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THE IMPORTANCE OF USING PROBLEM-BASED METHODS IN PREPARING LESSON PLANS FOR THE "ECOSYSTEM" CHAPTER OF BIOLOGY

Jumanov Muratbay Arepbayevich,
Professor of Karakalpak State University
Ravshanova Umida Bakhriddinovna,
TerDU independent researcher

Annotation. This article is devoted to the study of the importance of using problematic methods in the process of preparing lesson developments in the chapter "ecosystem" of biology. With the help of problem methods, students are activated, develop independent thinking and research skills. The article analyzes the positive impact of problem methods on the educational process, helping to further understand the concept of ecosystem, and the role of students in the formation of environmental consciousness. The article also outlines the applications of modern pedagogical approaches to teaching biology and ways to improve the effectiveness of problematic techniques.

Keywords: ecosystem, biotome, biocentesis, logic, lesson Development, Science, Matter, testing, practice training, problem education, integration, project.

Аннотация. Данная статья посвящена изучению значимости использования проблемных методов в процессе подготовки конспектов уроков по главе биология "экосистема". С помощью проблемных методов учащиеся активизируются, развивают самостоятельное мышление и исследовательские навыки. В статье анализируется положительное влияние проблемных методов на образовательный процесс, способствующих более глубокому пониманию концепции экосистемы, а также их роль в формировании экологического сознания учащихся. Также в статье показано применение современных педагогических подходов к обучению биологическим наукам и пути повышения эффективности проблемных методов.

Ключевые слова: экосистема, биотом, биосинтез, логичность, разработка урока, научность, проблема, тестирование, практическое обучение, проблемное обучение, интеграция, проект.

Annotatsiya. Ushbu maqola biologiyaning "Ekosistema" bobiga doir dars ishlanmalarini tayyorlash jarayonida muammoli metodlardan foydalanishning ahamiyatini o'rganishga bag'ishlangan. Muammoli metodlar yordamida o'quvchilar faollashadi, mustaqil fikrlash va

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tadqiqotchilik ko‘nikmalarini rivojlantiradi. Maqolada muammoli metodlarning ta'lim jarayoniga ijobiy ta'siri, ekosistema tushunchasini yanada chuqurroq anglashga yordam berishi hamda o‘quvchilarning ekologik ongini shakllantirishdagi roli tahlil qilinadi. Shuningdek, maqolada biologiya fanini o‘qitishda zamonaviy pedagogik yondashuvlarning qo‘llanilishi va muammoli metodlarning samaradorligini oshirish yo‘llari ko‘rsatilgan.

Kalit so‘zlar: Ekosistema, biotom, biosentez, mantiqiylik, dars ishlanmasi, ilmiylik, masala, test, amalish mashg‘ulot, muammoli ta’lim, integratsiya, loyiha.

Introduction

Youth education in Uzbekistan is one of the priorities of state policy. The country is undergoing extensive reforms aimed at providing young people with quality education, ensuring that they have modern knowledge and skills. Much attention is paid to increasing the level of knowledge of young people at all stages, from preschool to school, vocational and higher education. Today, modern educational institutions for young people are being built in Uzbekistan, innovative training programs are being introduced. Special attention is also paid to improving the skills of young people in such areas as teaching foreign languages, information technology, robotics, engineering. It seeks to give young people not only theoretical knowledge, but also practical skills. Including chemistry further emphasis is placed on teaching biology subjects. The techniques used in teaching biology serve to make subjects accessible and interesting to students. In the modern educational process, in addition to traditional teaching methods, interactive and innovative methods are being resorted to in order to increase the activity of students, direct them to scientific research and increase their interest in science. One of these is the problem method, which has a particularly high performance in teaching natural sciences such as biology. Especially in the study of the Chapter” ecosystem", the use of this method is of great importance in the formation of environmental thinking in readers.

Research methodology

The formation of ecological literacy, maintaining the stability of the biosphere, harmonizing the interaction between nature and man is one of the priorities in the education of the current period. Especially by teaching the chapter “ecosystem” of Biology on the basis of a problematic approach, students develop scientific thinking, ecological culture, creative research skills.

A problem method is a method that focuses on students independently searching for knowledge through questions and problem situations, rather than giving them ready-made knowledge. Through this approach, students can:

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Problem detection;

Analysis;

Evidence-based reasoning;

Develops skills to reach scientific conclusions.

The possibilities of using the problematic method in the chapter "ecosystem" of Biology in X-sine:

"Ekosystem" chapter in the complex processes in nature, between living organisms and their environment as well as the associated live will analyze. The following problematic questions studying these topics can give:

Why the ecosystem self-management features?

People shows how ecosystem effects of activities?

Ecosystem consequences when they break, how come?"Ekosistema" chapter in the complex processes in nature, between living organisms and their environment as well as the associated live will analyze. The following problematic questions studying these topics can give:

Why the ecosystem self-management features?

People shows how ecosystem effects of activities?

Ecosystem consequences when they break, how come?

What environmental problems exist in your area and how to solve them?

Questions like these shape a number of skills in students. For example:

- Critical thinking;

-Local is not indifferent to environmental problems;

-To be in a conscious relationship to the environment;

- Serves to form research skills.

In the example lesson problematic to apply the methods of development:

The topic of the lesson: the structural structure of the ecosystem.

Course educational objective: the students of the configuration of ekosistema, ekosistema types, give information about diversity.

The term" ecosystem " was coined in 1935 by the English scientist A.Introduced to science by Tensley. In his opinion, the activity of ecosystems is a complex of physical factors of living organisms and the environment, which are associated with the exchange of substances and the flow of energy. When an ecosystem is called is dimensionally diverse, it is understood that the sum of factors of living organisms and inorganic nature interrelated through the exchange of substances and energy. Ecosystems can vary territorially: small ecosystems – microecosystems (microbial water drop, microorganisms and vertebrates you have animals mildew collar, puddle

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water, aquarium, etc.); ecosystems of medium size are mesoecosystems (Diamond Garden, field, archaesory forest, pond, lake, river, etc.cosystems can vary territorially: small ecosystems – microecosystems (microbial water drop, microorganisms and vertebrates you have animals mildew collar, puddle water, aquarium, etc.); ecosystems of medium size are mesoecosystems (Diamond Garden, field, archaesory forest, pond, lake, river, etc.); large ecosystems are macroecosystems (ocean, steppe, Taiga, tropical forest, mountains, desert, etc.); global ecosystem (biosphere). Ecosystems can be both natural and artificial. Artificial ecosystems are created by humans for the purpose of maintaining their economic activities. The ecosystem is made up of two components – environmental conditions (biotopes) and living organisms (biocenoses)that combine into three functional groups that provide periodic circulation of substances on Earth and energy flow.rtificial ecosystems are created by humans for the purpose of maintaining their economic activities. The ecosystem is made up of two components – environmental conditions (biotopes) and living organisms (biocenoses)that combine into three functional groups that provide periodic circulation of substances on Earth and energy flow. The biotope (from the Greek bios – “life” and topos – “place” or “place of residence”) is not only the place occupied by the team, but also a complex of interrelated factors of the environment that determine the life of the team. Living organisms have their influence on the abiotic conditions (ecotopes)of the environment during their life activities, transforming it into a biotope. The abiotic environment of an ecosystem (ecotope)is characterized by the use of non – toxic components-climatope (light, temperature, humidity, air, etc.) and constitutes an edaphotope (soil), a component calculated as a result of the activity of living organisms.

Problematic questions to strengthen the topic:

a) if consumer species in an ecosystem disappear, how does it affect the food chain and the stability of the entire ecosystem?

b) Why do abiotic factors (e.g. temperature or humidity) strongly affect plant and animal populations? Explain with examples.

c) What importance do microorganisms in the soil have in the ecosystem?roblematic questions to strengthen the topic:

a) if consumer species in an ecosystem disappear, how does it affect the food chain and the stability of the entire ecosystem?

b) Why do abiotic factors (e.g. temperature or humidity) strongly affect plant and animal populations? Explain with examples.

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c) What importance do microorganisms in the soil have in the ecosystem? What are the consequences if their number decreases sharply?

d) what biological problems does low light in ecosystems in aquatic environments cause?

e) How do human-dependent factors (e.g. industrial waste, deforestation) alter the components of an ecosystem? What environmental problems will these changes cause in the long run?

f) How does it affect other components of the ecosystem if the energy source (e.g. sunlight) in an area decreases?

Effectiveness of the problem method:

Experience shows that in classes using a problematic method, students acquire knowledge more deeply, an understanding-based education is formed, rather than memorization, students grow up to be independent thinkers, active participants, and a culture of communication develops by participating in debates and discussions.

Conclusion

The use of problematic techniques in teaching the “ecosystem” chapter of biology serves as an important factor in the development of students ' ecological thinking and scientific worldview. Through such a methodology, it is possible not only to deeply master the topic, but also to direct readers not to be indifferent to environmental problems, to look for ways to solve them. Therefore, biology teachers should pay special attention to problematic methods in the preparation of lesson developments. The use of problematic techniques is an important tool in improving the effectiveness of biology classes. Especially when teaching the Chapter "ecosystem", this approach forms in students the skills of independent thinking, logical inference and deep understanding of environmental processes. Through problem questions, students not only receive ready-made information, but also learn to analyze their existing knowledge, advance new ideas and assess various environmental conditions. This, in turn, forms ecological awareness in them and fosters a conscious attitude towards nature. Also, problematic methods increase the activity of students and make it possible to conduct a lesson in an interesting and interactive form. Therefore, biology teachers need to make extensive and purposeful use of problematic methods in the development of lesson developments.

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