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THE IMPORTANCE OF USING THE MENTAL ATTACK METHOD IN TEACHING THE DYNAMICS OF MATERIAL POINTS IN PHYSICS

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Abstract
The article details the importance of using interactive methods in the lesson process and their types. In particular, the Brainstorming method and its importance in organizing physics lectures on the topic of material point dynamics are presented.
Among these methods, the "Brainstorming" method can be used in all lessons. This method is a collection of free opinions and judgments expressed by students on a particular problem, through which a certain solution is reached.
To apply the brainstorming method to the topic "Dynamics of a Material Point": first of all, such stages as studying the topic, collecting ideas, classifying ideas, and selecting the best ones can be used. It is stated that these stages contribute to a deeper understanding of the basic concepts and fundamental laws of the material point and its dynamics.

Introduction
Today's task of education is to teach students to be able to carry out independent activities in the conditions of an increasingly informational and educational environment, the effective use of modern information technologies in various fields, and the rational use of information flows. It is no exaggeration to say that the mastery and application by educators of new pedagogical technologies, innovations, new pedagogical and psychological concepts, and interactive methods, which have been rapidly entering the education system in recent years, have fundamentally changed the content of education.
A modern teacher should be a "director" during the lesson, not an "actor." It should organize the creative approach of its students to the subject, form in them the qualities of inquisitiveness, as well as organize the lesson using new pedagogical technologies. For this, it is advisable for the teacher to know new teaching methods and techniques and use them effectively in the lesson process.
Why do we need interactive methods?
The concept of interaction is expressed in English as "interact" (in Russian "интерактив"), and from a lexical point of view, it means "inter" - mutual, "act" - to act.

Main Part

Interactive learning is education based on the organization of students' interaction on the path of acquiring knowledge, skills, abilities, and certain moral qualities.

According to the research of American psychologists R. Carnicknow and F. Macelow, a person's natural physiological and psychological capabilities allow them to retain knowledge acquired in certain forms to varying degrees.

Person:

- self-reading of the source - 10%;
- upon hearing the information - 20%;
- when seeing an event, phenomenon, or process that has occurred - 30%; when seeing an event, phenomenon, or process that has occurred and hearing information about them - 50%;
- when transmitting information (speaking, demonstrating knowledge) - 80%;
- when applying acquired knowledge (data, information) in their activities
- It has the ability to store 90% of information.

Typically, educational activities based on interactive methods are organized in the following forms:

- individual;
- pair;
- group;
- teamwork.

Interactive methods aim to achieve high results in a short time without excessive mental and physical effort. Interactive method - a method that activates students and encourages independent thinking, with the student at the center of the educational process. Interactive methods and techniques: "Case Study," "Blitz Survey," "Modeling," "Cinquain," "BBB," "Venn Diagram," "T-Table," "Cluster," "Fishbone," "Brainstorming," "Step by Step," "Icebreaker," etc.

Among these methods, the "Brainstorming" method can be used in all lessons. This method is a collection of free opinions and judgments expressed by students on a particular problem, through which a certain solution is reached.

When using the "Brainstorming" method during the training process, it is necessary to follow several rules. These rules are as follows:

1. Encouraging training participants to think broadly within the framework of the problem, achieving the expression of their unexpected logical thoughts.
2. The number of thoughts or ideas expressed by each student is encouraged. This will allow you to choose the most acceptable among the expressed opinions. Moreover, the stimulation of thoughts leads to the birth of subsequent new thoughts or ideas.
3. Each learner can base their personal opinion or ideas and change them. Generalization, categorization, or modification of previously expressed thoughts (ideas) prepares the ground for the formation of scientifically based thoughts (ideas).
4. In the process of classes, it is not allowed to control any activities of students based on standard requirements, to evaluate the opinions expressed by them. If their thoughts (ideas) are evaluated, learners will focus their attention on defending their personal opinions, and as a

result, they will not put forward new ideas. The main goal of applying this method is to encourage students to think broadly and deeply about the problem, and it is advisable to abandon any method of evaluating their activities.

Results And Conclusions

Taking the above into account, the Brainstorming method can be used in the lecture on the topic "Dynamics of a Material Point" in physics as follows:

To apply the brainstorming method to the topic "Dynamics of a Material Point," the following steps can be used: first of all, study the topic, collect ideas, classify ideas, and select the best ones. These stages help to gain a deeper understanding of the basic concepts and fundamental laws related to the material point and its dynamics.

1. Study of the topic

• Definition: What is a material point? What is the dynamics of a material point and its basic laws? What is the difference between dynamics and other sections?

• Basic principles: Newton's laws, which are the fundamental laws of dynamics, and their definitions.

Application: In what cases should the laws of dynamics be used? What questions can be answered?

• Limitations: Which branch of mechanics is dynamics? What are the limitations of classical mechanics?

2. Collecting ideas

Questions on the topic: "How does an ideal gas move?," "What happens if there are no laws of an ideal gas?," "Where is an ideal gas used?"

• Concepts related to the topic: In what cases can we consider objects as material points? The laws of dynamics are Newton's laws. Imagine Newton's laws in the mechanical motion around us.

• Problems related to the topic: Why do we consider objects as material points? Why can't we apply the laws of dynamics to microscopic conditions?

3. Classification of ideas

• Main characteristics of a material point: Disregard for dimensions. The mass is considered to be concentrated at one point.

• Newton's laws and their formulas, which are the dynamics of a point and its basic laws.

Application of the fundamental laws of dynamics: in classical mechanics. In phenomena related to the macroscopic world around us.

Limitations of the dynamics of a material point: in quantum mechanics, in the invisible microscopic world.

4. Selection of the best

• Most important features: The most important features of the ideal gas model are the absence of attractive forces between molecules and the absence of self-volume of molecules.

• The most important formulas: Formulas related to Newton's laws.
• Most important applications: Application in phenomena related to the macroscopic world around us.
• Most important limitations: The dynamics of a material point do not correspond to the phenomena of quantum mechanics.

These stages contribute to a deeper understanding of the topic "Dynamics of a Material Point" and more effective answers to related questions.

Therefore, the knowledge presented in the lecture topic is effectively and efficiently assimilated by students through the aforementioned brainstorming method.

References

1. A.Gaibov. Fizika. Darslik. Toshkent-2023.
2. R.Ayupov, Sh.Shayakubov. Interfaol ta'lim usullari. O'quv metodik qo'llanma. 2012.
3. https://idum.uz/uz/archives/8556
4. https://staff.tiiame.uz/storage/users/167/presentations/HXsoMNnlDU93xyqqYufMSo2VD2NWaSZG6gpDObSa.pdf

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1