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METHODS OF USING "FSMU" TECHNOLOGY DURING LABORATORY TRAINING

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Abstract
The article is devoted to the implementation of innovative educational technologies. Including methods of using the "Thought, reason, example, generalization (FSMU)" method in various parts of laboratory classes in physics at MIA academic lyceums, and analysis of the possibilities for students to draw conclusions from a general idea, acquire knowledge, skills, and abilities with the help of this method done.

Keywords: FSMU method, educational technologies, problem situation, debate, opinion.

Introduction

"Education, science and production" - these three principles are the factors that motivate the economic, social, cultural and spiritual development of every developed country. So, which one of these takes the main place? Intelligent people answer such a question as "education". Education is the foundation of a country that has reached a high level. This, in turn, constitutes an effective organization of education for the growing young generation and a systematic approach to the education process. As the President of the Republic of Uzbekistan, Sh. M. Mirziyoyev, stated, "The most important task of the entire education system, of our respected teachers and professors, is to provide thorough knowledge to the young generation, to educate them as physically and spiritually mature people. [1].

Today, as in every field, it is important to conduct educational activities based on innovative ideas and technologies in academic lyceums, which are considered the basis of the secondary special education system.

The word "innovation" is Latin for "newness", and in the field of education, this concept is the introduction of innovations and changes to the activities of teachers and students, and interactive methods play an important role in the implementation of this process. occupies When we use such methods in classes, learning becomes an interesting activity for the student [2]. When interactive methods are used, they will acquire the skills and abilities to acquire independent knowledge, express their opinion, and search for new knowledge with the help and cooperation of the teacher. And they get new knowledge through research and experimental tests.

LITERATURE ANALYSIS AND METHODOLOGY.

Attention to education in academic lyceums is increasing day by day. A number of our scientists and researchers have made a great contribution in this regard. As an example, G. Ibragimova's monograph entitled "Formation of students' creative abilities with the help of interactive teaching methods and technologies" mentions methods of conducting theoretical, practical and experimental lessons using interactive methods [3], J And Ashurov mentioned the use of "FSMU" technology in explaining the topic to students [4]. In the researches of O. Avlayev, special emphasis was placed on educational methods in teaching physics [5].

It is known that experiments play an important role in physics education. In physics, every rule acquires the right to be a law, a principle, and a rule only after it has been experimentally proven. Students' participation in physics practical classes is the most important and effective part of the physics course teaching process. For this reason, the correct organization of practicum training and the development of issues related to the problems of its development are of great importance in physics education.

RESULTS AND DISCUSSION

Teaching physics to students in academic lyceums should begin with laboratory classes. Because a student can understand a law deeply only when he tries to fulfill it in his own experience. Until now, it is no secret to any of us that laboratory training is organized in a traditional way. These cases are the most painful point in the development of physics.

Today, one of the advanced pedagogical methods that ensure high efficiency in the organization of modern classes is the "Idea, reason, example, generalization" (FSMU) method, which provides an opportunity to achieve the formation and development of theoretical, practical, creative thinking in students. In the course of our research, we considered increasing students' activity in the classroom using the "FSMU" technology during laboratory training.

"FSMU" technology helps to solve problematic issues in the educational process, hold debates, analyze the knowledge acquired by students and develop a culture of debate, team thinking, "Respect each other" which is the golden rule of the lesson. is a teaching method [6].

The main purpose of the technology is to help the distributed white paper clearly express its ideas in a short period of time, stating the supporting arguments and the negative ones.

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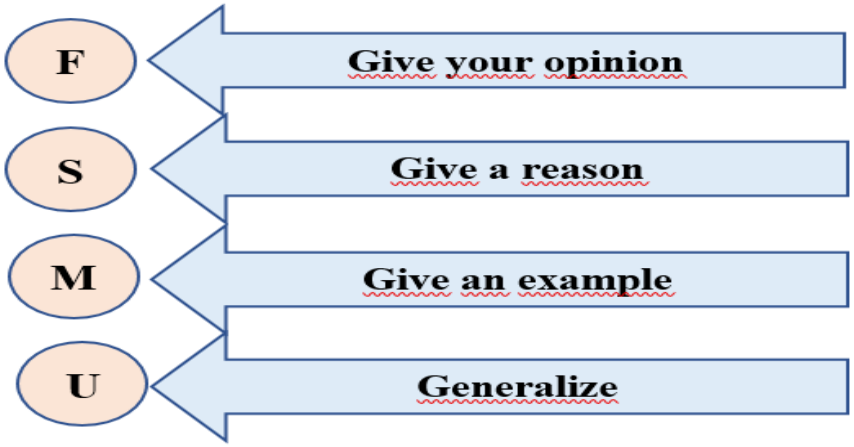
General scheme of "FSMU" technology.



This method can be used at the beginning of the lesson, during the reinforcement and conclusion of the lesson, when conducting physics laboratory classes in MIA academic lyceums.

1. Using the "FSMU" method at the beginning of training.

a) At the initial stage of the lesson, students are told only the topic of the laboratory exercise. Then white papers with "FSMU" technology written on them are distributed to each of them.

F _____
S _____
M _____
U _____ (A4 format)

Students are given 1 minute to express their thoughts clearly and briefly.

b) At the next stage, students are divided into small groups in an interesting way according to their creative approach to the teacher, and each group is presented with large-format papers with a scheme of the "FSMU" method.

F _____
S _____
M _____
U _____ (A3 format)

Students discuss the written opinions individually and choose the most acceptable, correct and clear answer. Then one representative from each group will answer. It takes 1 minute.

c) At the last stage, after listening to all the opinions, the teacher collects the papers written by the students and gives a general conclusion. (1 minute)

Such a process will attract students to the lesson, transfer motivation to the student from another discipline and bring him into the world of physics. They have a little idea about the topic of the laboratory training and the purpose of the work. The main task of modern technologies is to encourage the student to think and search, not the teacher.

By using the "FSMU" technology at the beginning of the training, the teacher does not have to explain to the students the purpose of the work, in which aspects of our daily life we can apply such experiences. In addition to their own writing, students learn each other's thoughts when working as a team.

In a traditional lesson, students learn only the information explained by the teacher. It takes 5 minutes according to the time distribution. The utilization rate is 70%.

If we use "FSMU" technology, firstly, students will receive information equal to the number of students in the group, secondly, 3 minutes will be spent on it, and thirdly, the mastery rate will change significantly.

Application of the "FSMU" method in practice:

Topic: Studying the movement of an object thrown at an angle to the horizon.

Task 1. "What quantities can we determine by observing the movement of an object thrown at an angle to the horizon"

F (height, flight distance, launch angle)

S (if we throw objects at an angle, it rises to a certain height and then falls to a certain distance)

M (javelin throwing, machine gun shooting)

U (The flight distance and height of the objects change depending on the launch angle

2. Using "FSMU" technology to strengthen the theoretical part of the laboratory.

After the theoretical part is explained to the students, handouts with the assignment "FSMU" are distributed to the students. Buesa helps students to determine the level of their knowledge, understanding and imagination. Only students who have mastered the lecture well can use this technology scientifically. The theoretical part will be explained by the teacher in the form of a lecture in the previous lesson. It only checks students' understanding and readiness to perform the laboratory exercise.

Task 2. "Dependence of the flight distance of an object launched at an angle to the horizon on the launch angle"

F (If we increase the angle of launch of the object, it will fall farther)

S (The flight distance is directly proportional to the launch angle)

M (When shooting from a rifle, we raise the tip of the rifle slightly above the horizon so that it reaches the target)

U (If we increase the launch angle, the flight distance will increase accordingly, if we decrease it, it will decrease proportionally)

If we check the students' knowledge in the same way, each of them will be able to perform independent laboratory exercises at the next stage and will also perform calculations without errors.

3. Using the "FSMU" method in the conclusion part.

After completing the laboratory training, the teacher should find answers to the questions of how well the student understood today's work, whether he was able to perform the experiment, and whether he completed the calculation work at the conclusion stage. In such a situation, the "FSMU" method, which is considered a modern educational technology, will help him. At the end of the lesson, by distributing the "FSMU" scheme to the students, they complete the conclusion part in the lesson itself. In a traditional lab session, summarizing is given as homework because there is not enough time to ask each student.

Task 3. "What are the differences in the motion of objects thrown horizontally and at an angle to the horizon"

F _____

S _____

M _____

U _____

If the teacher wants, he can give a separate task individually or when divided into groups. The number of groups is divided according to the number of students in the class. The teacher acts as a leader in this process. After the students have completed the tasks assigned to them, they organize their general discussion. Encourages students who have done the task best.

CONCLUSION

In conclusion, we can emphasize that the use of the above-mentioned (FSMU) method in physics laboratory training allows the student to draw clear conclusions from general ideas, assimilate information through comparison, and form independent creative skills. theoretical knowledge of science provides an opportunity to acquire practical skills and qualifications. In the process of applying this method of teaching to the educational process, the motivation for teaching and learning increases. The use of the method significantly increases the interest of students in physics and the efficiency of organizing laboratory classes in MIA academic lyceums.

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