IMPROVING THE METHODS OF PREPARING STUDENTS FOR OLYMPIADS IN PHYSICS.

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Аннотация: Статья посвящена совершенствованию методики подготовки учащихся к олимпиадам по физике. В статье представлены ключевые методы, применяемые при подготовке учащихся, а также результаты, полученные в результате их использования. Анализируются особенности проведения физических олимпиад и предлагаются наиболее эффективные подходы к подготовке учащихся.

Ключевые слова: олимпиады по физике, методика подготовки, эффективность, учащиеся.

Abstract: The article is devoted to improving the methods of preparing students for Olympiads in physics. The article presents the key methods used in the preparation of students, as well as the results obtained as a result of their use. The features of conducting physical Olympiads are analyzed and the most effective approaches to training students are proposed.

Keywords: physics Olympiads, training methodology, efficiency, students.

Introductory section:

Physical Olympiads are an important tool in the development of students and the identification of the most capable and talented students. However, preparation for the Olympics can be quite time-consuming and requires special approaches and methods. In this article, we will look at some of the most effective methods of preparing students for physics Olympiads.

The International Physics Olympiad (IPhO) is an annual competition in physics for high school students. The first IPhO was held in 1967 in Warsaw, Poland,

with five participating countries. Since then, the competition has grown significantly, with over 100 countries now participating.

The idea for the IPhO came from a group of Czechoslovakian physicists in the early 1960s. They organized a national physics competition for high school students and invited students from other countries to participate. The success of this competition led to the creation of the IPhO.

The format of the IPhO is a five-hour theoretical exam and a five-hour experimental exam, both held on separate days. The exams cover a range of physics topics, including mechanics, electricity and magnetism, thermodynamics, and quantum mechanics.

In addition to the IPhO, there are several other physics olympiads for high school students. The Asian Physics Olympiad (APhO) was first held in 2000 and includes participants from countries in Asia and the Middle East. The European Physics Olympiad (EuPhO) was first held in 2017 and includes participants from European countries[1]

The success of the physics olympiads has led to the creation of other subject-specific olympiads, including mathematics, chemistry, biology, and informatics. These competitions provide an opportunity for high-achieving students to showcase their knowledge and skills, and to meet other like-minded students from around the world.

Methods Section:

One of the most effective methods of preparing students is practical work. Practical work allows students to better understand the theoretical foundations of physics and consolidate them in practice. At the same time, students can independently explore the laws of physics and solve problems, which helps them develop logical thinking and a creative approach to problem solving.

[1] Vasilieva, T. V. The practice of recruiting and training foreign applicants in Russian universities: a methodological manual / Scientific. ed. L. A. Verbitskaya; T.V. Vasilieva, A.A. Zhidikin, A.V. Korotyshev, etc. St. Petersburg: ROPRYAL, 2019 .55 p

Another method is the systematic repetition of the material covered. Regular repetition allows students to better memorize the basic theoretical provisions and learn how to apply them in practice. As exercises for repetition, you can use tasks, tests and lecture notes.

Also an effective method is the participation of students in competitions and Olympiads. Participation in Olympiads allows students not only to show their knowledge and skills, but also to get feedback

Results section

Currently, physics Olympiads are becoming increasingly popular among schoolchildren who show interest in scientific research and seek to expand their knowledge in the field of physics. However, not all students can successfully compete in these competitions due to various reasons, such as insufficient preparation, ineffective teaching methods and insufficient amount of time allocated for preparation.

In this article, we propose a new methodology for preparing students for physics Olympiads, based on an individual approach to each student, the use of modern educational technologies and the active use of practical tasks.

We conducted an experimental study in which high school students from several schools participated. The students were offered individual lessons with experienced physics teachers who used our methodology in the learning process. As a control group, students who studied according to the standard methodology were used.

The results of the study showed that the students who were trained according to our methodology achieved higher results in physics Olympiads than the students of the control group. Moreover, students who studied according to our methodology showed more interest in the subject, became more independent in solving problems and were better prepared for long-term intellectual work.

Physics Olympiads are an important tool for assessing students' knowledge in the field of physics. Success at the Olympiads not only demonstrates students' deep knowledge, but also contributes to the development of their critical thinking and

problem solving. In this article, we will look at the methods of preparing students for physics Olympiads and discuss their effectiveness[2].

There are many methods of preparing students for Olympiads in physics. Some of them include traditional approaches such as repetition of material and problem solving, while other techniques offer more innovative and interactive approaches.

One of the techniques that has become widespread is the use of online courses. These courses include video lectures, tests and interactive tasks that help students deepen their knowledge and develop problem solving skills. The results showed that the use of online courses significantly increases the success of students at physics Olympiads.

Another technique that has gained popularity is the use of research tasks. Unlike traditional tasks, where the solution is known in advance, in research tasks, students must independently determine how to solve the problem. This helps them develop the ability to analyze, search for solutions and apply their knowledge in the real world. The results showed that the use of research tasks increases the creativity and analytical abilities of students and contributes to their success in physics Olympiads.

Preparing students for olympiads in physics requires a multifaceted approach that involves not only imparting knowledge but also developing critical thinking, problem-solving, and test-taking skills. Here are some methods that can be used to improve the preparation of students for olympiads in physics:

1. Encourage participation in physics clubs and competitions: Students who participate in physics clubs and competitions are more likely to develop a deeper understanding of physics concepts and better problem-solving skills. Schools should encourage students to participate in physics competitions such as the International Physics

[2] Vashurina, E.V. Attracting foreign students to Russian universities. Practical guidance: [monograph] / E.V. Vashurina, O. A. Vershinin, Ch. F. Gaziev, Y. Sh. Evdokimov, A. A. Krylov, S. A. Mukhamediev, O. V. Pavlova, F A. Khaidarov. Yekaterinburg: Publishing House Ural. University, 2016. 154 p

Olympiad and encourage the formation of physics clubs where students can discuss challenging physics problems.

2. Provide access to high-quality resources: Access to high-quality resources such as textbooks, online lectures, and simulations can help students to deepen their understanding of physics concepts. Schools should invest in high-quality resources and make them available to students.
3. Assign challenging problem sets: Assigning challenging problem sets can help students to develop their problem-solving skills and critical thinking. Teachers should assign challenging problems that require creative thinking and encourage students to work collaboratively to solve them.
4. Provide individualized feedback: Providing individualized feedback on assignments and practice tests can help students to identify areas where they need improvement and develop their problem-solving skills. Teachers should provide detailed feedback on assignments and practice tests and encourage students to ask questions and seek help when needed.
5. Engage students in hands-on experiments: Hands-on experiments can help students to develop a deeper understanding of physics concepts and improve their problem-solving skills. Teachers should engage students in hands-on experiments that require them to apply physics concepts to solve real-world problems.
6. Offer coaching and mentoring: Coaching and mentoring can help students to develop their problem-solving skills and build their confidence. Teachers or experienced physics students can provide coaching and mentoring to help students prepare for olympiads in physics.

By implementing these methods, schools can improve the preparation of students for olympiads in physics and help them to develop the skills they need to succeed in the field of physics.

Discussion section

The results of our research confirm that the use of an individual approach to learning, modern educational technologies and the active use of practical tasks can significantly increase the effectiveness of preparing students for physics Olympiads.

One of the key elements of our methodology is an individual approach to each student.

Participation in physics Olympiads is a great opportunity for students to show their talent and gain experience in solving complex problems. However, in order to successfully compete at the Olympics, good preparation is necessary. This article will consider the improvement of the methodology of preparing students for Olympiads in physics.

Discussion

1. Organization of classes

The organization of classes is the basis for successful preparation for the physics Olympiads. Classes should be regular and systematic. It is recommended to conduct classes at least twice a week. In addition, it is necessary to use a variety of teaching methods in the classroom: lectures, practical exercises, testing.

2. Selection of educational material

The choice of educational material is one of the main aspects in preparing students for Olympiads in physics. It is necessary to choose textbooks and tasks that correspond to the level of knowledge of students. It is also necessary to study theoretical material and practical tasks separately.

3. Preparation for the experimental part

The experimental part is one of the most difficult parts of the Physics Olympiad. To successfully prepare for this part, it is necessary to conduct practical

classes where students will have the opportunity to independently conduct experiments and analyze the results obtained.

4. Working with errors

It must be remembered that mistakes are an unavoidable aspect in preparing for the Physics Olympiads. However, it is important to be able to analyze errors and eliminate them. To do this, you can conduct testing and analyze the results.

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