

**BIOLOGY EDUCATION, TEACHINGS OF ABU ALI IBN SINO AND CURRENT
ISSUES OF ORGANIZING INNOVATIVE APPROACHES**

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Abstract: The article covers current issues related to innovative approaches to teaching biology based on the teachings of Abu Ali ibn Sina, effectively using the didactic possibilities of education. It also describes the methods for improving the teaching methodology of biology to students in grades 10-11 of secondary education institutions.

Keywords: lesson, scholar, teachings, didactic opportunities, development, students, paradox, method.

in improving the methodology of teaching Biology to students in grades 10-11 of general education institutions is one of the urgent issues. Mastering modern knowledge, becoming a truly enlightened and highly cultured person should become a continuous life necessity [1]. The didactic approach to teaching the teachings of Abu Ali ibn Sina provides students with the opportunity to acquire knowledge, develop a culture of attitude towards nature and it. In particular, the topic “Ecology and Life” mentioned in the Biology textbook for students in grades 11 [1] Chapter I, Section 3. “ Ecosystem Level Characteristics of Life. Biogeocenosis – Biological System” [1], is addressed from the perspective of improved educational technologies based on the teachings of Abu Ali ibn Sino.

"Group solving of analytical-creative tasks" in the assimilation of didactic materials related to the teachings of Abu Ali ibn Sina [3] The method introduces students to the topic It leads to thinking and developing recommendations. For example: Are there any references to “ Biogeocenosis” in the teachings of the thinker Abu Ali ibn Sina and what are the most important processes that fall at its level? - each student's answer to the question is listened to, and their non-repeating thoughts are recorded on the board. The teacher and students, in cooperation with the audience, select the most important of the thoughts listed and summarize the answers individually or in small groups.

In the section “An-nabat” (“Plants”) of Abu Ali ibn Sina’s “Book of Healing”, he writes about the types of plants, their origin, nutrition, plant organs and their functions, reproduction and growth conditions. Biogeocenosis is the synthesis of biomass that ensures the life of species; the regulation of the constancy of the number of species; the flow of substances and energy that ensures the stability of the biosystem. In this case, which factor to give priority to is determined by the importance and place occupied by the others.

Students justify why they put one or another concept in first, second, etc. place. The teacher evaluates the students' answers by expressing his/her reaction to the answers or prepares an evaluation table and evaluates it together with the students.

"Paradox Competition" helps students develop their skills in finding and developing unique ideas on a topic during the lesson. It is also advisable to conduct a selection of opinions using the method of paradox. Paradox (Greek) means unexpected, strange [2].

A selection of paradoxes :

1. Pay attention to events, phenomena and things that seem strange to you. Example: A paradox on the topic "Ecosystem level features of life. Biogeocenosis - biological system" [2] can be structured as follows. First example: "Arbutus forest", "Walnut forest". Second example: Along ditches, in fields and gardens, among vegetables and crops.

2. Define the problem and express an initial idea that is understandable to everyone. First example: "Biogeocenosis". It is a natural complex of living organisms and the environment in a certain area of the Earth. Biogeocenosis is a specific concept, and depending on the species that are most abundant in its composition, they are given names such as: "juniper forest", "walnut forest". Second example: From the second book of Abu Ali ibn Sino's "Canon of Medicine": It is noted that the juniper growing along the banks of the ditch, in fields and gardens, among vegetable and spice crops is a unique plant for treating old coughs, wounds, diseases of the stomach, duodenum, and various purulent wounds.

3. Approach the problem from another angle. Come up with a counter-idea. It should be as thoughtful and rational as the first sentence, proposal, or idea . Example: In the first example: Biogeocenoses of numerically abundant types, such as "Jar forest", "Walnut forest", are a natural complex of living organisms and the environment in a certain area of the Earth. In the second example: Abu Ali ibn Sino wrote in his work "The Canons of Medicine" that the zubturum plant, which has healing properties, is a unique plant that grows along the banks of ditches, in fields and gardens, among vegetable and spice crops.

Students are advised to ignore the reasons for ideas and opinions, and instead are encouraged to consider and understand the problem. The test can be conducted as follows:

Example of a student's answer: 1. Mountain forest, hill, pasture.

2. Biogeocenosis is a stable, self-governing biological system in which living organisms (microorganisms, plants, animals) are interconnected with the components of inorganic nature (water, soil, climate). Examples of them include mountain forest, hill, pasture biogeocenoses. 3. Biogeocenoses such as mountain forest, hill, pasture are stable, self-governing biological systems in which living organisms are interconnected with the components of inorganic nature [3].

Additional examples are also studied and the solution is checked based on the principles shown. After the students submit the paradoxes and their answer options to the jury, a " ring " is organized in the competition. In this case, the students are divided into groups . The groups answer the paradoxes prepared by other participants in the competition . The groups give their answers based on the explanation of the meaning of the paradoxes .

Life members The jury evaluates the teams based on the quality of the task and the questions and answers of the opponents. The members of the jury evaluate the paradoxes and criteria for

evaluating riddles are developed and distributed to them. In particular, the criteria for evaluating paradoxes are:

1. Problem-solving skills.
2. The brevity of the paradox.
3. The ability to demonstrate and prove a problem.
4. Choosing a concept to explain the paradox.
5. The enigma of the situation, its unusualness [2] .

The participation of small groups and each student in the lesson process will be assessed at the end of the lesson. The characteristics of the ecosystem level of life and the knowledge of biogeocenosis and biological systems will be analyzed.

In the process of organizing the teaching of biology, the teachings of Abu Ali ibn Sino, and innovative approaches based on didactic opportunities, a methodological approach to clarifying, systematizing, monitoring and evaluating the knowledge, skills and competencies acquired by students in grades 10-11 of general education institutions gives effective results.

Literature:

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