information. If we compare now, then in general education schools, the analysis of the topic is explained more difficult, after mastering the topic, it is transferred to a new topic. In the academic lyceum, without deviation from the curriculum, classes are held on time at the allotted hours, as a result, a huge amount of information makes it difficult for students to memorize.

3. Each topic is interconnected, and a student who does not understand the first topic will find it difficult to learn the following topics. Gaps in the knowledge of students in chemistry in the future will be difficult to fill. Because the topics continue in order. To do this, you must first give students a clear understanding of the rules and regulations of the new department. Because in inorganic chemistry they studied the processes of chemical reactions that go with all elements of the periodic system. Since organic chemistry is a science that studies only hydrocarbons and their properties, mainly carbon, hydrogen and functional groups depending on the complexity of organic compounds (hydroxy-, oxo-, nitro-, amino-, sulfo-...), halogens (- it becomes difficult to distinguish between open (acyclic paraffins, olefins, alkynes, alkadienes) and closed rings (benzene, phenol, toluene, thiazole ...) organic compounds that do not contain elements of the periodic system, except for Cl, -Br, -J).

4. In addition to studying at a university, students also plan in which area they will become a specialist in the future. He is preparing for science through his chosen field. If the student continues the rest of his education, i.e. senior 10-11 grades of secondary school, it will be a little easier for him to master organic chemistry, because it is adapted to the educational process of a science teacher. However, a student who wants to continue his education in a general education or advanced academic lyceum is preparing for the Unified State Examination in the direction he has chosen, as a result, he enters with the knowledge of chemistry obtained at school.

The general academic lyceum is taught by a teacher of natural sciences who does not know and has never seen chemistry. A student can perfectly master inorganic chemistry in grades 7-8-9, but when organic chemistry is taught in an academic lyceum, the student will have a short pause. Then the skills and knowledge of the chemistry teacher should influence the students. Each subject must be taught at a very high level (it must be explained to the smallest detail until it is understood as best as possible). So the student must acquire knowledge and skills from everyday topics.

5. The fifth problem that arises when teaching organic chemistry in an academic lyceum is that it is necessary to select interactive methods that will help organize a lesson for high school students in an interesting way, chemical reactions between organic compounds carried out during the lesson. This requires more preparation and research from the teacher.

6. Another problem in teaching organic chemistry is the abundance of theoretical information. Chemical formulas and chemical reactions are almost never mentioned in a chemistry textbook adapted for schoolchildren. If you try to explain each topic theoretically, you won't have time to work on the problem, and the students will get bored as a result. If the teacher works on at least one task

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after going through the plan of each topic, he sets the assessment rate depending on the level of difficulty of each task (for example: the amount of gas released during the combustion of alkanes, etc. if there is a find - four points, if there is a find of the equivalent of alkanes - five points) student motivation, discussions and debates in the class begin, and the one who works faster gets the highest mark in the class, and their learning is increasing.

7. Another problem in teaching organic chemistry is the lack of electronic textbooks and multimedia applications. If students can see the reaction process and the formation mechanism of organic compounds with their own eyes through electronic applications, and know that the reaction mechanism is completed, then it will be easy for them to master science.

8. One of the most important and urgent problems is the shortage and insufficient equipment of chemical laboratories in academic lyceums and chemical reagents related to the field of organic chemistry.

9. Observations, analysis and practice in teaching organic chemistry have shown that the teacher does not give enough knowledge, linking each topic with life. If a teacher can sufficiently explain to his students the subject he teaches, in what area it is used, the student will quickly and easily develop skills and understand the subject.

To overcome these problems in the process of teaching organic chemistry, chemistry teachers should conduct more daily monitoring, identify changes in students' knowledge in time, and deal more with lagging students who are able to solve these problems. The best way to do this is through discussion. By using this method, you can help them learn the lesson even better. In this method, at the end of each chapter, students are asked questions about the topic and are asked to prepare independent work and a written abstract.

Based on this, it is possible to determine to what extent the students have mastered the topics of the previous chapter, as well as their knowledge through their thinking and additional information obtained from the literature used or information from the Internet site. In order to increase the activity of students in answering, making them think, requiring them to explain, even through games related to the lesson, and emphasizing that they answer questions clearly, increasing students' responsibility for self-checking, cross-checking should be taught.

The problems that cause a decrease in student achievement when teaching organic chemistry in academic lyceums, and the simplest ways to eliminate them, are considered. Dealing in depth with each problem, it cannot be emphasized that they can develop a systematic approach and support science teachers in their activities in order to find their own solutions and eliminate them.

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