

## STEAM TECHNOLOGIES MAKE IT POSSIBLE TO INTRODUCE CHILDREN TO TECHNICAL CREATIVITY

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**Abstract:** STEAM technologies make it possible to introduce children to technical creativity, which contributes to the formation of the inclinations of engineering and technical thinking, and also gives children the opportunity to show initiative and independence, the ability to creative and cognitive actions.

**Keywords:** the formation of the inclinations of engineering and technical thinking, the manifestation of initiative and independence, the ability to creative and cognitive actions.

**Аннотация:** STEAM-технологии дают возможность приобщать детей к техническому творчеству, что способствует формированию задатков инженерно-технического мышления, а также дает возможность проявлять детям инициативу и самостоятельность, способность к творческим и познавательным действиям.

**Ключевые слова:** формирование задатков инженерно-технического мышления, проявление инициативы и самостоятельность, способность к творческим и познавательным действиям.

STEAM technologies make it possible to introduce children to technical creativity. In the experimentation corner there are: both basic (various vessels made of various materials, different volumes and shapes; natural and waste material; etc.) and additional equipment (oilcloth aprons, towels, containers for bulk and small items.)

To successfully solve the tasks, I used the following principles of work:

- the principle of scientific character and accessibility of concepts;

- the principle of local history;
- the principle of natural conformity.

At the same time, educational technologies were used:

- ICT - technologies (there is an interactive whiteboard in the group);
- STEAM group space created;
- technology of research activity (technology provides the child with the opportunity to find answers to all his questions, allows him to feel like a researcher);

As part of my work, I have carried out:

1) experiences and experiments with children:

Experiences and experiments with water.

- "What color is the water?";
- "What does the water taste like?";
- "What will happen to the water in the cold?";
- "Sinking - not sinking";
- "What dissolves in water?";

Experiments and experiments with air.

- "What is air?";
- "Games with a balloon and a straw";
- "Where can air hide?";
- "Is there air in the water?";
- "Air in the aquarium";
- "Air and Smell";
- "Air tricks";
- "Air pressure and wind".

Experiments with stones, sand.

- "In the kingdom of stones";
- "Collecting a collection of stones";
- "Exploring the sand";

"Hourglass";

Experience "Weigh the sand";

"Introduction to clay";

"What is the soil made of?";

"Is there air and water in the soil?";

2) In working with parents, the following were developed: consultation - children's experimentation in kindergarten and recommendations for organizing children's experimentation at home. A photo collage was made "We don't get bored even at home - we set up experiments together!"

3) A file of experiments and experiments has been formed.

The results of the work on the formation of ecological consciousness in the process of experimenting with animate and inanimate nature, presented in this diagram, indicate a successful work.

As the Chinese proverb says: "Tell me and I will forget; show me and I will remember; let me try and I will understand." Experimentation fully gives children the opportunity to independently look for a solution to the tasks assigned to them, try, experiment, make mistakes and get unexpected answers to their questions, because the satisfaction of curiosity should be combined with impatience, to find out what will happen in the next lesson, with an attempt to express their own assumptions and hypotheses.

As mentioned earlier, the STEAM education program has several modules. For my work, I chose "Mathematical Development". Why did I choose this particular module? No one will argue with the fact that every teacher should develop logical thinking in preschool children.

Working on the experience of the formation of logical thinking in preschoolers, I suggested that the use of didactic games in the development of logical thinking increases the effectiveness of the educational process. To do this, I conducted a study in a playful way, the purpose of which was:

- study of the effectiveness of the development of logical thinking of preschoolers using didactic games, both in direct educational activities and in joint and independent activities.

I did control cuts. Based on these control sections, I made a diagnosis of children. The diagnostic results showed: with a high level - 0% (0 children), with an average level - 48% (11 children), with a low level - 52% (12 children).

My observations have shown that the formation of these structures proceeds with great difficulty. Children do not have enough knowledge, do not know how to analyze.

In this regard, I have defined the purpose and objectives of my work.

Purpose: development of cognitive and logical abilities of children (personal development).

Tasks I have set for myself:

1. Teaching children operations: analysis - synthesis, comparison, ordering of actions, orientation in space.
2. Development in children: logical thinking, speech (the ability to reason, prove), arbitrariness of attention, cognitive interests, creative imagination.
3. Education: communication skills, the desire to overcome difficulties, self-confidence.

How to solve this problem? To solve the problem, I first of all created an appropriate developmental environment in the group, the Zanimatika center, which included a variety of didactic games - mathematical entertainment, taking into account the age characteristics of children.

To study the value:

-Logic puzzle "Big - small";

To study shape and color:

- Mosaic;

- Logic puzzle;

- Geometric lotto;
- Colored counting sticks;
- A set of geometric bodies.

For the study of space:

- Logic puzzle insert "Geometric shapes";
- "Geometric";
- Tangram.

To study time:

- Didactic game "What first and what then";
- Game "Didactic hours".

A card file of didactic games has also been formed. Work is underway with parents in the form of consultations and recommendations on organizing joint games at home for the development of logical and mathematical thinking.

Did I get positive results? Yes! Observing the play activities of children, I noted that didactic games for the development of logic are of the greatest interest to children.

The results of the diagnostics confirmed the need for targeted pedagogical work to organize a system of game classes using didactic games aimed at the formation of logical and mathematical thinking.

The results of the diagnostics show that during my work, my experience contributed to an increase in the level of logical development of children.

As Sukhomlinsky wrote in his book "I Give My Heart to Children", "There are thousands of tasks in the world around us. They were invented by the people, they live in folk art as riddle stories." The ability to think logically, to draw conclusions without visual support, to compare judgment with certain rules is a necessary condition for the successful development of children in the future. To develop cognitive activity in children, voluntary attention, memory, speech, fine motor skills of hands and tactile-kinetic sensitivity.

Show the relationship between man and nature. To educate the culture of children's behavior in nature. Learn to take care of the natural environment.

The question arises - where to start?Of course, the first thing is to create conditions for experimental activities.

After all, a properly equipped research laboratory, with its correct introduction into the educational process, provides an opportunity to saturate kindergarten classes with experiments with animate and inanimate nature, arouse children's interest in experimental activities, and form the initial skills of conducting independent research.

I divided the materials that are in the corner of experimentation into sections: "Sand", "Water", "Air", "Stone". They are in a place accessible for free experimentation and in sufficient quantity. The material in the corner of experimentation is designed for children, both of an average level of development, and for gifted children and children with a high level of development, in order to comply with the mini-max principle.

Thus, with the help of STEAM - technology, preschoolers delve into the logic of ongoing phenomena, understand their interconnection, study the world systematically and thereby develop curiosity, an engineering style of thinking, and the ability to get out of critical situations. At the same time, children learn the basics of management and self-presentation, which, in turn, provide a completely new level of child development.

### **Literature:**

1. Riley, Susan (2018-09-01). "STEAM careers for the 21st century". The Institute for Arts Integration and STEAM. Retrieved 2019-10-14.

2. Litvak A.G. Psychology of the blind and visually impaired: textbook. allowance /A.G. Litvak; Ros. state ped. un-t im. A.I. Herzen. St. Petersburg: Publishing House of the Russian State Pedagogical University, 1998.

3. Malofeev N.N. Special education in a changing world. Russia.: A textbook for students of pedagogical universities: at 2 o'clock. M.: Education, 2010. Part 1.

4. Fundamentals of special psychology: textbook. allowance for students. avg. ped. study institutions / L.V. Kuznetsova, L.I. Peresleni, L.I. Solntseva and others; ed. L.V. Kuznetsova. M.: Ed. Center "Academy", 2002. 11/17/2011).

5. Назирова, Г. М., and Ф. М. Рахимова. "Методологические основы формирования творческой деятельности будущих педагогов-воспитателей." Экономика и социум 1-1 (104) (2023): 334-339.

6. Malikovna, Nazirova Guzal, and Mamadjanova Muyassar Nurmatovna. "Basic principles of technology for teaching methodological subjects in preschool education." ASIA PACIFIC JOURNAL OF MARKETING & MANAGEMENT REVIEW ISSN: 2319-2836 Impact Factor: 7.603 11.12 (2022): 415-417.

azirova, G. M., D. R. Djo'rayeva, and H. M. Tojiboyeva. "Modern trends in e

dzal, Nazirova. "PEDAGOGICAL-PSYCHOLOGICAL FEATURES OF THE E

9. Malikovna, Nazirova Guzal. "Pedagogical-psychological aspects of the use of mass media for the formation of social consciousness in preschool children." INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT, ENGINEERING AND SOCIAL SCIENCES ISSN: 2349-7793 Impact Factor: 8.876 16.06 (2022): 52-57.

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