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THE ROLE OF PHYSICS CLUBS IN THE DEVELOPMENT OF CREATIVITY

Annotation: *in the circles of Physics, creative abilities are formed in them by giving assignments of a creative character to students, and the confidence of the physical laws in the technique, production, application in life is aroused.*

Keywords: *pendulum, vibration period, technique, creativity, free fall acceleration, measuring tap*

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РОЛЬ КРУЖКОВ ФИЗИКИ В РАЗВИТИИ ТВОРЧЕСТВА

Аннотация: *в кружках физики путем предоставления учащимся заданий творческого характера у них формируются творческие способности и уверенность в том, что физические законы применимы в технике, на производстве, в жизни***.**

Ключевые слова: *маятник, период колебаний, техника, творчество, ускорение свободного падения, измерительная лента***.**

Introduction: Science begins with measurement. That is, students' interest in science is enhanced when they try to figure out how to apply the laws of physics to life, technology, and production. The level of mastery will increase.

Main part: It is known that different forms of teaching can be used to teach students physical concepts: lessons, excursions, practical work and laboratory classes, independent research activities of students, preparation of abstracts, etc. [1-5]. However, the use of circles is often the best way to study physics**.** The clubs proved to be purposeful by encouraging students to think creatively in introducing them to physical concepts [2].

Teaching physics in a circle means teaching the structure of the universe, introducing its constituents, and explaining the essence of the physical processes that take place in nature. Practical lessons are very important in teaching physics in clubs [2]. Practical training is mainly in the form of problem solving, laboratory work and seminars. Problem-solving is an integral part of the process of teaching physics, in which theoretical knowledge is strengthened, physical concepts are formed, physical ideas are developed, skills and abilities to apply the acquired knowledge in practice are formed, developed and improved. Providing new information by solving problems in physics, creating problem situations and posing problems to students, developing the formed practical skills and abilities, testing the strength and breadth of students' knowledge, consolidating, generalizing and repeating theoretical material, introducing students to technical achievements, can develop creative skills [3-5].

Leading in the development of Science and technology is experimental science in terms of fundamental science, physics is the radical content, solving mainly issues in practical training. In this science, theoretical concepts, legalities will have their own experimental basis and practical proof. Therefore, the organization and conduct of demonstration experiments, practical work, which is an integral and complementary part of lecture classes, is of great importance in teaching physics. Physical experience in circles-practical training plays an important role in the formation of the scientific worldview of students.

In order to increase the effectiveness of the lesson, the teacher should be able to better understand his science, the methodology of teaching it, the various

form of teaching knowledge to the students, to connect it directly with life, science with technical progress.

One of the types of independent work that is organized outside the audience is the training of the circle.

The circle helps to form an active creative personality, creating opportunities for a variety of districts, interesting independent work. In addition to industrially produced tools and equipment for practical work in the clubs, the use of simple, inexpensive, labor-intensive, artificial teaching and learning tools gives good results. The work of the circle allows you to apply the theoretical knowledge gained in physics classes in practice, for example, in the construction of instruments and models. Tool-making develops students' design skills, their ability to make a variety of devices with their own hands, which is very important for a deeper understanding of physics.

For this reason, this article presents one of the practical tasks that students in physics clubs can do with their own hands and get experimental results. The name of this creative assignment [1]:

Find the surface of the room using a mathematical pendulum

The processes that are distinguished by its reproducibility at this or that level are called oscillations. Depending on the physical nature of the repetitive process, vibrations are divided into: mechanical, electromagnetic, electromechanical, etc. Fluctuations are common in nature and technique.

We can give examples of pendulums for mechanical vibrations. Mathematical pendulum is said to system that thin elongated weightless weight dropped to a point (Figure 1).

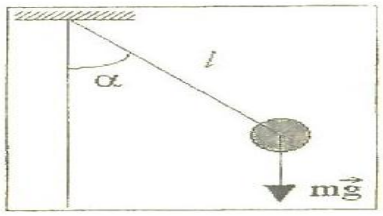

Figure 1.

The surface of a room is found by multiplying the width and height of the room by a mathematical pendulum (Figure 1).

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The period of oscillation of a mathematical pendulum

$$T = 2\pi\sqrt{\frac{l}{g}} \quad (1)$$

is found by the formula where l is the length of the mathematical pendulum (m), $g = 9{,}81\frac{m}{s^2}$ - free fall acceleration, T – period of oscillations of a mathematical pendulum (s). From this the mathematical pendulum length is found by the formula $l = \frac{T^2\ g}{4\pi^2}$ (2)

If we take an L-length thread, the length of which is equal to the length of the room, then we take it closer to 1 m n – fold and hang a load (for example plasticine) on the thread, measure the generated mathematical pendulum t vibration period, then we find the length of the room l from the formula:

$$l = \frac{n\ g\ T^2}{4\pi^2} \quad (3)$$

The width of the room is determined in the same way. Then multiply the length and width to find the surface of the room [1-2].

Tools and equipment: clutch and clamp tripod, stopwatch, load (plasticine), thread.

Objective: To learn how to find the surface of a room using the laws of vibration

Order of performance of work

1. Cut the string to the length of the room.

2. Fold the cut piece of yarn n times to form a yarn about 1-1.5 m long.

3. Hang plasticine on the string and make a mathematical pendulum.

4. Turn the pendulum out of equilibrium and calculate the time it takes for the pendulum to oscillate completely tone (for example, N = 20).

$T = \frac{t}{N}$ find the period of oscillation of the pendulum using the formula.

6. (3) – Using the formula, calculate the length of the room l

7. Calculate the width of the room in the same way.

8. Calculate the measurement errors and draw conclusions.

9. Draw a table as shown below to record the measurement results.

Measurable size			(c)	T(c)	l(m)	S(m^2)
Room length						
Room width						

Additional task. Find the surface of the room with the help of a measuring tape and compare it with the results obtained. Based on this experience can also determine the surface of the rooms**.**

Conclusion: to give similar creative assignments in circles, its performance will help to increase the work of mugs, the content of Independent Education, which is an integral part of pedagogical technology, improve their effectiveness..

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