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EDUCATIONAL ACTIVITIES IN THE "CONSTRUCTION, DESIGN AND MATHEMATICS" CENTER

Rahmonova Feruza Baxrom qizi
Lecturer, Department of Preschool Education,
Fergana State University

Abstract

This article scientifically highlights the pedagogical significance of the "Construction, Design and Mathematics" Center in preschool educational organizations, the content of educational activities organized within it, its educational opportunities, and its impact on the cognitive and creative development of children. In addition, the methods and tools used in this center are described, and their effectiveness is analyzed through practical examples.

Keywords: construction, design, mathematical thinking, spatial imagination, preschool education, developmental center, competence.

In the modern education system, one of the most important tasks is to develop a child into an active, inquisitive, and independently thinking individual. Mathematics is often taught through abstract concepts and routine exercises, making it difficult to arouse children's interest. In this regard, the "Construction, Design and Mathematics" Center creates an environment where children can learn mathematical concepts in a practical, visual, and engaging way.

The "Construction, Design and Mathematics" Center is an innovative pedagogical environment aimed at activating children's cognitive activities and teaching them through practical experiences. Education in this center is based on the principle of "learning through activity." Children work with various objects, conduct experiments, observe results, and draw conclusions. As a result, they strengthen their knowledge and develop a conscious understanding of concepts.

Construction activities are beneficial for developing creativity, thinking skills, and fine motor abilities in preschool-aged children.

Mathematics and mathematical concepts are used in children's daily lives, for example, when they wake up, go to sleep, or count the number of plates placed on the table. Counting skills developed at an early age serve as an important foundation for future success in school and life. The use of mathematical competencies requires collaborative knowledge construction through practical and interactive activities with the support of preschool educators.

The Construction and Mathematics Center enables children to build structures, learn about height and weight, recognize shapes, work cooperatively, improve eye-hand coordination, and develop the habit of cleaning up after play. Through construction activities, children can develop mathematical skills, social competencies, and problem-solving experiences. This center also encourages creativity and helps children learn to concentrate on their tasks.

The center can be viewed as an example of the STEM approach in preschool education, where children acquire knowledge by taking on the roles of engineers, architects, and mathematicians.

Educational Objectives of the Center

1. Formation of Mathematical Concepts:

- Quantity, numbers, and counting;
- Geometric shapes and solids;
- Measurement and comparison;
- Spatial relations: left-right, up-down, inside-outside, between;

- Whole and part, equality and inequality.

2. Development of Construction and Design Skills:

- Working according to structures, sequences, and models;
- Understanding material properties such as strength and stability;
- Solving problematic situations creatively.

3. Support of Logical and Critical Thinking:

- Understanding cause-and-effect relationships;
- Analyzing results;
- Conducting experiments and drawing conclusions.

4. Development of Cooperation and Speech:

- Working on projects in groups;
- Explaining one's work and using mathematical terminology.

The following methods are used in the center: didactic games, practical activities, problem-based learning, observation, and encouragement.

The materials used in the center include construction sets, LEGO bricks, geometric shapes, and counting materials.

Educational activities in the center are often organized through problem situations. For example, when a teacher asks, "Why did the bridge collapse?", children's thinking is activated. By analyzing mistakes and rebuilding the structure, children find the correct solution. This process develops independent thinking and analytical skills.

The "Construction, Design and Mathematics" Center is organized according to a thematic plan. The selected theme should be reflected in the materials provided in the developmental centers. It is recommended to include regional and ethnocultural components, taking into account the specific characteristics of each preschool educational institution.

The center may consist of several tables, equipment, storage sections for didactic materials, and wall-mounted shelves. It is also advisable to have a carpeted area and a flannel board.

The objects and mathematical materials placed in the center should be selected according to the age group:

- **For younger groups:** materials should provide rich sensory experiences;
- **For older groups:** materials should support the development of counting activities and logical thinking.

The materials should ensure the advancement of mathematical education. Approximately 15% of the content should be intended for older children. At the same time, the mathematics center should include opportunities for children who experience difficulties with basic mathematical concepts. Therefore, approximately 15% of the content should also be designed for younger children.

The "Construction, Design and Mathematics" Center is an important pedagogical environment in preschool education that promotes children's intellectual, creative, and practical development. Educational activities organized in the center help develop children's knowledge, skills, and competencies based on a competency-oriented approach. Therefore, the effective organization of this center's activities is one of the urgent tasks of modern education.

The "Construction, Design and Mathematics" Center is one of the most effective means of connecting mathematics with practice in preschool education. This center develops not only mathematical knowledge but also engineering, design, and critical thinking skills, thereby creating a foundation for children to grow into well-rounded individuals capable of meeting the demands of the 21st century.

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