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FORMING ECOLOGICAL THINKING IN STUDENTS ON THE BASIS OF INTERDISCIPLINARY RELATIONSHIPS

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Abstract
This article presents materials related to the formation of ecological culture through the formation of students' holistic ideas, practical skills and competencies through the integration of chemistry, physics and biology.

Keywords: chemistry and ecology, biosphere, ecological education, ecological culture, school curriculum in chemistry, natural science.

Introduction

In the Action Strategy for the Further Development of the Republic of Uzbekistan, “the development of innovations in the field of education and science, in particular, the systematic implementation of the policy of training qualified personnel, taking into account the modern needs of the labor market” [1] is defined as a priority task, and in this regard, it is important for chemistry teachers to develop methods of formation of ecological culture among students on the basis of an integrative approach to chemistry.

Main Part

Two objective characteristics (trends) in the development of sciences - differentiation (branching) and integration (connection, unification) - ultimately play an incomparable role in creating a holistic, general scientific picture of the world. In such conditions, the problems of regulating human impact on the biosphere and achieving a balance in the relationship between man and nature become relevant every day.
Biology, especially among the natural sciences, occupies a leading place in this process. It constitutes the scientific basis of technology during the modern scientific and technological revolution. The correct use of physical laws, phenomena and processes in chemistry lessons, as well as in the process of teaching plants, contributes

to the formation of students' ideas about biology, a comprehensive and deep assimilation of the knowledge they have received from the natural sciences.

In improving environmental education, it is necessary to pay attention to the issues of protecting the environment, nature, man, the correct and rational use of natural resources, cleanliness. These issues should be included in the content of work plans, as part of curricula, educational programs, and optional training.

Since the environmental education of students is a complex problem, it is very difficult to implement it in the process of teaching one subject. To do this, in the process of teaching each subject, it is necessary to provide concepts specific to this subject, as well as interdisciplinary communication, equip students with a system of environmental knowledge and combine them with environmental education.

The problem of the formation of ecological thinking in teaching secondary school students of chemistry and biology remains an urgent task. Therefore, in the formation of ecological thinking among students, teaching chemistry in connection with biology contributes to a positive solution to the research problem. In particular, the pedagogical necessity is that the teaching of chemistry in connection with biology is of great importance in the formation of students' ecological thinking.

For the sciences of chemistry, biology and physics, this is a system of ideas about the structure of animate and inanimate nature, energy exchange in them and internal energy. The concepts that unite chemistry, biology and physical sciences are important: matter, forms of its action, organizational level, cellular structure. The systematic implementation of interdisciplinarity in the teaching of these subjects paves the way for students to realize the unity of "Nature-Man-Technology-Society".

On the basis of this, students form a systematic and holistic view of nature, in which everything is interconnected, and also constantly creates and improves itself on the basis of the circulation of matter and energy. Therefore, normal biochemical conditions for life on Earth are preserved. On this basis, interdisciplinarity paves the way for understanding the essence of modern science: integration, socialization, humanization [2].

An ecological culture can be formed during chemical experiments in a school chemistry course. In particular, when conducting demonstration experiments, the teacher should conduct experiments with the release of poisonous gases under the fume hood, close the lid of the container immediately after using volatile substances, if the air in the classroom changes with the release of various odorous substances, use an air purifier. Performing actions such as starting, airing the room in front of students allows them to form elements of ecological culture.

In laboratory and practical classes, students are required to keep the desktop clean, monitor work in dressing gowns, follow safety rules when detecting the smell of a substance, collect used reagents in containers and put them away. in a designated place, and not in a container, they will achieve the formation of an ecological culture. An analytical study of the general school curriculum in chemistry and textbooks showed that it is possible for students to form an ecological culture on the basis of interdisciplinary communication in the teaching of many subjects.

"The oxygen cycle in nature, the composition of the air" is determined in the chemistry program of class VII. Air pollution protection. air pollution"

On the topic of pollution prevention, the measures taken by the government to clean up polluted air will teach schoolchildren to think ecologically.

"Pure substance and mixture (exhibition-demonstration)" "The distribution of water in nature, its significance and use for living organisms", "Measures to protect water bodies from pollution" at a chemistry lesson of grade VII. In teaching the topics "methods of water purification, water pollution", chemistry, there is an opportunity to scale the ecological culture.

Natural sciences: research was conducted on the formation of ecological culture among schoolchildren in connection with physics, biology, chemistry. According to him, as a result of the continuous movement of the molecules that make up substances, they pass from gas to water, from water to soil, for example, more than 40,000 tons of fluorine oxide diffuse through the air from an aluminum plant. In the Republic of Tajikistan for one year and comes to the Uzun, Sariosioy, Denov, Surkhandarya regions, that this will have a negative impact on the Altynsoy regions, or that 289 thousand of the 2 million 60 thousand lands of the region were seized in the form of liquid, and currently 40- 45 percent of this area is dispersed from seepage waters, and as a result, Namuna from the Uchkizil reservoir in the Termez region, Dostlik collective farms of salinization of crop areas or excessive contamination of drinking water can be cited as an example.

Table 1 below shows the permissible concentrations of substances (in mg/m_3) and standard values (in mg/m_3) in Surkhondarya water [3].

The guideline value for the concentration of chemicals in water is important, and exceeding it can pose a serious threat to human health.

Table 1 Permissible limit of harmful substances in water

Name of substances	Harmful signs	Permissible concentration mg/m_3	Norm in water of Surkhandarya region, mg/m_3
Sanitary Taxological			
Lead	-	0,10	0,0003
Mercury and its compounds	-	0,005	0,0003
Benzene	-	0,50	1,50
Formaldehyde (formalin)	-	0,10	0,0003
General sanitation			
Acetone	-	-	0,35
Organogenetic			
Chlorobenzene	-	0,0001	0,01

When harmful substances in water exceed the specified limit, it is caused by the discharge of waste rubber, batteries, etc. into canals and large canals. It causes great damage to water facilities and ancient historical monuments.

Conclusion

we can say that the main goal of our study is to analyze the environmental situation in chemistry lessons on the basis of interdisciplinarity, the formation of an ecological culture among students in the classroom and in extracurricular activities.

References

1. Towards rapid development and renewal based on the strategy of actions.- Tashkent: NMIU named after G. Ghulam, - p.70 .
2. Omonov H.T. Philosophical-pedagogical foundations of chemistry education and issues of its improvement: Autoref.dis.ped.fan.doc.–T.: Nizamiy Named TDPI, 1995. - p.256 .
3. Norbo'taev K.B. Methodology of interdisciplinary formation of ecological thinking among schoolchildren (in the example of biology and physics): Dis...Ph.– Tashkent: TDPU named after Nizomiy, 2011.- p.163.