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Development of Scientific Potential in Pupils of Secondary School

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Annotation; The article discusses ways to solve the problem of developing the scientific potential of the student's personality. These ways are in line with the general tasks of student development. The peculiarity of the development of scientific potential is associated with the solution of the problems of scientific certification of the training course and the criteria for selecting the content for its construction.

Keywords: Scientific potential, basics of biology, didactic principles, selection criteria, educational content.

Biology is mainly an experimental science. Until recently, the main theoretical constructions and laws in biology were based mainly on observations of nature and experimental research. Recently, however, mathematical methods have become much more widespread in all branches of biology: molecular biology, genetics, the theory of evolution, ecology.

By scientific potential, we will understand the student's ability to use the formed scientific baggage to explain and pre-tell the facts that are in the subject area of the theory. "Aperson," as the psychologist Arthur Reber said, "is a term so narrow to define and has such a broad field of use that a wise author uses it as the title of a chapter and then freely writes aboutthe b-presented, without assuming any responsibility for the definitions, if they are presented in the text."[1] We believe that this situation is used by us. Under the concept of "personality" we will understand a person (student) as a subject of relations and cognitive activity.

Thus, we will talk about the formation of theoretical scientific knowledge in schoolchildren and its application to explain and predict new facts.

From a methodological point of view, the formation of knowledge is a path consisting of three main stages.

Without the formed image, obtaining theoretical knowledge about an object or a set of such objects is impossible due to the objectlessness of the mental structure being formed.

In the mind of the student, at the same time, a certain model idea of the object is formed, which is simplified to a model that can be compared with similar models of other objects.

It is known that models can be material and symbolic. They differ in the degree of abstraction, remoteness from reality. In the process of studying the phenomenon, as well as in training, such models are often used, replacing the real object. We call the replacement of a real object with a material model and the study of this model on the basis of a sign model, we call visualization of the second kind. Often, the study of theoretical material in grades 8-9 is completed with such formed knowledge.

With the help of sign models, conditional visibility, or visibility of the third kind, is realized.

As you can see, understanding the scientific nature of a course as a reflection of true knowledge in it is not constructive. If we teach biology, then, of course, we cannot introduce facts or theories unknown to science into the course. Therefore, the principle of scientificity in this sense does not provide clear guidelines for the selection of content and the design of courses.

The content prepared in this way, the peculiarity of which is that. that each subsequent concept is based on its prizeof content and signs of the content of already introduced concepts, is a necessary condition for the formation of scientific knowledge in schoolchildren - knowledge on the basis of which they can think, as well as explain and predict facts.

It should be noted: if the teaching takes place in sucha way that students only require the reproduction of educational material (the 2nd level is formed, according to V. P. Bespalko),[2.] then we will not get any improvement in the scientific potential of students. It is necessary at least to bring the knowledge of students to the third level (the ability to apply knowledge in a familiar methodological situation) To do this, first of all, it is necessary to show the very methods of applying knowledge. To this end, in the process of explanation,

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pay attention to the methods of classification, comparison, concretization, etc., regularly offer students tasks, in which students would have to carry out any actions with the knowledge gained, explain known and predict facts that are not yet known to them. This is seen as a way to develop the scientific potential of schoolchildren.

When using information technologies, the greatest degree of visibility is provided not by the use of video fragments, but by computer modeling of biological processes and phenomena.

Lessons with the use of computer systems do not replace the teacher, but, on the contrary, make communication with the student more meaningful, individual and active. Sets of pedagogical software tools allow you to bring a huge flow of information to students. At the same time, students develop visual memory, focus on important objects due to the fragmentary presentation of the material.

Among the important goals facing the field of education is the adoption of additional measures to create a unified and effective system of work with gifted youth, support its initiatives to realize the talent and potential of the younger generation, publish textbooks and teaching aids, including in electronic form, based on the requirements of advanced foreign experience, as well as to ensure the training of sought-after specialists capable of a high professional level with dignity. to represent the interests of our country in the international arena. Of great importance was the work aimed at raising to a qualitatively new level the work on identifying, selecting, training and educating gifted youth, further supporting and stimulating young talents, creating a system for managing and organizing the activities of specialized and creative schools.

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