

DEVELOPMENT OF STUDENT'S CREATIVE ACTIVITY WHEN SOLVING CREATIVE PROBLEMS IN PHYSICS

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Abstract. *The article discusses the planning of practical classes in physics, including solving creative problems in physics. Methodological ways of developing creative knowledge and skills in future military specialists will be considered, as well as developing their competence in their profession by solving creative problems in physics.*

Keywords: *physics, creative tasks, creative activity.*

Young people who are spiritually healthy and have high scientific potential determine the future of the nation. At present, in our country, there is a focus on encouraging and supporting talented people in the education of young people [1].

It is known that active and creative youth are the future of our development. Therefore, every teacher working in different educational systems should establish a mentor-student system, find talented students, and direct their activities to the development of science and technology. The teaching process in military-academic lyceums is divided into independent and interconnected theoretical and practical parts. In order to pass practical training at a high methodical level, the theoretical part of special subjects must be passed at the required level. Formation of theoretical knowledge, practical skills and qualifications of students related to production work is considered one of the important issues in training junior specialists in a certain field.

Military-academic lyceums are educational institutions that provide special military and general professional education within the framework of the relevant state educational standards, which are designed to in-depth development of students' aptitude for the chosen profession, knowledge and skills, and a career in the chosen profession. or can provide several specializations. The educational process of military-academic lyceums consists of military education, general education classes, extracurricular educational activities, and their improvement as a whole pedagogical process is determined according to the results of practical experiments and tests. This process is carried out by teaching specialized subjects in the relevant field and passing industrial education at a high methodological level in military-academic lyceums. Through the mentioned organizational forms of training, students are provided with the training of high-quality junior specialists with specific professions and qualifications.

A broad-minded military specialist should be aware of the news in the field of his professional activity, be able to see the directions of future development, as well as ways to solve emerging problems. In order to educate a specialist at the level of such requirements, it is necessary to develop effective forms of teaching in military-academic lyceums, an active method and a complex of modern tools, as well as scientific-methodical justification.

Training of qualified military specialists in military-academic lyceums must meet the following requirements:

1. Formation of knowledge, skills and qualifications specified in the state educational standard for the specialty;

2. In accordance with the educational goals and tasks envisaged in the educational content arrival;

3. All components of the process of training qualified personnel (theoretical training, laboratory-practical training, production practice) should be organically organized in a mutually dependent manner;

4. The content of education meets the requirements of the level of development of science, technology and technology.

For military-academic lyceums, it is natural that the planning of practical exercises in physics, including solving experimental problems, is of great importance. The achievement of knowledge and skills of young specialists in the technical direction, their competence in their fields, and the formation of practical training and skills such as the principles of operation of technical devices are determined by them.

The choice of experimental problems related to the profession from physics in military-academic lyceums undoubtedly requires a great creative approach, experience and methodical knowledge from the teacher. The fact is that military-technical devices, their principles of operation are subject to the laws of various fields of physics, knowledge about them, skills and abilities, and solving problems of various difficulties. Such experimental problems are related to molecular physics, electricity or optics. Solving them requires students to actively observe and develop thinking. Achieving such a way of thinking requires that most students have a sufficiently high culture of solving problems in concrete and natural sciences such as physics, chemistry and mathematics, and high training in this field.

In this field, the problems of improving the vocational education system in Uzbekistan have been researched by a number of scientists, major methodologists and pedagogues.

Part 1 of the book "Physics Teaching Methodology" by M. Djorayev, N. Gafurov, B. Mirzakhmedov, G. Sagatova deals with the general issues of physics teaching, including the methodology of solving physics problems. In the 2nd part of this book, the methodology of teaching a number of topics related to different sections of the physics course in different educational systems (Military-Academic Lyceum and Vocational Colleges) is considered [3,4]. In the textbooks "Mechanics" and "Fundamentals of Molecular Physics and Thermodynamics" by I.R. Kamolov, B.F. Izbasarov, along with providing theoretical knowledge, examples of problem solving and tests related to the topics are covered [4].

In the textbook "Methodology of physics problem solving" by the well-known Russian scientists S.E.Kamenetsky, V.P.Orekhov [2], the general methods of solving physics problems in the I and II stages of physics education are described, a minimum number of physics problems are selected for students, physics The procedure for solving problems on all topics of the course is shown. The conditions of the problems are analyzed in detail and examples of problem solving are given.

From the analysis of the above-mentioned literature, it became clear that in almost all of these literature, very little attention was paid to the issues of technical content, therefore, it led to the conclusion that such a consideration can be a sufficient basis and evidence for the topic of our research, and to say that this problem is urgent. was the basis.

Our goal is to get acquainted with problems related to various departments of physics, which are suitable for the direction and program of military-academic lyceums, to classify problems by departments, levels of difficulty and other various characteristics, to guide by types

of problems - development of guidelines, analysis of results and development of recommendations for teachers.

In the teaching methodology, a small problem that is solved with the help of experiments based on logical conclusions, mathematical operations and laws and methods of physics is usually referred to as a physical problem. In fact, every puzzle that arises in connection with the study of educational material in physics classes is reflected in the mind of students in the form of a problem. Active thinking for a specific purpose is "solving a problem". Exercises aimed at teaching students how to apply their knowledge are called problems. There are many other purposes of solving problems, such as educating students, taking into account and controlling their knowledge, determining the formation of learning and skills, etc.

Students are introduced to the nature of physical phenomena in various ways: stories are told, experiments are demonstrated, laboratory work is performed, excursions are held, etc. In this case, the students' activity, i.e., the depth and reliability of their knowledge, depends on the "problematic situation". In many cases, in the process of presenting such a problematic situation in the form of a problem and solving it, the student "rediscovers" the physical law for himself, but does not receive it ready. In this case, the matter will be a means of studying a physical phenomenon. For this purpose, qualitative problems, computational problems, experimental problems and other types of problems can be used.

Relying on the students' existing knowledge, it is possible to analyze the studied physical phenomena in the process of solving problems, to form concepts about physical phenomena and quantities.

In solving experimental problems, students can be given some idea about physical experiment that experiment is a method of application of natural phenomena, which is based on mathematical research of functional connection between measurements and physical quantities.

They can be recommended to solve the following issues:

1. Level the spring and express its elongation depending on the magnitude of the applied force with the formula.

2. Using the hydraulic press model, determine the relationship between the lift size of the pistons and the size of their surfaces. The content of the issue should be closely related to the studied program material. The considered technical object or phenomenon should be widely used in the national economy. The problem should use real information about machines, processes, etc., and ask questions that are actually encountered in practice. Technical issues should be as close as possible to situations that occur in life, not only in terms of content, but also in terms of form, and issues that are not given any size should be solved by finding the necessary information from schemes, drawings, reference books or using experience. it's worth it.

3. If the cutting speed of the lathe is 80 m/min, and the diameter of the workpiece is 40 mm, determine the number of revolutions of the lathe spindle. In this case, all the necessary information is given and only calculations are required.

4. Choose a wire that brings current to the electric motor.

To solve this problem, it is necessary to determine its power and efficiency, peak voltage, wire length and voltage drop according to the data in the engine's passport.

In addition to experimental issues, issues related to physical phenomena occurring in life are also of great importance to connect teaching with life. Such problems help to see the physical phenomena "around us", increase the observation of students. Examples of such problems are:

5. Determine the cost of the washing machine in your home based on the cost of electricity consumed for 3 hours.

6. What is the minimum height of the mirror so that you can see your full height in a vertically installed mirror? How to place it?

The educational value of solving experimental problems is also great. With the help of problems, students can be introduced to the discoveries of scientists with the emergence of new progressive ideas and worldviews, and their attention can be drawn to the great achievements of science and technology. In this regard, issues with new information about the flight of the world's first spaceships, huge power plants on our rivers, will be very interesting.

Examples of tools for developing students' creative abilities in physics experimental problem-solving lessons include problematic presentation of a physical problem, performing research in solving this problem, students' research activity, and solving creative problems. Solving experimental problems in physics also serves as a great tool for training hard work, courage, will and character in students, especially in military professions. Solving physical problems is not an easy task, you need to use all your strength, and by solving experimental problems, you can get creative joy of achievements and love the subject.

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