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PRINCIPLES OF MATERIAL SELECTION FOR TEACHING MOLECULAR PHYSICS USING INTERACTIVE TECHNIQUES

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Abstract:

This article reflects the relevance of teaching molecular physics using interactive methods and the principles of selection of educational materials on the example of secondary schools. The article also shows the didactic properties and components of the principles of material selection in teaching molecular physics using interactive techniques.

Keywords: Teaching, molecular physics, interactive techniques, principles, educational materials, material selection.

INTRODUCTION. Teaching principles are the basic plans, guiding ideas for organizing the teaching process. They are general guidelines, requirements that regulate training. plans, will be in the manner of norms.

The principles of teaching come from the Basic Laws of teaching. The laws of teaching are the necessary and objective, meaningful and recurring connections between phenomena in knowledge - giving. They mainly represent the links between the basic elements of the teaching process:

a) the teaching process and the demand of society, the purpose and content of teaching.
b) teaching technology and its elements, teaching method and tool,
c) organizational forms and conditions of training, the result of training and its verification, etc.

The legalities of teaching include:

1. The teaching process must correspond to the demand of the community as well as each student and student.

2. The teaching process must carry out the functions of knowledge, education and development.

3. The teaching process must correspond to the actual learning opportunities of the student and students.

4. The training process depends on the external conditions that affect it:

♦Together, the teaching and learning process are subject to pedagogical laws and are firmly connected with each other.

♦ The content of teaching is directly related to the purpose of teaching, which, in turn, is determined on the basis of the demand of society, the development of Science, the capabilities of students, as well as external conditions.

♦ Teaching methods and tools depend on the purpose and content of teaching.

♦ Forms of Organization of training depend on the purpose, content and methods of training.

♦ The correct connection between all components of the teaching process and the established favorable conditions, ensuring its positive result.

♦ Training should be carried out in accordance with the psychological characteristics of the student, personal comfort, the level of future development.

ANALYSIS OF LITERATURE ON THE TOPIC (LITERATURE REVIEW). Within the framework of the methodology of teaching physics, is connected with the names of Raimov G', Buzrukov T, Abdiyev U, Xaliyarov J, Kok M.De, Grigoreva L.A, Ismankulova K, Ochilova A.U.other and other scientists[3].

K. Ismankulova and A. U. Ochilov in his "lessons in solving problems from physics"manual, called physical problems, a small problem usually created based on logical results, mathematical action, laws and methods of physics. [1]

According to researcher. S.L.Malashinskaya, solving issues in physics is one of the most important tools for developing the ideas, creative abilities of researchers. In many problem solving classes, tasks are created in the problem situations section, and this supports the intelligence of the opponents.[4]

RESEARCH METHODOLOGY. In the process of didactic development, didactic principles are analyzed, which are completed and modified. Certain didactic principles are changed, while some are destroyed, replaced by new principles.

In Particular, Ya.Komensky considered harmony with nature as the main didactic principle. At that time, he also founded other principles. In the case of a Disterverg, didactic principles were specified to have specific requirements.[5] K.Ushinsky included the following four didactic principles:

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a) student awareness, principle of activity;
b) the principle of expressiveness;
c) the principle of sequence;
d) the principle of robustness of knowledge.

At the moment, all didactic principles are analyzed and redesigned in accordance with the demand of society and the achievements of pedagogy. They consist of the following effective didactic principles:

- principle of awareness and activity;
- principle of exhibitionism;
-systematicity and sequential principle;
- principle of robustness;
- reliability principle;
- principle of science;
- principle of Association of theory with practice;
- historicity principle;
- consistency principle;
- the principle of humanism, etc.

ANALYSIS AND RESULTS. *The principle of awareness and activism* is to ensure the active and conscious participation of students in the course of the teaching process. When carrying out the educational process, each educator needs to create conditions for understanding the new material as deeply as possible, without being easily explained. Conscious and active assimilation of knowledge by students and students depends on the conditions and factors accumulated: the reason and purpose of study, the level and character of their cognitive activity, the organization of the educational process, the interest and cognitive activity of the student, etc.

To make the principle of awareness and activity practical, it is necessary to follow:

a) to reveal the content of the new material as well as its relationship with other objects;
a. to determine the level of student assimilation of new material taking place in each lesson through questions;
b. before explaining the new material, showing that it is connected to the previously mentioned material;
b) to ask questions of the level corresponding to the thinking and demand of each student;
c) . the creation of a pedagogical state that ensures the knowledge of students in the process of teaching;
d) show the practical application of theoretical knowledge;
e) increasing the independent thinking of the student, etc.[6]

Principle of causality. It is the visual system that is most effective in the perception, use of external information as well as among recall systems. Because the visual system receives, uses data quickly and stores the received information for a long time. Therefore, it is necessary to benefit from visual weapons in the educational process.

The principle of systematicity as well as sequentiality. Each subject being taught must be taught according to its characteristics, in a way determined by a specific system. For this reason, in the acceptance of knowledge, students must also follow the established sequence as well as the established system.

The principle of robustness. The knowledge received by students, firstly, should be perceived with deep thinking, and secondly, it should be remembered for a long time. Therefore, in some cases it is necessary to pay attention to the strength of the knowledge given. The strength of the acquired knowledge depends on many facts as well as subjective evidence. The implementation of the principle of strength-assumes that the student knows deeply and clearly, and not that he can easily mechanically memorize the given material.

Reliability principle. It is necessary that the educational material is in accordance with the scope potential of the student and is stated in a manner appropriate to their level of acceptance. In other words, the educational material should correspond to the intellectual acceptance opportunities of students in terms of size and quality. If it is small in size, light in quality, the study material does not increase student activity and does not cultivate thinking.

On the contrary, that is, when the educational material is voluminous and complex, it becomes difficult to accept and master, and in many cases becomes impossible. Of course, in the educational process, it is necessary to unconditionally take into account the level of knowledge of students. The learning material should go from light to painful, from known to unknown, from simple to complex.

The principle of image. The teaching process requires each subject of study to provide relevant scientific, experience-approved information. Therefore, when teaching students, it is advisable to use methods that are close to, consistent with scientific research methods. On the basis of the principle of science lies the concept that humanity has the opportunity to know the universe. Scientific information obtained on the basis of scientific research forms an objective picture of the universe. Thanks to this, it is necessary

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that the teaching process gives an objective-scientific picture of the universe.

For the purpose of implementing the principle of science, educators are confident in them only when they give the basics of the sciences intended for students in the organization of each lesson.

The principle of Association of theory with practice. The effectiveness of the teaching process and its quality are practically verifiable. Because cognitive activity, the purpose of upbringing comes from practice. The result of the educational process depends on the connection of the theory with the practice, the content of the teaching process and the organization of educational and educational work, and the methods used, forms. The essence of the theory is largely determined by its practical application. In other words, the more the theory is used in practice, the more useful it is considered.

The principle of historicism - in teaching the basis of Science, the history of its development, the struggle of contradictions and ideas in development, the emergence of any scientific achievements, dictates the statement of materialism, which refers to the contribution of scientists to the development of various scientific fields.

The principle of consistency. This principle has been viewed in conjunction with the principles of sequentiality or systemality until recent times. As a result of paying attention to the methodological aspects of didactic research, the principle of consistency received the status of a separate didactic principle.

The principle of humanism. Humanism views on human equality, truthfulness, mutual respect between them. A person who is not mistaken for humanism or humanism, a person who traces humanity and is a noble person. Humanitarian business is the sum of relevant documents affecting a person, society, culture. Humanitarian sciences-natural and technical sciences, in contrast, consist of a complex of Social Sciences.[2]

CONCLUSION. In conclusion, it is worth noting that, the selection of one whole set of all these listed principles for the process of teaching physics in schools using interactive methods is undoubtedly shows its effectiveness.

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