

## **WAYS OF ENVIRONMENTAL EDUCATION IN THE TEACHING OF CHEMISTRY IN HIGHER EDUCATION**

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### **ABSTRACT**

*Today, a general education school is called upon to lay the foundation for the formation of a personality with a new way of thinking and a type of behavior in the environment - ecological. The sooner the student is introduced into the sphere of environmental problems, the more effective the process of educating him in a responsible attitude towards nature will be. Ways to achieve the goals of school environmental education can be very different: the greening of academic disciplines, the creation of integrated courses, the introduction into the practice of teaching special subject that reveals issues of ecology and environmental protection from pollution.*

**KEYWORDS:** *Chemical-Analytical Monitoring, Environmental Situation, Biological Interchangeability, Biogeochemical Cycles, Chemical Experiment.*

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### **INTRODUCTION**

The role of chemistry in solving environmental problems at the present stage is significant: – by studying the composition, structure and properties of substances, chemistry can answer how a particular substance behaves in the atmosphere, soil, aquatic environment, what effects it and the products of its transformations have on biological systems; —revealing the mechanisms of biogeochemical processes in the natural cycle of elements, chemistry contribute to the solution of the problem of the most natural and “painless” entry of industrial production into natural cycles, making it part of any ecosystem; — using a variety of methods of chemical-analytical monitoring of the state of environmental objects or the quality of finished products of a number of industries (chemical, petrochemical, microbiological, pharmaceutical), chemistry allows you to obtain the information necessary for subsequent decision-making on preventing the entry of harmful substances into controlled facilities, cleaning these facilities, ways to protect them, etc.

The ecologies course of chemistry makes it possible to reveal the special role of this science in the fight against environmental ignorance, manifested in the rooted idea of the “guilt” of chemistry in the current environmental situation, to involve schoolchildren in research work to study the state of the natural environment, to instill in them a sense of personal responsibility for its preservation. As you know, chemistry is a subject in the study of which environmental aspects can be reflected in almost every lesson, as well as in extracurricular activities.

When studying any topic, it is possible and necessary to raise environmental issues. Ecologization is based on ideas about the relationship between the composition, structure, properties and biological function of substances, their dual role in wildlife; biological interchangeability of

chemical elements and the consequences of this process for organisms, the causes of violations biogeochemical cycles. (The main tasks of the chemical and environmental direction are:

—Development of mental ability of students; formation of the student's individual readiness for the perception of the studied material; — ensuring self-activity, the process of perception, observation and memorization; — formation and development of scientific concepts reflecting the picture of the world; - integration of knowledge. In the process of teaching chemistry in grades VIII-XI, it is important to consider the problems of protecting the environment about tons of chemical pollution. When studying the topic “Initial Chemical Concepts” in Grade 8, students should have an initial understanding of the chemical element and related concepts. In addition to theoretical knowledge, students acquire practical skills in conducting a chemical experiment, for example, in the purification of substances and the separation of mixtures. In this regard, it seems possible to familiarize students with a number of environmental concepts: pollutants, sources of pollution, and modern methods of purification of substances (waste) in industry: Briefly about the problem of waste. According to some estimates, humanity uses approximately 11 billion tons of various substances and natural materials. By the end of the century, their consumption could triple. From 50 to 90% of the primary natural substance in the process of its processing and consumption turns into waste.

More than 4 billion oil and natural gas, more than 2 billion tons of rock mass in the form of ores and accompanying rocks are produced annually in the world. Combustible minerals, ores, rocks, being processed, get into the air, soil, water. Not all substances entering the environment are pollutants: they include only those that cause a violation of its quality. Chemical pollutants that, for example, enter the human body with food include: nitrates and nitrites, radionuclides, pesticides and their decomposition products, heavy metals, animal growth stimulants, etc. Their sources are industry, agriculture economy, energy.

The issue of waste treatment of any production is acute, since the ideal model of waste-free technology has not yet been created. Modern cleaning methods include: filtration, dust, gas collection, neutralization (neutralization, oxidation, reduction, absorption of gases by liquid and solid absorbers), biological treatment (cleaning with the help of microorganisms), wastewater disinfection, sedimentation (in sedimentation tanks), transfer substances into insoluble sludge and insoluble compounds.

Students get acquainted with some methods in the performance of laboratory and practical work. Students can be encouraged to read additional literature on these issues and do creative work. Not all students will take part in such work; the rest can be offered the following tasks: 1. Find in any printed publications (newspapers, magazines, books) messages about adverse environmental situations. Write a short summary or annotation that you have read. State your opinion on this post. Imagine that you are a responsible person and offer your own solution. 2. Read the text offered to you (or looks at the picture). List the wrong actions that a person (or a group of people) has committed in relation to nature. What would you do? 3. Using your experience, come up with (or describe) a situation in which nature (its inhabitants) suffers through the fault of a person. Suggest a comrade to everyone analyze it. Rate their answers. 4. Suggest the rules of student behavior in the natural environment: a) on vacation; b) during the tour; c) when performing socially useful work outside of school 5. Describe the ecological situation: a) at your school site; b) near the house, entrances, on landings, in the dwelling; c) near the nearest enterprises, institutions, shops; d) in the nearest park, forest, river, lake, pond. What can you personally do to maintain and improve natural environment?

At the final stage of schooling in grades X-XI, prerequisites are created for understanding such environmental patterns as the cyclicity and continuity of processes, the exchange of substances between the constituent components of the biosphere.

We pay special attention to the issues of maintaining the right of every person to live in such a natural and social environment that would support his dignity, health and spiritual well-being; cause serious concern for the state of environment: global warming, depletion of the stratospheric ozone layer, acid rain, accumulation of toxic heavy metals and pesticides in the soil, contamination of large areas with radionuclides, depletion of the planet's natural resources. When drawing up thematic planning, we take into account environmental aspects.

**LIST OF REFERENCES:**

1. Mirziyoyev Sh.M. Together we will build a free and prosperous, democratic state of Uzbekistan. T.: Ozbekiston, 2017. - 32 p
2. Mirziyoyev Sh.M. The rule of law and the protection of human interests are the key to the development of the country and the well-being of the people. T.: Ozbekiston, 2017. - 48 p
3. U.Y.Odum. Ecology.2-vol. - M.: Mir, 2014. - 328 p.
4. Yormatova, H. Khushvaqtova. Practical training in ecology. Tashkent, Science and Technology. 2012.
5. D.Yormatova. Industrial ecology. Tashkent. Association of Philosophers - 2008.
6. Sh.Shirinboyev, M.Sarfin. Environmental protection. Samarkand. 2003.
7. S. Mustafoev, S. Urokov, P. Suvonov. General ecology. Tashkent. 2006