ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 09, Sep-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

METHODS OF TEACHING MATHEMATICS AS A SCIENCE

Khursanova Zilola Mirzaxolmatovna

Teacher, Fergana State University, Fergana, Uzbekistan

Oblakulova Zukhra

Student, Fergana State University, Fergana,Uzbekistan

Abstract : This article is about the history of mathematics. Mathematics has a significant impact on the development of technology, economics and production management. The methodology of teaching mathematics is a pedagogical science about the tasks, content and methods of teaching mathematics.

Keys words: Methodology, science, development, subject, goal, teaching, mathematics.

Mathematics is a word that came to us from Ancient Greece: mathema is translated as “knowledge, science”. Mathematics is the science of quantitative relations and spatial forms of the real world. The development of science and technology forces mathematics to continuously expand its ideas about spatial forms and quantitative relations.

Mathematics studies mathematical models - logical structures that describe a number of relationships between their elements. The concepts of mathematics are abstracted from specific phenomena and objects; they are obtained as a result of abstraction from qualitative features specific to a given range of phenomena and objects. Mathematics arose from the practical needs of people, its connections with practice are becoming more and more diverse and deep. The importance of mathematics in the development of modern physics, astronomy, and chemistry is especially great. Mathematics also occupies a significant place in such sciences as economics, biology, and medicine.There are 4 periods in the history of the development of mathematics. (Student's message, textbook, p.6-9) The period of the birth of mathematics is associated with practical calculations and measurements, with the formation of the concept of number and figure. Simple geometric figures are studied, quantities - length, area, volume, etc. The scope of mathematics is counting, trade, earthworks, astronomy, architecture. Nascent mathematical knowledge is the rules for solving practical problems, attitudes or guidelines for action, which are not formulated, but are explained with particular examples. The transformation of mathematics into a formalized science with a well-formed deductive method of construction occurred in Ancient Greece. The beginning of Greek geometry is associated with the name of Thales of Miletus.

The second period - the period of elementary mathematics (mathematics of constant values) - lasted approximately until the end of the 17th century, when the development of a new - higher mathematics went quite far.

The third period is the period of mathematics of variables (from the 17th century to the middle of the 19th century). It is characterized by the creation and development of mathematical analysis, the study of processes in their movement, development.

The fourth period is the period of the creation of the mathematics of variable relations (XIX-XX centuries). It is characterized by the emergence and development of mathematical analysis, the study of processes in their movement and development. The simulation method is widely used.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 09, Sep-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

Various branches of mathematics arose. The main feature of this period is the interest in the critical revision of a number of issues in the foundation of mathematics.

New branches of mathematics emerged: computational mathematics, mathematical logic, probability theory.

Mathematics is in continuous development, which is due, firstly, to the needs of life practice, and secondly, to the internal needs of the formation of mathematics as a science.

Mathematics has a significant impact on the development of technology, economics and production management. The "mathematization" of various fields of knowledge, the penetration of mathematical methods into many areas of human practical activity, the rapid growth of computer technology - all this led to the creation of a number of mathematical disciplines: game theory, information theory, mathematical statistics, probability theory, etc.

MATHEMATICS AS A SUBJECT

In the school course of mathematics, that part of mathematical knowledge (compulsory) should be selected, which will give a general idea of science, help to master mathematical methods and will contribute to the necessary development of mathematical thinking in schoolchildren.

The content of the subject of mathematics changes over time due to the expansion of the goals of education, the emergence of new requirements for school preparation, and changes in education standards.

Mathematics as a subject at school represents elements of arithmetic, algebra, the principles of mathematical analysis, Euclidean geometry of the plane and space, analytical geometry, trigonometry.

Teaching students mathematics is aimed at: mastering the system of mathematical knowledge, skills and abilities necessary for further study of mathematics and related subjects for solving practical problems; on the development of logical thinking of spatial imagination, oral and written mathematical speech; on the formation of calculation skills, algebraic transformations, solving equations and inequalities, as well as instrumental and graphic skills.

Mathematics as an academic subject differs from mathematics as a science not only in volume, system and depth of presentation, but also in the applied orientation of the issues being studied.

The curriculum of mathematics is constantly faced with the need to overcome the contradiction between mathematics - a developing science - and the stable core of mathematics - an educational subject. The development of science requires continuous updating of the content of mathematical education, the convergence of the subject with science, and the correspondence of its content to the social order of society.

The current stage of development of mathematics as an academic subject is characterized by:

- strict selection of content bases;

- a clear definition of specific learning objectives, interdisciplinary connections, requirements for the mathematical preparation of students at each stage of education;

- strengthening the educational and developing role of mathematics, its connection with life;

- systematic formation of students' interest in the subject and its applications.

Further improvement of the content of school mathematical education is connected with the requirements that practice places on the mathematical knowledge of students - industry, production, military affairs, agriculture, social reorganization.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 09, Sep-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

SUBJECT OF THE METHODOLOGY OF TEACHING MATHEMATICS

The word methodology, translated from ancient Greek, means a way of knowing, a way of research. A method is a way to achieve some goal, to solve a specific educational problem. There are different points of view on the content of the concept of methodology. Here are some definitions:

- methods of teaching mathematics - the science of mathematics as an academic subject and the laws of the process of teaching mathematics to students of various age groups and abilities;

- methodology of teaching mathematics is a pedagogical science about the tasks, content and methods of teaching mathematics. She studies and researches the process of teaching mathematics in order to improve its effectiveness and quality. Methodology for teaching mathematics addresses the question of how mathematics should be taught;

- methods of teaching mathematics - a section of pedagogy that studies the patterns of teaching mathematics at a certain level of its development in accordance with the goals of teaching the younger generation set by society. The methodology of teaching mathematics is designed to explore the problems of mathematical education, teaching mathematics and mathematical education.

The purpose of the methodology for teaching mathematics is to study the main components of the system of teaching mathematics at school and the relationships between them. Under the main components understand the goals, content, methods, forms and means of teaching mathematics.

The subject of the methodology of teaching mathematics are the goals and content of mathematical education, methods, means and forms of teaching mathematics. The functioning of the system of teaching mathematics is influenced by a number of factors: the general goals of education, the humanization and humanitarization of education, the development of mathematics as a science, the applied and practical orientation of mathematics, new educational ideas and technologies, the results of research in psychology, didactics, logic, etc.

The main objectives of the mathematics teaching methodology are:

-definition of specific goals of studying mathematics by classes, topics, lessons;

-selection of the content of the subject in accordance with the goals and cognitive abilities of students;

-development of the most rational methods and organizational forms of training aimed at achieving the set goals;

- the choice of the necessary teaching aids and the development of a methodology for their application in the practice of the work of a mathematics teacher. The methodology of teaching mathematics is designed to answer three questions: Why is it necessary to teach mathematics? What should be studied? How should mathematics be taught?

Used literature:

1. Xursanova Zilola Mirzaxolmatovna, (2023/02) «Boshlang‘ich sinf o‘quvchilarida mantiqiy tafakkurni rivojlantirishning pedagogik imkoniyatlari» FAN, TA’LIM VA AMALIYOT INTEGRATSIYASI NASHR: 02 94-98

2. Xursanova, Z. (2023). BOSHLANG ‘ICH SINF O ‘QUVCHILARINING MANTIQIY TAFAKKURINI RIVOJLANTIRISHNING NAZARIY ASOSLARI. *Академические исследования в современной науке*, *2*(14), 84-87.

3. Gafurova, M. A., & Xursanova, Z. M. (2023). ON MODERN APPROACHES TO MATHEMATICAL EDUCATION IN PRIMARY SCHOOL. *International journal of advanced research in education, technology and management*, *2*(4).

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 09, Sep-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

4. Xursanova, Z. (2023). BOSHLANG ‘ICH SINF O ‘QUVCHILARIDA MATEMATIKA O ‘QITISH JARAYONIDA MANTIQIY TAFAKKURINI RIVOJLANTIRISH. *Педагогика и психология в современном мире: теоретические и практические исследования*, *2*(8), 18-21.
5. Mirzaxolmatova, X. Z. (2023). Logic and Scientists Today Opinion. *World of Science: Journal on Modern Research Methodologies*, *2*(4), 71-73.
6. Mirzaxolmatovna, X. Z. (2023). Strategies for Organizingthe Activities of Intellectually Advanced Students in Logical Thinking. *World of Science: Journal on Modern Research Methodologies*, *2*(6), 56-58.
7. Xursanova, Z., & Kasimova, N. (2023). DEVELOPMENT OF LOGICAL THINKING IN CHILDREN IN CHINESE COUNTRIES. *Modern Science and Research*, *2*(5), 875-879.
8. Mirzaxolmatovna, X. Z. (2023). Strategies for Organizingthe Activities of Intellectually Advanced Students in Logical Thinking. *World of Science: Journal on Modern Research Methodologies*, *2*(6), 56-58.
9. Mirzaxolmatovna, X. Z., Nematovna, R. S., & Shavkatovna, S. R. (2022). FORMS OF THINKING IN THE PROCESS OF STUDYING MATHEMATICS. European International Journal of Multidisciplinary Research and Management Studies, 2(12), 259-263.
10. Mahpuza, A., Rahmatjonzoda, A., & Zilola, X. (2022). ATTITUDE TO MATHEMATICS IN PRIMARY SCHOOL STUDENTS. European International Journal of Multidisciplinary Research and Management Studies, 2(11), 208-212.
11. KHursanova Z.M. Boshlang'ich sinf o'quvchilarida mantiqiy tafakkurni rivojlantirishning asosiy tushunchalari .Conference of England Science and pedagogy in the modern world: Problems and solutions Vol. 1. Issue **6.** July 16, 2023 , 88-93
12. KHursanova Z.M. Developing logical thinking in primary school students. AMERICAN Journal of Language, Literacy and Learning in STEM Education *Volume 01, Issue 06, 2023 ISSN (E): 2993-2769, 13-15p*
13. KHursanova Z.M. Boshlang'ich sinf o'quvchilarida mantiqiy tafakkurni rivojlantirishning asosiy tushunchalari .Conference of England Science and pedagogy in the modern world: Problems and solutions Vol. 1. Issue **6.** July 16, 2023 , 88-93
14. KHursanova Z.M. Developing logical thinking in primary school students. AMERICAN Journal of Language, Literacy and Learning in STEM Education *Volume 01, Issue 06, 2023 ISSN (E): 2993-2769, 13-15p*
15. XURSANOVA, Z., & NURMATOVA, M. (2023). MANTIQ VA MATEMATIKA FANINING O‘ZARO BOG‘LIQLIGI. Journal of Pedagogical and Psychological Studies, 1(5), 90-93.
16. Гафурова, М. А. (2022). Методы и формы организации деятельности учащихся на уроке математики в начальном классе. *Scientific Impulse*, *1*(5), 598-602.
17. MA Gafurova, ZI Muhammadiyeva. Scientific Research in Elementary Mathematics Classes Using Methods. - Texas Journal of Multidisciplinary Studies, 2023/4/26
18. Mahfuza Gafurova, Yodgoroy Mamatova. Necessity of Teaching Information Security and Cyber-Security in Primary Education. Central asian journal of mathematical theory and computer sciences. 2023/6/13