



**AJER**  
AKADEMIC JOURNAL OF  
EDUCATIONAL RESEARCH

# ISSUE 6

**AKADEMIC JOURNAL  
OF EDUCATIONAL RESEARCH (AJER)  
INTERNATIONAL SCIENTIFIC JOURNAL**

**November 2024**

**[WWW.AJERUZ.COM](http://WWW.AJERUZ.COM)**



**International Scientific Journal**  
**AKADEMIC JOURNAL OF EDUCATIONAL RESEARCH (AJER)**  
**November 2024**

**Tashkent 2024**

## FOR THE DEVELOPMENT OF NATURAL SCIENTIFIC THINKING OF STUDENTS

Ochilov Fariddun Izatulloevich

*View. Associate Professor of Chirchik State Pedagogical University,  
Doctor of Philosophy of Pedagogical Sciences (PhD). Uzbekistan.*

Tuychiyeva Ulbusin Sunat kizi

*Student of Primary Education at Chirchik State Pedagogical  
University, Uzbekistan.*

**Abstract.** *This article analyzes the mechanism for the development of students' natural science thinking in the process of teaching academic subjects, and also describes the author's methods.*

**Key concepts:** *education, science, student, natural scientific thinking, mechanism, knowledge, skill.*

**Аннотация.** *В данной статье анализируется механизм развития естественнонаучного мышления студентов в процессе преподавания учебных предметов, а также описываются авторские методы.*

**Ключевые понятия:** *образование, наука, ученик, естественнонаучное мышление, механизм, знание, умение.*

A new development strategy is being developed and implemented in Uzbekistan [1]. One of the main directions of this strategy is to achieve quality education in the country by 2026. From this point of view, the development of students' natural-scientific thinking is one of the factors in achieving quality education. Starting from the 2023-2024 academic year, the teaching of natural science subjects based on programs developed on the basis of new approaches has been introduced in secondary schools across the country [2]. The content of this new approach is programs and educational materials developed according to the principle from practice to theory. In this regard, it is important to rely on the mechanism for developing the natural science thinking of secondary school students as a means of teaching natural sciences. Here we will focus on analyzing this problem [3].

*Development of students' natural science play in the classroom.* Today, in the country's secondary schools, the subjects of botany, geography, zoology, biology, chemistry, physics, astronomy, which are part of the natural sciences, are taught, and their basic concepts are taught at the elementary level. From this point of view, it becomes possible to develop students' natural scientific thinking when studying these natural science subjects. To do this, it makes sense to rely on a unique new methodology.

In our opinion, the basics of such a methodology are as follows:

- a) expanding the forms of science lessons;
- b) updating the natural sciences course;
- c) monitoring the effectiveness of science lessons.

It should be noted that there are opportunities to expand the types of natural science subjects taught in secondary schools and to develop students' scientific thinking on their basis. In our country, there is a traditional way of teaching science subjects, that is, the teacher's activities in the classroom and explanation of topics based on rules. This traditional form has proven its effectiveness over the years. In addition, it is advisable to introduce non-traditional types of lessons in secondary schools. In such non-traditional types of classes, the priority is the principle of transition from practice to theory, the priority of student activity in the lesson, and most importantly, the mastery of topics based on additional information. In this regard, the development of students' natural scientific thinking on the basis of traditional and non-traditional types of lessons gives the expected results. For example, teaching debate in non-traditional types of lessons is very important for developing students' scientific thinking. Because in this lesson, students receive additional information from the teacher and their peers, think independently and show creativity. From this point of view, it is possible to develop students' natural science play at the expected level by organizing the main classes of the subject of plant growing in non-traditional forms of classes. In this case, it is appropriate to focus on consolidating students' theoretical knowledge about the plant world (the world of flora). For this, it is very important to provide students with information about the flora of Uzbekistan, plants listed in the Red Book, and the basics of plant protection. As a result, students master the basics of natural science and scientific thinking. Therefore, we consider it appropriate to expand the process and forms of teaching natural sciences in secondary schools. Because it is known that students' scientific thinking is limited in the form of traditional education. It is necessary to update the content of these science lessons in order to develop students' scientific thinking based on the teaching of science subjects. According to him, it is important to cover each topic based on new approaches, equipment and methods. For example, when updating the content of the curriculum for the subject "Zoology," it is better to focus on providing complete information about the animal world, providing theoretical knowledge about animal species listed in the Red Book, and developing a broad understanding of the animal world. In this regard, when teaching the basics of this subject, the basis of the principle of regional characteristics is updating the content of its lessons. As a result, students develop their own natural scientific thinking, fully understanding the animal world of their region. Because the fauna of the regions is well known to students and there is an opportunity to observe it in practice. This is one of the important factors in the development of students' natural scientific thinking.

It is important to monitor the effectiveness of science teaching in secondary schools. Since in the course of such monitoring of students' mastery of the subjects being

studied, regardless of whether the educational materials meet the requirements or not, there is a need to update the educational materials. Thus, monitoring the effectiveness of teaching natural science subjects provides a mechanism for the real development of students' natural scientific thinking. For example, it should be noted that in a biology lesson, students have the opportunity to receive compulsory education on nature, plants, wildlife and environmental protection. As a result, students will have specific mechanisms for purposefully developing science games.

It should be noted that in science class, students have a wide range of opportunities to develop their natural and scientific thinking. To do this, you need to pay attention to the following:

- 1) development of students' natural perception skills;
- 2) development of students' scientific knowledge;
- 3) application of natural skills and scientific knowledge of students in practice.

This approach makes it possible to develop students' natural-scientific thinking in science lessons held in secondary schools. Therefore, it is appropriate to focus on non-traditional forms and methods of teaching natural sciences.

### **References:**

1. Development strategy for the new Uzbekistan. [www.Ziyonet.uz](http://www.Ziyonet.uz).
2. Juraev R. Pedagogy. – Tashkent, 2022
3. Ochilov F.I. Teaching Natural Sciences of the basis of a competency-based approach. [Text]: Monograph / F.Ochilov. – LAP LAMBERT Academic Publishing, 2023. – 114 p.



**AKADEMIC JOURNAL OF EDUCATIONAL RESEARCH (AJER)**  
**international scientific journal**  
**6-son**

Nashr qilingan sana: 27.11.2024.  
Shrift: "Times New Roman".

**“ACADEMIC JOURNAL” MCHJ**

Manzil: 700096, Toshkent shahri, Chilozor tumani, Bog‘iston ko‘chasi, 116/6.  
www.ajeruz.com, info@ajeruz.com, +998950457172