The Meaning and Content of the Steam Educational Approach in the Development of Students' Creative Thinking

Yuldoshev Jahangir Tilakmurodovich
Karshi State University, Doctor of Philosophy in Pedagogical Sciences

Abstract: The article describes the content of STEAM tasks, their role in improving the effectiveness of training, methods for completing tasks.

Keywords: STEAM approach, innovative practice, development trend, IQ tests, intellectual online games.

In the countries of the world, attention is paid to the formation of the goals and objectives of general secondary education based on the trends of socio-economic development, adapting them to the demands of the time. In the innovative practice of modern general secondary education, one of the possible resources for improving the effectiveness of education is the inclusion of special developmental tasks in the content of the educational process.

One of the large-scale processes in this regard in our country is the widespread use of the STEAM approach, which is currently considered a modern education system, to develop the thinking of elementary school students. Using this educational system, we further develop the logical, non-standard and multi-method thinking of students. The use of STEAM tasks (IQ tests, online intellectual games) in the classroom and extracurricular activities, designed to show the creative thinking of students, makes learning more effective. Let's get acquainted with the content of STEAM-education below.

Summary of the STEAM Education Program

If we expand this abbreviation, we get:

S – science;
T – technology;
E – engineering;
A – art;
M – math.

Translation from English into Uzbek and content will be as follows: natural sciences, technology, engineering, art and mathematics. Not forgetting that these areas are becoming the most demanded in the modern world, education and training are provided based on the interdependence of these five. Therefore, today the STEAM education system is developing as one of the main directions. STEAM education is an educational system based on the combined use of a theoretical and practical approach, as well as the integration of all five areas into a single educational system.

The main idea of the STEAM approach is that practice is just as important as theoretical knowledge. That is, it means trying to understand that during training we need to work not only with the brain, but also with the hands. The main difference with the STEAM approach is that children use both their brains and hands to successfully learn different subjects. They themselves "read" the knowledge gained.
STEAM education is not only a way of learning, but also a way of thinking. In the STEAM learning environment, children acquire knowledge and immediately learn to use it. Therefore, when they grow up and face life's challenges, whether it be environmental pollution or global climate change, they understand that such complex issues can only be solved by relying on knowledge from different fields and working together. It is understood here that it is not enough to rely on knowledge of only one subject.

When and where did this new approach to education appear? - you can answer the question as follows. This is a natural result of combining theory and practice. STEAM was developed in America. Teachers believe that knowledge of these topics, or rather, these subjects, will help students become highly qualified specialists in the future. After all, kids want to learn well in STEAM education and apply it right away.

If we say that the main goal of traditional education is to teach knowledge and use this knowledge for thinking and creativity, then the STEAM approach teaches to combine the acquired knowledge with real skills. This gives students the opportunity not only to have some ideas, but also to apply and implement them in practice.

Thanks to the STEAM learning system, a child develops creativity, diligence, curiosity and the most important quality today is the ability to solve problems.

STEAM problem solving, IQ tests, and the development of students' logical thinking are aimed at effectively developing students' thinking with many ways to solve a problem, even if there is only one solution.

In particular, we will be able to use different ways of thinking and achieve high learning efficiency in solving many problems, puzzles and non-standard examples performed in mathematics in the lower grades. Below we will look at methods for solving various STEAM questions and IQ tests.

**Task 1:** Find the numbers in the question marks according to the law below.

2, 5, 15, 18, .?, .?, 171, 174, …,

**Solution:** When performing this task, we pay attention to the difference in numbers in the sequence of numbers and reason in this way. First, add three numbers to the first number in the line and multiply the sum by three, then add three to the resulting number and again multiply the sum by three. In this order, instead of the first question, we multiply the number 18 by 3 and get the number 54, and adding 3 to the number 54, knowing that the second question corresponds to the number 57, we find the law.

**Task 2:** Find the number in brackets according to the rule below.

36, (88), 44;
53, (77), 46;
21, (..), 24;

In this task, students will consider different laws and choose the most appropriate and correct from them. Here the solution is based on the following law.

**Solution:** The first number in the first line is subtracted from the third number (44-36) and the resulting number (8) is placed side by side, and the two-digit number (88) is written in brackets. The third number (53-46) is subtracted from the first number in the second line, the resulting number (7) is written side by side, and a two-digit number (77) is formed in brackets. In the third row, the first number is subtracted from the third number (24-21) and the number (3) formed in the difference is written side by side to form the number (33).

In conclusion, I would like to emphasize that, compared to traditional teaching methods, the STEAM approach in high school allows children to experiment, build models, create music and films on their own, bring their ideas to life, and encourage the creation of the final product. This
educational approach allows children to effectively combine theory and practical skills.

**List of used literature:**


