# METHODOLOGY OF USING THE CREATIVE COMPONENT IN DEVELOPING RESEARCH ABILITY 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:** Teaching schoolchildren, constantly growing, field of physics.

## 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, engineering, 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.

Concepts such as "research skills", "research readiness", "research work", "talent" are often used in psychological and pedagogical literature, but the specific meaning of these terms differs from each other. Many authors as mentioned in the research of S. B. Rizhikov, this is largely due to the difference in research goals and experimental data obtained by different groups of researchers. This information covers commonly used terms: intelligence, personality, talent, etc. Therefore, it is necessary to start this work by clarifying and delimiting the meanings of the terms: curiosity, search activity, search behavior, research activity, research work, - children's talent, gifted children and other related concepts.

The creativity component is important in the development of research skills in teaching physics to students.

Creativity: solving a problem through a non-standard approach to finding a solution to a given situation. Self-confidence is a system of conscious and unique ideas of a person, on the basis of which he shows his behavior and character. Self-confidence includes all positive qualities that begin with the word "self" such as self-esteem, self-esteem, self-awareness, self-esteem. It also includes the factor of understanding one's place among people, which is the most important

factor in the formation of personality. One of the important characteristics of the student's development during the school period is the dominance of emotions, which form the basis of self-confidence. That is, self-confidence in lower classes is mainly unconscious, while in higher classes the weight of conscious self-confidence increases.

Based on these facts, we will select the problems that develop the ability of creative thinking from among the mechanical problems, and give an analysis of solving examples of them.

matter. The velocities of two particles are  ,  and the initial distance between them is 5 m (Fig. 1). What is the shortest distance (m) they will approach during the movement?
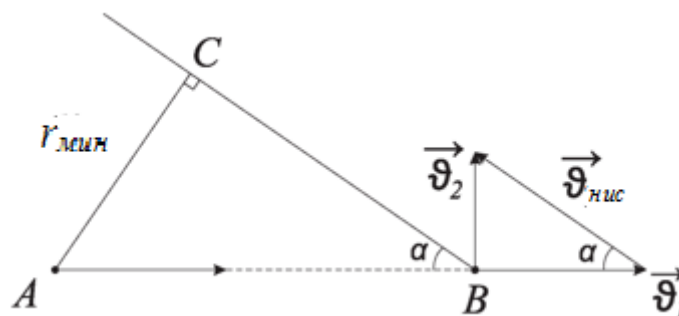


**Figure 1**

**Solving. The student uses his creativity to solve this problem. At the initial moment, the particles are at points A and V. Determines the speed of particle V from the frame of reference attached to particle A as follows**

will be equal to $v_{нис} = \sqrt{v_1^2 + v_{21}^2} = \sqrt{3^2 + 4^2} = 5\,м/с$

Particle V moves along a straight line VS relative to particle A ($\vec{v}_{нис} \perp BC$ ). As a result, the distance between particles A and V becomes minimum when particle V arrives at point S ( $AC \perp BC$). From Figure 1, the following can be written:

$$\sin\alpha = \frac{v_2}{v_{нис}} \quad \text{and} \quad \sin\alpha = \frac{r_{нис}}{AB}$$

Equating them determines r_min: $r_{мин}\ A\ B\cdot\dfrac{v_2}{v_{нис}} = 4м.\ v_{нис}$

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