JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 05, May 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

ORGANIZING AND EQUIPPING EDUCATIONAL ACTIVITIES IN SCIENCE AND NATURE CENTERS

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Annotation: This article discusses the educational activities conducted in science and nature centers, methods of organizing these activities, and the equipment used. It also highlights the activities carried out under the guidance of educators, ways to stimulate children’s cognitive activity, and the importance of practical lessons in these centers. The article provides detailed insights into the educational activities, their organization, and the tools used in science and nature centers.
Key words: Science and nature centers, preschool education, environmental education, ecological culture, observation skills, scientific thinking, educational activities, learning through play, experiments, hands-on learning, pedagogical methods, educational equipment, sand filtration experiment, environmental responsibility.

Introduction. Science and nature centers in preschool educational institutions (PEIs) play an important role in shaping children’s scientific worldview, studying the environment, and developing their interest in nature. These centers help develop children’s observational skills, analytical thinking, experimentation, and ability to draw conclusions. They also play a significant role in fostering ecological education and nurturing a culture of nature conservation.

Main Body

1. **Objectives and Functions of Science and Nature Centers**

Science and nature centers are established to explain natural processes to children, develop their observational skills, and stimulate interest in scientific research. These centers perform the following functions:

- Introducing the basics of nature and science;
- Conducting observations, experiments, and research activities;
- Forming ecological education;
- Increasing children’s interest through practical activities.

2. **Organization of Educational Activities**

Educational activities in PEI science and nature centers are conducted in the following forms:

a) **Learning through Play**

- The game "Secrets of Nature" provides children with information about plants and animals;
- "World of Experiments" laboratory sessions teach natural processes;
- The game "Who Finds Faster?" develops scientific logical thinking;
- Role-playing games instill concepts of nature protection.

b) **Crop Plots and Nature Corners**

- Children plant various crops in the crop plots and observe their growth;
- Nature corners teach children to care for different animals and plants;
- Seasonal events are organized to observe changes in nature;

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- A specific ecosystem is created to study changes within it.

c) **Terrariums and Experimental Laboratories**

- Observation of insects and reptiles in terrariums to study their life processes;
- Experiments in specialized laboratories on water states, soil composition, and the effects of air and light on plants;
- Studying the formation of soil from organic waste and its natural recycling process.

3. **Equipment Used and Their Importance**

The main equipment used in science and nature centers includes:

- Microscopes and magnifying glasses – for observing small organisms and plant cells;
- Thermometers and barometers – for measuring air temperature and pressure;
- Aquariums and terrariums – for observing aquatic and terrestrial animals;
- Special experimental laboratories – for conducting chemical and biological experiments;
- Lighting and irrigation devices – for studying plant growth processes.

4. **The Role of the Educator in Science and Nature Centers**

- Guiding children in understanding natural processes;
- Organizing experiments and observations, and discussing their results;
- Cultivating love and respect for nature through ecological education;
- Developing children's thinking skills using scientific research methods;
- Encouraging individual interests by personalized approaches.

Below are examples of experiments on the topic "Properties of Sand and Water" that can be conducted with children. These experiments aim to increase children's scientific interest and understanding of natural processes.

1. Interaction of Sand with Water

Purpose: To explain how sand absorbs water and how it changes when wet.

Required Materials: Dry sand, water, transparent containers, spoon.

Procedure:

- Pour dry sand into a container and ask children to touch it and describe its properties.
- Gradually pour water on the sand and observe changes.
- Explain how sand absorbs water and why it becomes sticky when wet.

Conclusion: Sand can absorb water but does not dissolve completely.

2. Shaping Properties of Dry and Wet Sand

Purpose: To explain the difference between dry and wet sand.

Required Materials: Dry sand, wet sand, molds for shaping (e.g., small containers, cubes).

Procedure:

- Try shaping dry sand and evaluate the result.
- Shape wet sand and observe its stability.

Conclusion: Wet sand is better for shaping because water binds sand particles together.

3. Changes of Water and Sand under Weight

Purpose: To explain how sand and water respond to pressure.

Required Materials: Transparent container, water, sand, heavy objects (e.g., stones or small plastic balls).

Procedure:

- Fill the container with sand and apply pressure. Observe sand compression.

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- Fill the container with water and apply pressure to show water movement.

Conclusion: Sand compresses under pressure, while water moves.

4. Filtration Properties of Sand and Water

Objective: To explain the filtration property of sand with water.

Required materials: Salty or muddy water, sand used as a filter, transparent container.

Experiment process:

- Pass salty or muddy water through sand.
- Observe how the water gets purified.

Conclusion: Sand can act as a natural filter.

Discussion and Results. Through science and nature centers, children's observation skills increase, and their logical and scientific thinking abilities develop. The effectiveness of these centers depends on their proper organization and efficient management by the educator. Conducting educational activities through games, experiments, and practical exercises makes learning engaging and beneficial for children.

Moreover, these centers play a significant role in ecological education by fostering a responsible attitude towards nature among children. Experimental activities allow children to study natural processes directly, which helps to increase their interest in scientific education at later stages.

Conclusion. The establishment of science and nature centers in preschool educational institutions plays an important role in enriching children's knowledge about nature, shaping ecological culture, and broadening scientific worldview. The success of these centers depends on modern pedagogical approaches, provision of quality equipment, and educators' ability to use innovative methods. Therefore, it is essential to equip these centers with modern devices and conduct educational processes based on innovative approaches.

Hence, the development of science and nature centers, the implementation of new pedagogical methods, and the strengthening of ecological education are among the urgent tasks of today.

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