EXPERIMENTAL PHYSICAL ISSUES AND ITS ROLE IN SHAPING THE STUDENTS' SCIENTIFIC WORLDVIEW

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ABSTRACT

This article discusses experimental physical issues and their role in shaping the students' scientific outlook, the sequences of this process.

Keywords: Experimental Problems, Practical Methods, Physical Experiments, Physical Matters.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

One of the main tasks of teaching physics at school is to form and develop student learning activities. Timely and well-organized activity is one of the factors that ensure the success of students in quality education. Therefore, the improvement of the methodology for the formation and development of students' educational activities in the educational process, in particular, is one of the inadequate opportunities for improving the effectiveness of physical education.

It is well known that in the teaching of physics, the solution of problems in practical methods is of great importance. By solving this physical problem, the student develops such positive qualities as a detailed study of the physical phenomena occurring, the development of mathematical literacy, and the development of thinking. Physical issues can also be divided into different types, such as text, graphic, experimental, quantitative computing tasks. These and other types of issues help a student to develop certain ability. That is why subject matter teachers use a variety of issues to ensure diversity in problem-solving lessons in physics. The learner should not be limited to mathematical calculations in solving the problem, as this will weaken his understanding of the event. To overcome this, it is advisable to first calculate the problem using the formula according to the theoretical law, then test the answer by experiment, or experimentally, or vice versa, to determine the numerical value of the magnitude and then to obtain the result we think. For example:

Problem 1: Objects of equal weight ($m_1 = m_2$) and size ($V_1 < V_2$) are hung on the two ends of the shoulders with equal shoulders (Figure 1). If bodies are submerged in water, will the balance be maintained?

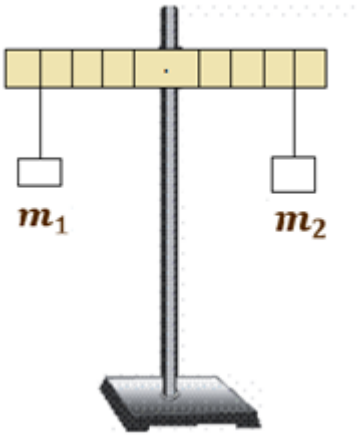

Figure 1.

When objects are submerged in water, they have a pushing force. This force is proportional to the body's volume and fluid density. Smaller bodies have less pushing force. Therefore, a smaller body of water draws the tip of the knob more. This answer will be tested in practice by students. [1]

Not all students will be able to think differently in a theoretical analysis of this issue, but the experiment will ensure that they fully understand their understanding of the subject.

Problem 2: As a result of the transfer of solar energy into the helio-greenhouse during the day, the soil temperature increased to 25 sm thick with an average of 10 K (Figure 2). How much solar energy is accumulated on the soil of the solar plant during this period? The area of sown area is 120 m, width - 12.8 m.

This issue is based on the concepts of "Heat Quantity", "Comparative Heat Capacities of Substance" and uses the heat energy $Q = cm(T_2 - T_1) = cm\Delta T$ formula because of the accumulated solar energy, the soil warming.

Figure 2.

The soil mass is not given in the case of the problem, but it is possible to determine the size of the soil layer using the length, width, and thickness of the soil. The soil density and specific heat capacity can be determined from the given table [2].

Experiments and observations in solving experimental problems can also be carried out by students themselves, as students develop and develop the skills and abilities to work independently.

Remember! Not all types of experimental tasks can be assigned to students to work on their own, as they include electrical and current devices. It is advisable to carry out these types of tasks under the self-supervision of the teacher in the extracurricular activities.

In conclusion, the use of experimental issues in the classroom can help students gain a deeper understanding of the subject, to enhance their interest in science, and to enhance their scientific outlook and enlargement. It also develops students' ability to work independently on issues. In such lessons the combination of theory and practice is provided. This will be a key factor in the careful and quality learning of the students.

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