# DEVELOPMENT OF STUDENTS' INDEPENDENT WORK SKILLS IN CHEMISTRY LESSONS USING THE TOOLS OF NON-STANDARD LABORATORY EXPERIMENTS

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It is possible to achieve a targeted deepening of the process of teaching chemistry. At the same time, reliance on various forms of the teaching process is included. For this reason, non-standard laboratories are notable for their innovative features in the process of teaching this subject. These opportunities are achieved by expanding the possibilities of teaching chemistry and science through it. For this reason, in the education system of foreign countries, attention is being paid to teaching chemistry on the basis of non-standard laboratories. It is appropriate to mention that this process has started to enter the general secondary education schools of our country today.

1. Development of students' abilities. Pedagogical experiences and observations show that students of general secondary schools of our country have a natural ability in chemistry. This score is reflected in their mastery of the subjects of modern science at the expected level. Therefore, it is important to organize non-standard laboratories in chemistry classes and achieve the following through them:

- further development of students' ability in chemistry;
- purposeful development of the abilities of students interested in this subject;
- targeting the abilities of students and preparing them for activities.

Recently, the practice of identifying talented students in all subjects taught in general secondary schools and conducting special classes with them has been formed. It would be appropriate to establish non-standard laboratories and to identify and develop students' abilities in chemistry through them. Because observations show that most students have the ability in this subject. Because chemistry is often based on laboratory experiments, it develops students' abilities through experience. It is known that students are interested in chemical experiments. Therefore, non-standard laboratories are appropriate to develop students' abilities and prepare them to participate in various Olympiads in chemistry.

2. Training students. One of the practical importance of organizing non-standard laboratories in chemistry classes of general secondary schools is to prepare students to apply the knowledge they have acquired in this subject in practical activities. Because as a

graduate of the 8th grade, students acquire relatively basic knowledge of chemistry and use the basics of this science, relying on them at the next stages of education. For example, in the practical lessons of biology taught in the 9th grade, there is a direct connection with the practical lessons of chemistry, and it focuses on the use of chemical experiments in biological practical lessons. Therefore, one of the main tasks of today is to prepare schoolchildren for practical activities in the field of chemistry with the help of non-standard laboratories. For this, it is recommended to pay attention to the following:

- paying attention to the formation of students' independent thinking and acting skills during the performance of non-standard laboratory tasks;

- to strengthen their skills in a practical way by providing additional laboratory tasks for students who completed non-standard laboratory tasks to the expected level;

- directing students who completed non-standard laboratory assignments and additional laboratory assignments and demonstrated their independent thinking to further education in the field of chemistry.

All this shows the wide range of opportunities to organize non-standard laboratories for preparing students for practical activities in chemistry classes. Therefore, it is worth mentioning that schoolchildren will be prepared for practical activities after mastering these skills.

The practical importance of organizing non-standard laboratories in school chemistry classes has its own characteristics. Therefore, it is appropriate to master this issue by future chemistry teachers and pedagogues in general. According to our approach, teaching additional chemistry at school with the help of non-standard laboratories provides such practical opportunities.

Chemistry is distinguished by chemical experiments to attract the attention of students compared to other subjects. It is appropriate to conduct non-standard laboratory experiments in order for students to expand their ideas about substances used in life and their transformation into each other [1]. Only then, students of general education can understand the essence of the experiment, carry it out clearly, and freely explain their opinion based on the results of the experiment, independently and confidently. For example, when a small amount of baking soda and a diluted solution of acetic acid are mixed, the student will understand that a chemical reaction is taking place due to the formation of gas bubbles. In this way, knowledge and skills about the substances being formed in the student appear by themselves.

$NaHCO_3 + CH_3COOH \rightarrow CH_3COONa + H_2CO_3$

$H_2CO_3 \rightarrow H_2O + CO_2$

By completing this single experiment, the general student develops knowledge about gas dissociation, ion exchange, and neutralization reactions. "Types of chemical reactions" taught to students in the II quarter of the 7th grade. Laboratory work 5.", 7th grade, taught in the IV quarter, "Obtaining and properties of acids. Laboratory work", 11th grade can understand that it will be a practical example for topics and experiments that satisfy the topics of "Reversible and irreversible reactions" taught in the III quarter [2].

For example, "Types of chemical reactions. Laboratory work 5" on the subject of exchange reaction of acid and sour salt, "Acquisition and properties of acids. For the chemical properties of acids in the topic "Laboratory work" and for the topic "Reversible and irreversible reactions", knowledge and skills about gas separation and the formation of less dissociable substances will be strengthened.

It is necessary to introduce similar experiments in general education school lessons and prepare the educational manuals used for carrying out the experiments and bring them to the learner of today.

The practical importance of organizing non-standard laboratories in school chemistry classes is to deepen the teaching of this subject, to develop the ability of students in this subject, and to form the ability of students to apply their acquired knowledge in practical activities. Therefore, this issue is one of the main issues of the need to organize non-standard laboratories in chemistry classes.

## REFERENCES:

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