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METHODS AND FORMS OF TEACHING MATHEMATICS

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ABSTRACT

Mathematics develops students' will, concentration, ability and activity, imagination, moral qualities of a person (stubborn, goal-oriented, creative, independent, responsible, hard-working, disciplined and critical thinking) and the ability to defend one's views and beliefs on the basis of evidence. In the process of studying mathematics, the methods and methods of human thinking include induction and deduction, generalization and clarification, analysis and synthesis, abstraction, analogy, classification and systematization.

Keyword: Mathematics, practical, thinking, will, attention, ability, imagination, personality, mental, aspiration, creative, independent, responsibility, discipline, thinking, method, induction, deduction, generalization, clarification.

INTRODUCTION

The purpose of teaching mathematics is determined by its role in the development of society and the formation of a person. Aspects of mathematics based on the creation and use of tools necessary for practical-human productive activity, as well as acquisition of mathematical methods aimed at perceiving and changing the world related to spiritual-human thinking have been formed from history.

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When studying mathematics, students acquire the skills to express their thoughts and opinions clearly and completely, succinctly and meaningfully, to make mathematical writings comprehensible, elaborate, and complete. Mathematical thinking forms the skills of drawing logical conclusions about objects and their creation, formulating judgments, justifying and

proving, and logical thinking develops on this basis. In addition, it educates the ability to form algorithmic thinking, to operate according to a certain algorithm and to build new ones.

In the process of solving examples and problems from mathematics, creative and practical aspects of thinking develop. Students are given aesthetic education by teaching them to think clearly, concisely, fluently in mathematical proofs, imagine geometric shapes, see their symmetry, and see beauty based on strict laws. Our great scholars Al-Khorazmi, Abu Nasir Farabi. The process of studying the contributions of Ahmad Farghani, Abu Ali ibn Sina, Abu Rayhan Beruni, Abul Wafa Buzhoni, Ghiyaziddin al-Koshi, Umar Khayyam, Nasriddin al-Tusi, Mirza Ulughbek to mathematics expands the worldview of students, educates them in the spirit of patriotism and national pride.

Didactic principles of teaching mathematics

"Didactics" is a Greek word that means "teaching". Didactics is a branch of pedagogy that teaches the principles of teaching.

The great pedagogue Jan Amos Comenius, who lived and created in the 17th century, focused on didactics, which is a part of pedagogy, in his work "The Great Didactics".

According to him, man is a part of nature and he is subject to all general laws of nature. Just as the order of things is important in the study of nature, so it is important to give importance to a certain order in the education of a person. Jean-Jacques Rousseau, who lived in the 18th century, emphasized that teaching should not be based on certain rules, but should be based on the interest and attention of students.

Didactics was improved only by Johann Heinrich Pestolotsi (1746-1827). He also paid attention to education in teaching. He also gave importance to demonstration in teaching. Later, the Russian pedagogue K. D. Ushinsky also worked on this path, and thus didactic principles were created.

The teacher's activity of problem-based education consists in the fact that he explains the content of the most complex concepts and regularly creates a problem situation between the students with the subject being studied, informs the students about the evidence concepts, as a result, the students independently draw conclusions and generalize based on the analysis of these evidence concepts, concepts , they learn certain knowledge by defining rules and theorems with the help of the teacher, as a result, the skills of students to apply knowledge in practice are formed.

As we know, when choosing methods of explaining didactic principles, the following didactic principles developed by the theory of education should be followed:

- Scientific principle. The essence of this principle is that every subject material taught in the school mathematics course should be theoretically proven, that is, it should be explained on the basis of previous mathematical concepts, axioms and theorems. Every mathematical concept, definition, axioms and theorems to be studied should be simple and clearly expressed; To teach them to think critically about any subject material studied in mathematics classes and to form their scientific thinking skills from this point of view.

– Principle of directiveness. It depends on the characteristics of development of students' thinking from concreteness to abstraction. The general goal of teaching mathematics is to develop logical thinking, but teaching mathematics cannot be separated from concrete facts and images, on the contrary, it is necessary to start the study of any issue from the

examination of these concrete facts and images. Increases interest in scientific knowledge, facilitates learning of educational material and helps to strengthen mathematical knowledge.
- The principle of consciousness is to teach students to consciously master the educational material, that is, to teach them to know various facts in different ways and to consciously know the connections and laws between these facts.
The advantage of this principle in the teaching of mathematics is that only when the knowledge obtained from mathematics is consciously mastered, students will learn the nature of quantitative relations, mathematical figures and their mutual arrangement.
If the principle of consciousness is violated in the process of mastering the subject material, the knowledge that the students receive will be formal knowledge.
For example, if he is asked to draw a parabola graph, he may draw it schematically, but he may not know how to draw it by giving values.
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The essence of the principle of activity is that each stage of education in the school mathematics course should be built on the educational basis of a developmental nature, which serves to form active thinking activities of students. It is impossible to achieve conscious acquisition of knowledge without active thinking activities in mathematics lessons. Therefore, the main goal of the modern mathematics course is to teach students to think actively in class.
– The principle of thorough mastery. The following conditions must be fulfilled in order for the students' knowledge of mathematics to be thorough.
1. Formation of students' interest in mathematics.
2. To achieve students' mastery of the material of the subject.
3. Formation of active thinking activities of students in mathematics lessons.
– The principle of systematicity. It is appropriate for the teacher to explain each mathematical concept, axiom and theorem used in the process of explaining the subject material based on the previous ones.
– The principle of sequence. The principle of sequence in mathematical education should be built on the basis of the following rules. The study of mathematics is carried out from simple mathematical concepts to complex concepts.

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