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THEORETICAL AND PRACTICAL BASIS OF FORMING STUDENTS' ECOLOGICAL CULTURE IN NATURAL SCIENCE LESSONS

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Annotation: This article analyzes the theoretical foundations, didactic approaches and efficiency factors of forming ecological culture in students during natural science lessons. The development of ecological culture is one of the priority tasks of the education system in today's conditions of globalization, rapid technological changes and increasing environmental problems. The study highlights the mechanisms for directing students' worldviews to ecological awareness, ecological responsibility and the ideas of sustainable development based on the integrative capabilities of natural sciences - biology, geography, chemistry and physics. Also, modeling environmental problems in the lesson, conducting experiments, conducting observations, searching for solutions to problem situations, and using project work are justified as effective educational strategies. The article analyzes practical methods such as working with real natural objects, keeping ecological observation notebooks, studying the local ecological situation, and developing the activities of school ecological clubs. The conclusion substantiates the role of the teacher in the formation of ecological culture, the interrelationship of lesson design, innovative methods, and learning motivation.

Keywords: Ecological culture, natural sciences, ecological awareness, sustainable development, integration, practical methods, ecological education, observation, experience, innovative pedagogy.

Among the most urgent problems facing humanity today, environmental problems occupy a special place. Global warming, loss of biodiversity, pollution of air and water resources, land degradation, and increasing waste volume pose a serious threat to humanity. In such conditions, raising a generation capable of improving ecological culture and ensuring harmony between nature and society is a strategic task of the education system. In particular, natural science lessons play an important role in deeply understanding the content of ecological culture and forming practical skills.

Natural sciences - biology, geography, chemistry and physics - teach the structure, laws and processes of nature on a scientific basis. Therefore, these subjects create the scientific foundation for the formation of ecological awareness. The student observes nature, conducts experiments, assesses the ecological state of his territory and seeks solutions to environmental problems. As a result, he acquires a responsible attitude aimed not only at knowledge, but also at practical activities.

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Ecological culture is a person's attitude to nature based on the principles of conscious, responsible and sustainable development. It includes the following aspects:

1. Ecological consciousness - understanding the interdependence of natural systems.

2. Ecological thinking - analyzing the problem, understanding cause-and-effect relationships.

3. Environmental responsibility - making a personal contribution to nature protection.

4. Practical skills - activities such as waste sorting, water conservation, tree planting, and environmental monitoring.[1]

Therefore, ecological culture is not limited to providing information; its core is a combination of consciousness, values, and practical actions.

Biology offers knowledge about living organisms, ecosystems, and the biosphere. Students learn:

- the vital needs of living organisms;
- ecosystem stability;
- food chains;
- the impact of anthropogenic factors.

In these processes, students develop an idea of the complexity of nature, the interconnectedness of organisms, and the fragility of the ecological balance.

Geography provides fundamental knowledge about natural resources, climate change, natural geographical processes, and human influence on them. Students can create an ecological map of their region or analyze global ecological processes.

Chemistry helps to understand the processes of environmental pollution at the molecular level.

For example:

- ✓ the composition of air pollution;
- ✓ heavy metals in water;
- ✓ the biological effects of chemical waste.

Through chemical experiments, students gain a deeper understanding of the problem by seeing the scientific foundations of ecological processes.[2]

Physics teaches how energy, radiation, and natural processes occur based on the laws of physics. The following knowledge is important in environmental protection:

renewable energy sources;

greenhouse effect;

energy-saving technologies.

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Students see, analyze, and draw conclusions about changes in their area through direct observation of natural objects.

Examples:

studying the condition of tree leaves;

observing bird migration;

the cleanliness of water bodies.

Laboratory and field experiments are one of the most effective methods for consolidating ecological knowledge.

For example:

determining soil fertility;

the reaction of pollutants in water;

studying the process of photosynthesis.[1]

Develops independent and collective activity of students.

Project topics:

“Ecological map of the neighborhood”;

“Waste-free school”;

“Water saving system”.

Through “Discussions”, “Brainstorming” and “Situational games”, students study global problems.

For example:

global warming;

plastic waste;

deforestation.

Students participate in environmental activities:

tree planting;

cleaning the school grounds;

ecological walks.

Each lesson can be linked to an environmental idea. For example:

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The topic of photosynthesis - with the importance of forests;

The topic of the atmosphere - with air pollution;

Chemical reactions - with environmental safety.

A living corner, a school garden, neighborhood parks are used in the practical part of the lesson.

Digital technologies

ecological maps;

virtual laboratories;

satellite images;

digital observation logs.

The teacher performs the following tasks:

1. encourage students not to be indifferent to environmental issues;

2. Motivating the learning process;

3. Organizing practical activities;

4. Teaching the correct use of scientific sources;

5. Instilling ecological values.[2]

In conclusion, the formation of an ecological culture in natural science lessons is one of the most important tasks of modern education. The student should not only receive ecological knowledge, but also acquire ecological thinking, responsibility and practical skills. For this, the lessons should be scientifically based, practical, and enriched with innovative technologies. As a result, the opportunity is created to educate an environmentally conscious, responsible person who is ready to protect nature.

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