

IMPROVEMENT OF PEDAGOGICAL TECHNOLOGIES OF BIOLOGY TEACHING IN GENERAL SECONDARY SCHOOLS

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ABSTRACT

This article emphasizes the need to use the teachings of Abu Ali ibn Sina in improving the technology of teaching biology in general secondary schools. Also, in teaching students based on the doctrine of the thinker, the features of identifying and analyzing problems are pedagogically illuminated.

Keywords: biological science, education, improvement, training.

INTRODUCTION

Taking into account that human health determines the future in our country, special attention is paid to education of the young generation on the basis of inculcating the ideas of national and universal values into the content of education. Improving the quality of education for students, developing their knowledge of human health and the prevention of natural hazards are the main factors that ensure their activity in social and economic life.

He insists on the necessity of teaching using the teachings of the great thinker Abu Ali ibn Sina on the basis of pedagogical technologies to increase students' interest in biological sciences. This improved approach to education gives students the opportunity to acquire knowledge, to develop a culture of attitude towards nature and it.

Section 3 of Chapter I entitled "Ecology and Life" in the Biology textbook for 11th grade students. "Features of the ecosystem level of life. In covering the lesson on the topic "Biogeocenosis - biological system", he directs students to think about the topic and develop recommendations using the method of "Analytical - solving creative tasks in a group", which is approached from the point of view of improved educational technologies based on the teachings of Abu Ali Ibn Sina. For example: Are there notes on "Biogeocenosis" in the teachings of the thinker Abu Ali ibn Sina and what are the most important processes observed at its level? - each student's non-repeating thoughts are heard as an answer to the question (the expressed thoughts are written on the board). Including the following:

First reader: Biogeocenosis is organically linked by abiotic factors of nature and exchange of substances and energy.

Second Reader: Includes communities of living organisms living in a given area.

The third reader: Abu Ali ibn Sina writes about the types of plants, appearance, nutrition, plant organs and their functions, reproduction and growth conditions in the section "an-nabat" ("Plants") in the book "Kitab al-Shifa" by Abu Ali ibn Sina.

Fourth grader: Synthesizes the biomass that sustains the life of species.

Fifth grader: Controls the number of types constant.

Sixth student: It is the flow of substances and energy that ensure the stability of the biosystem. etc.

The teacher and students work together to select the most important points from the list in the audience and summarize the answers individually or in small groups.

Students justify why they put this or that concept first, second, etc. The teacher expresses his attitude to the answers and evaluates the students' answers. Or prepare an evaluation chart and evaluate it together with the students.

Example:

M E Z O N L A R Maximum grade

1. Relevance of the idea to the topic. 1
2. Problem finding skill. 1
3. Proving skills. 1
4. The skill of explaining the problem. 1
5. The ability to express one's attitude to the problem. 1

In order to develop the skills of finding and developing unique ideas on the subject in the course of the lesson, it is also appropriate for students to conduct a selection of ideas using the "Paradox selection" method. They are:

1. Pay attention to events, events and things that seem strange to you.

Example:

"Features of the ecosystem level of life. The paradox related to the topic "Biogeocenosis - biological system" can be formulated as follows.

The first example: "Spruce Forest", "Walnut Forest".

Second example: Between ditches, fields and gardens, vegetables and crops.

1. Define the problem and express an initial idea that is understandable to everyone.
3. Approach the problem from another angle. Come up with a counter-argument. Like the first sentence, proposal, thought, it should be reasonable and reasonable.

Example:

In the interpretation of the first example: biogeocenoses of the most numerous types, such as "Spruce forest", "Walnut forest", are a natural complex of living organisms and environment in a certain area of the Earth.

In the interpretation of the second example: Abu Ali ibn Sina wrote in his work "The Laws of Medicine" that the zubturum plant, which has healing properties, is a unique plant growing on the banks of streams, in fields and gardens, among vegetable and spice crops.

Readers are advised to ignore ideas and reasons for thoughts. Instead, it is encouraged to look at the problem, to understand. The selection can be made as follows:

Example:

From the student response option.

1. Mountain forest, hill, pasture.
2. Biogeocenosis is a stable, self-regulating biological system in which living organisms (microorganisms, plants, animals) are interconnected with components of inorganic nature (water, soil, climate). They can be taken as an example of mountain forest, hill, meadow biogeocenoses.
3. Biogeocenosis, such as a mountain forest, a hill, a meadow, is a stable, self-regulating biological system in which living organisms are interconnected with components of inorganic nature.

Additional examples are also studied, and the solution is verified based on the stated principles.

After the students submit the paradoxes and their answer options to the jury, a "ring" is organized in the competition. Students are divided into groups. Groups respond to paradoxes prepared by other participants of the competition. The groups give their answers based on the explanation of the meaning of the paradoxes.

Jury members will evaluate the teams based on the quality of task performance and contestants' question-and-answer. Its criteria are developed and distributed to panel members to evaluate paradoxes and riddles. It can be as follows.

Criteria for evaluating paradoxes:

1. Problem finding skills;
2. The brevity of the paradox;
3. The ability to demonstrate and prove the problem;
4. Choosing a concept to explain the paradox;
5. Enigma, unusualness of the situation.

Small groups and each student's participation in the training process are assessed on the topic. The characteristics of the ecosystem level of life and biogeocenosis - knowledge about the biological system are analyzed.

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