

DEVELOPING CREATIVE THINKING ABILITY OF PRIMARY SCHOOL PUPILSON THE BASIS OF STEAM TECHNOLOGY

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ABSTRACT

The article focuses on using STEAM technologies in regular secondary schools to help elementary school pupils strengthen their creative thinking skills. Now we create the animal world next to the plants. In this case, students are divided into small groups of 5 students. The teacher tells you to make any animal you like in the picture using a Lego constructor. The adoption of general education programs and state education standards that fulfill innovative needs. Through hands-on activities, students explore independently, create innovations, come up with new ideas, think logically, engage in creative work, and put into practice what they have learned in the classroom.

KEYWORDS: *STEAM technology, creative thinking, natural science, practical training.*

INTRODUCTION

In our country nowadays, new trends and international experience are entering the educational process. This attempts to raise educational standards, structure teaching in accordance with worldwide guidelines, and enable students to think logically, creatively, and critically.

In the “Law on Education” [1] and in the “Concept of Primary Education”, the use of methods and technologies that teach students to think independently and develop creative thinking is marked as an urgent task.

The "Concept of Development of the Public Education System until 2030," adopted by the Presidential Decree of the Republic of Uzbekistan's on April 29, 2019 [2], is a logical continuation of our country's efforts to reform and modernize its education system. Importantly, the concept establishes a series of priorities aimed at raising the quality of the continuing education system to new heights and propelling our country up the global education rankings.

In carrying out the tasks outlined in the Concept, in the development of the Republic of Uzbekistan's public education system until 2030, with a focus on STEAM sciences and the development of students' critical, creative thinking, independent research, and discussion abilities and skills. The adoption of general education programs and state education standards that fulfill innovative needs.

Unlike software teaching approaches, STEAM technology is a new system of education based on innovative technologies, with the primary goal of developing in students a new form of thinking,

creative thinking, engineering approach, critical thinking, and understanding the fundamentals of design [7].

STEAM (science, technology, engineering, arts, and mathematics) is an integrated approach of teaching that allows students to use their scientific and technical knowledge and skills in real-life situations through practical training. [10].

Before we look at methods to use STEAM technology to help primary school pupils build their creative thinking skills, we must first define creativity.

Creativity is an individual's creative ability, which is defined as the willingness to generate new ideas and is a separate factor from talent [p 4,72].

Creative Thinking is the ability to conceive, assess, and revise ideas in a way that allows pupils to successfully express themselves, learn, and come up with unique and effective solutions [8].

In addition to the school curriculum, STEAM technology can be employed in the classroom and in extracurricular activities. Below we will look at ways to explain STEAM technology in a workshop on "The structure of plants" in elementary school "Natural Sciences" lesson.

Students learn about the parts of plants and trees, such as roots, stems, leaves, flowers, fruits, and seeds, in the scientific section of STEAM technology. Then you might inquire about the following:

1. How are plants and trees divided?
2. What is made from tomatoes and quinces?
3. Which plants are depicted in the picture?
4. How did the fruit on the tree come to be?
5. Why do trees bloom?

Once the questions are answered, we will work with the students on a plant planting and care project.

Required materials: expanded clay, garden soil, rooted plants, peat, shovels, pots, biofertilizers and water containers.

Procedure for conducting practical training:

1. Soil, biofertilizer, peat are mixed;
2. The flowerpot is filled with foam;
3. The flowerbed is half filled with soil mixture;
4. The rooted plant is placed in a flowerpot;
5. The root of the plant in the flowerbed is buried in the soil;
6. The soil around the plant is pressed by hand;
7. Water the plant.

Together with the students, the growth and development of the plant is observed every day, water is poured, the height of the plant is measured, and it is recorded in a notebook.

The technology part can be organized as follows:

1. A video about the growth, development, budding, leafing, fruiting, reproduction, and seasonal changes of plants will be released.
2. Take a leaf and flower of one of the flowers growing in the classroom and observe it under a microscope. Keep notes of what you saw under the microscope.
3. On the right side of the screen are pictures of trees and shrubs, and on the left are pictures of fruits. Students find which fruit belongs to which tree or shrub and use the mouse to place the fruit on the right side of that tree or bush. In doing so, students will have the ability to know which fruit belongs to which tree by looking at the structure and leaves of the tree. In the engineering department, he invites students to make fruit trees and vegetable crops from plasticine. Ready-made plant models are compared. In doing so, students will gain an understanding of how fruits grow on trees, melons grow in fields, and why.

Now we create the animal world next to the plants. In this case, students are divided into small groups of 5 students. The teacher tells you to make any animal you like in the picture using a Lego constructor. We will now create a living nature corner by mixing plant models made of plasticine with animal models, and then a small slide film from animal and plant life will be shot by sounding and animating animal models.

Works in the art part:

1. Make 3 sentences about plants;
2. Say poems and singing about fruits;
3. Tell riddles about fruit and vegetable crops;
4. Draw a picture of a quince tree in the book.

Assignments in the Mathematics part:

1. As a continuation of the project work on planting and care of plants, together with the students every day the growth and development of the plant is observed, water is poured, the height of the plant is measured and recorded in a practical exercise book. In this case, we calculate and record how many centimeters the plant grows in 1 month, what is the shape and size of the leaves.
2. Look at the picture on page 19 of the Grade 1 “Natural Sciences” book: Six quinces ripen from a tree and fall to the ground. There are nine quinces left in the tree? How many quinces did you have before?
3. As plants grow and develop, water, air, and light turn yellow and fall to the ground. So, the main reason for this is that air temperature is very important. Plants i.e. cultivated plants are adapted to grow in the room and in the yard, in different conditions. Indoor plants are green in both autumn and winter. The leaves of the plants in the yard. Now let’s measure the air temperature together.

Practical lesson: Measuring the temperature in the school yard and classroom.

Materials needed: Air thermometer, paper, pen.

The order of work:

1. Using an air thermometer, measure the temperature in the classroom and write the result on a piece of paper.
2. Measure the temperature in the school yard with the help of the teacher and write the result on a piece of paper.
3. Compare the measurement results.

CONCLUSION: In the fall, we can change the room temperature with the help of heating equipment and the cool wind coming in through the window, but we can't change the temperature in the school yard. Therefore, the leaves of the plants in the yard turn yellow and fall to the ground. Houseplants are in the same condition for all four seasons [5, 6].

It is advisable to use this practical exercise in extracurricular science clubs, which is proposed to cover the topic of "Structure of plants" on the basis of STEAM technology. Through hands-on activities, students explore independently, create innovations, come up with new ideas, think logically, engage in creative work, and put into practice what they have learned in the classroom. In addition, they will gain knowledge about plants and their structure.

In addition, by using STEAM technology in the classroom, we help students realize the following opportunities:

- well mastering of the lesson;
- increase interest in the lesson and motivation to learn;
- understand the topic in a real-life way;
- acquisition of information and communication skills;
- be able to perform practical exercises with their own hands;
- increase the ability to think creatively in the field of creative work [9].

In conclusion, today the organization of the teaching process on the basis of STEAM technology develops the creative thinking of primary school students on the basis of practical skills, the ability to apply their knowledge in life, increase their interest in science and provides easy mastering of knowledge on the topic.

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