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FACTORS AND WAYS TO DEVELOP RESEARCH SKILLS IN PHYSICS LESSONS

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ABSTRACT: The current rapid development of science and technology causes some problems in teaching physics and causes the development of new technologies. It is becoming more and more difficult to cover the achievements of modern science and technology in the process of teaching schoolchildren. The amount of scientific information is constantly growing, and it is impossible to constantly introduce a lot of new information in the field of physics. In addition, computer modeling based on numerical methods is widely used to introduce modern research methods of physics in teaching physics at school.

KEYWORDS: Significantly better results, and as a result, we compare them with their peers in physics education.

INTRODUCTION

This problem is relevant in teaching gifted schoolchildren in physics. In giftedness, we identify gifted children in physics who are interested in physics and achieve significantly better results, and as a result, we compare them with their peers in physics education. Then they can study at physics and technical university institutes.

Schoolchildren who are talented in the field of physics are interested in what is related to scientific and technical progress, so the lack of information about the achievements of science and technology may not allow them to consciously choose the direction of future professional activity.

The component of analysis and synthesis is important in the development of research skills in the teaching of physics.

Ability to analyze and synthesize. The ability to analyze and synthesize - to divide the whole into parts, to separate the symptoms, properties and signs of the whole, is the function of the analysis. Synthesis is the factor of combining elements obtained as a result of analysis. Various real objects and phenomena of existence, concepts, laws, and so on, in a word, ideal objects can also be analyzed. When analyzing a real object, you see it, and therefore you can get a complete picture of all its characteristics, advantages, its form or, say, its content. Human perception and imagination work when real objects are analyzed. For example, let's say it is necessary to calculate the volume of a hum of a certain size. We are looking at it and we can get enough information about it while it is being analyzed. This possibility does not exist when analyzing ideal objects, and therefore the imagination is activated by memory. Based on these facts, let's select the problems that develop the ability to analyze and synthesize from the problems of mechanics, and give an analysis of solving examples related to them.

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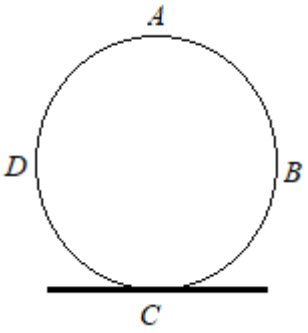
Matter. A wheel with a diameter of 1 m is rolling along a horizontal surface. Find the acceleration of point B relative to the ground (m/s²) if the speed of point A on the wheel flange is 3 m/s and the speed of point C is 2 m/s.



Given. $v_A = 3$/s, v_c=-2 m/s, a=?.

Solving. The student solves this problem by analyzing the velocities of the wheel at given points A and C and then synthesizing the acceleration of point V relative to the ground.

$$v_n = v_A + v_C = 3 + (-2) = 1 \text{ m/s}$$

$$a_n = \frac{v_n^2}{R} = \frac{1^2}{0.5} = 2 \text{ m/s}^2$$

It is necessary to choose issues of this type in the development of students' research abilities. Analyzing and synthesizing skills that develop research skills were used in problem selection, and problem analysis relevant to this component was considered.

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