

# Executive Methods of Teaching Natural Science

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## Abstract:

This article explores the application of visual teaching methods in natural science education, emphasizing their significant role in enhancing student engagement and comprehension. The study focuses on various demonstration methods, such as laboratory work, excursions, multimedia presentations, and interactive experiments, which are essential tools for making complex scientific concepts more accessible. The use of these methods provides students with the opportunity to observe, interact with, and apply theoretical knowledge in practical scenarios. The article examines how these techniques not only aid in the reinforcement of concepts but also foster creativity, critical thinking, and problem-solving skills. Laboratory work allows students to experiment with natural processes, while excursions enable them to observe real-world phenomena and deepen their understanding of the natural environment. Multimedia presentations integrate video, animation, and graphics, making abstract concepts tangible. Interactive experiments encourage active participation, enhancing students' analytical skills. The study investigates the impact of these visual methods on students' ability to connect theory with practice, thus improving their overall learning experience. The findings suggest that visual methods significantly contribute to better retention and application of knowledge, promoting a more dynamic and interactive classroom environment. Furthermore, the use of these techniques helps to cater to diverse learning styles, ensuring that students with varying preferences and strengths can actively engage with the material. Ultimately, this article highlights the importance of incorporating visual methods into natural science education to enhance student learning outcomes.

**Keywords:** Natural Science, Teaching Methods, Demonstration Methods, Laboratory Work, Excursions, Multimedia Presentations, Interactive Experiments

## Introduction

Natural science teaches students about the environment, its laws, and the impact of human activity on natural processes. Demonstrative methods are important in teaching this subject, as they are an effective tool for increasing students' interest, applying knowledge in practice, and consolidating concepts. With the help of demonstrative methods, students have the opportunity to see, feel, and experience theoretical knowledge, which ensures their active participation in the learning process. This article will discuss demonstrative methods of teaching natural science, their advantages, and their role in the educational process[1].

Through methods such as laboratory work, excursions, multimedia presentations, and interactive experiments, it is possible to convey the complexity of natural sciences to students in a simple and understandable way. For teachers, the use of demonstrative methods not only increases the level of knowledge of students, but also develops their creative thinking skills[2]. In our article, we will consider how these methods can be used effectively.

## Methodology

In teaching science, demonstration methods play an important role in increasing students' interest and consolidating their knowledge. With the help of these methods, students have the opportunity to apply theoretical knowledge in practice:

- Laboratory work is a method that allows students to directly observe and experiment with natural processes;
- Organizing excursions to the natural environment, museums or science centers is another effective method that allows students to see and feel;
- Multimedia presentations are a method of teaching using video, graphics, animations and other visual materials;
- Interactive experiments are a method that encourages students to actively participate.

## Results and Discussion

The use of the demonstration method in the learning process is of particular importance for the thorough assimilation of knowledge. They are further expanded and improved when combined with the principle of demonstration in the educational process[3].

As is known, demonstration tools are used in the learning process for various didactic purposes, in particular, as a teaching tool, as a methodological guide, as a means of enhancing knowledge in the oral method, and as a means of stimulating thought in practical work.

The task of the demonstration method is different, and in the learning process, students, by looking, observing and perceiving objects, obtain certain information about physical processes with the help of their sensory organs, think based on comparing them and finding their distinctive features, on this basis certain knowledge is formed, which is later processed and thought through words, showing and explaining[4-5].

The demonstration method is determined by the fact that the goal is to obtain new knowledge based on their use. In this process, educational films, slides and slides, information texts (underneath the film) are used as a source of knowledge for acquiring new knowledge.

Students, on the other hand, respond to the task given by the teacher based on the observation (finding) of the visual aids, think, analyze, and then draw conclusions. In any case, when using visual aids, children are expected to actively perceive and think, therefore, they are given a specific task to know. It should show the observation of objects and processes, look at them, and teach the manifested beings and processes.

Observation and teaching can be carried out frontally, in groups or individually.

In natural science lessons, great attention is paid to the demonstration of natural objects. This not only allows children to imagine their size, shape and other characteristics, but also accelerates and activates the process of mastering them. Students will also get acquainted with the practical significance and protection of living plants and animals, as well as herbarium specimens and some representatives of mammals[6]. Therefore, in the process of preparing for the lesson, the teacher carefully separates the objects, taking into account that they can be well demonstrated. At this time, the main didactic requirement is that the students examine all the signs and properties of the object being studied, that is, see it well.

For this purpose, the object being demonstrated should be placed on a special table in the center and have enough light coming from around it. For this, a table lamp or other lighting should be used. For smaller objects, the teacher should walk between the desks.

The main types of the demonstration method are observation. Observation is a planned, purposeful, conscious perception of the surrounding being, objects and phenomena.

There are 2 signs in observation. A clear goal must be set and attention must be focused on the object of observation.

The teacher must organize observation, mobilize children for it, and highlight the important signs of the objects being observed. Students try to find out the characteristic signs of the observed object. For example, children compare a maple and a maple tree, their colors, determine their differences and common signs: they look at the fruits of a maple, a plane tree, a willow, a poplar, a common elm, and see how they differ from each other, they look at them and see how they differ from each other, they determine the shape of their shape, and the color of their shape[7]. Planting seeds in the playground in front of the school, children observe the development of plants, how the seeds germinate, how the first and second leaves are formed.

The importance of observation is that observing, comparing, identifying similarities and differences in things helps children develop their thinking, attention and will, and acquire knowledge about the world[8].

Observations are of two types: short-term and long-term.

Short-term observations last from a few minutes to 2-3 hours.[9] This time is determined by the ability to perceive or accept something. The structure and movement of many animals, turtles, snakes, frogs, dragonflies, butterflies, birds are observed.

Long-term observations require a long time or are divided into time intervals, but include events that form a continuous process. In particular, changes in the growth of plants, changes in the color of leaves, the departure or arrival of birds, and the process of seed germination to fruit formation are observed and recorded, the collected data are compared, summarized, and certain conclusions are drawn from them. This helps to identify the causes of long-term changes[10]. Observations should have the character of local history.

In the implementation of the demonstration method, demonstration tools play a key role. Demonstration tools are divided into two groups, natural and pictorial.

Natural demonstration tools are objects of nature. They are houseplants, tree branches, leaves, flowers, fruits, seeds, roots, herbariums, seed collections, bouquets and wet preparations of fruits and vegetables[11].

In terms of animals, they are living specimens of animals, their bodies, skeletons, insect collections. (Dummies, models, paintings, paper flowers, wet preparations, etc.).

Natural materials in inanimate nature are granite, quartz, feldspar, oil, sand, calcium, marble, lime,

stone, salts, table salt, coal, iron, copper ores, soil, water, etc.

Objects that children cannot perceive without their own eyes are presented through pictorial exhibitions. They are sold in special stores. In particular, for grades II-IV, a special series of pictures called "Domestic Animals", "Animal World", "Plants of Our Country"[12] are a set of pictures. These are mannequins, models, pictures, screen applications, visual exhibitions.

During the lessons, they understand the connections between objects and phenomena based on direct observation. For example, the processes of formation of a leaf from a bud, silk from the activity of a mulberry silkworm are learned. Knowledge based on observation of observations is of practical importance for students[13]. It is not necessary to choose too complex and incomprehensible phenomena and objects. This will quench the interest of students.

The content of natural science lessons is aimed at obtaining independent knowledge in students using visual aids. During the lesson, children examine the visual aids, analyze their parts, compare them, and finally determine their similarities and differences. The knowledge gained through visual and cognitive activity is stored in memory for a long time. At the same time, the teacher creates a way for students to increase their interest in knowledge and easily master new knowledge.

The essence of the use of the demonstration method is that students, using these demonstrations in their place, gain new knowledge about them, that is, about natural objects and phenomena. For example, taking a landmark in a place based on the characteristics of the plant world; predicting weather changes based on the behavior of animals and plants, changes in nature based on observation; using natural materials to learn.

Observations in grades 1-3 should be used in various forms of educational work, in practical classes, in trips to the corner of living nature and in independent classes in the educational and experimental area, in completing homework[14].

When independently studying natural materials, children develop observation and attention. At this time, the teacher should give a complete plan for observation and show how to determine the signs and properties of the object being studied.

The map also plays a large role in the development of observation, and conditional cartographic symbols are consistently mastered on the basis of playing travel games on the map, studying.

3rd grade students fill out the "Nature and Labor Calendar" as a result of observing the nature they live in and the work of people. This plays an important role in studying changes in nature[15].

In lessons organized using the demonstration method, attention is also paid to short-term, attention-grabbing experiments.

Experiments are an interesting and effective way for students to learn about the environment. Small, short-term experiments are of particular importance in the promotion of It plays a unique role in developing logical thinking and speech, and in revealing the innermost secrets of nature. As a result, children acquire new knowledge.

## **Conclusion**

In conclusion, organizing lessons in a visual method, experiencing the world in various forms, sizes, colors, and the interconnectedness of realities, the processes of cause and effect, the ability to think based on facts, draw conclusions, and on this basis, the acquisition of worldly knowledge plays a significant role in solving the targeted task of acquiring worldly knowledge. For example, to determine which type of food a dog likes, 3 different foods - bread, meat, and candy - are wrapped in 3 pieces of paper and placed in front of it. Which piece of paper will the dog walk on faster? Determine and draw a conclusion.

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