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Reasoning and Implementation of the National Curriculum for the Development of Mathematical Education in a Medical University

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Abstract

Annotation: *The issues of the national curriculum are considered according to the criteria of quality education at the same time, there are educational subjects - mathematics, physics, physics, chemistry, etc. the so-called text problems are solved. The solution of textual problems on this subject is considered as a subject of special study. In this way, the solution of the problem can be considered in a narrow and broad sense.*

Keywords: Mathematics, Geometry, Problem Solving, National Curriculum, Education, Formation, Learning.

The issues of the national curriculum are considered accorded to the criterion of quality education at the same time, there are academic subjects – mathematics, physics, chemistry, where so-called text problems are solved. The solution to text problems in these subjects is considered as a subject of special study. Thus, the solution to problems can be considered in a broad sense.

The concept of development of teaching mathematics in the public education system of the Republic of Uzbekistan "The concept of development of the public education system of the Republic of Uzbekistan until 2030", adopted on the basis of the Decree of the President of the Republic of Uzbekistan dated April 29, 2019 No. UF-5712, was developed in order to implement the tasks outlined in the Address of President Sh. Mirziyoyev to the Oliy Majlis dated January 24, 2020 [1].

The concept defines the main directions for the development of teaching mathematics in the public education system. The concept of development of teaching mathematics in the public education system has been developed to solve the problems that have arisen in the system and is based on the following regulatory documents:

Resolution of the President of the Republic of Uzbekistan dated May 7, 2020 No. PF-4708 "On measures to improve the quality of education and develop scientific research in the field of mathematics" [6,121 art.].

The Current State and Existing Problems of Mathematical Education.

The introduction of modern pedagogical innovative methods of teaching students in comprehensive schools is one of the important conditions for the entry of the economy of the Republic of Uzbekistan into the number of developed countries of the world in the next 10 years, that is, entry into the number of leading countries in the field of science and technology by 2030.

The implementation of the basic educational content, provided for in the requirements of the State Educational Standards, mandatory for all educational institutions of the Republic of Uzbeki-

stan, requires an approach to the curriculum as a fundamental, theoretical or experimental science based on the requirements of the time, philosophical and methodological renewal of science, development of improved, effective methods of managing the educational content and teaching methods [4].

The analysis of the situation in the system of mathematical education in recent years is determined by the following urgent problems:

The Role of Mathematics in Society is Underestimated

- High demands of DTS on the subject and excessive teaching load;
- "Dryness" of the scientific content of textbooks, its detachment from life and obsolescence;
- Lack of interest among students in studying natural sciences;
- Lack of qualified mathematics teachers;
- Insufficient development of educational and methodological support for mathematics (textbooks, multimedia applications, didactic materials, etc.);
- The presence of disproportions in the sequence and level of complexity of teaching subjects and topics, taking into account the age and psychological characteristics of students;
- Outdated methods of teaching mathematics;
- Lack of attention to interdisciplinary connections and practical approaches in general education subjects;

The quality of knowledge and skills of teaching staff trained in mathematics in existing higher education institutions does not meet modern requirements [2].

There are two main ways to improve the pedagogical system: intensive and extensive. Intensive development involves improving the pedagogical system through internal capabilities, while the extensive path involves attracting additional forces, that is, funds, equipment, and technologies [5]. Pedagogy is believed to have exhausted the possibilities of intensive technical development: the existence of school has tried all possible paths over the course of thousands of years, and the fate of today's teachers is to return, deeply remember the content and objectives of education, and deeply delve into its original foundations. Almost every educational task allows you to activate mental activity, but not every one of them leads to the independent formation of pedagogical and psychological concepts at the scientific level [9]. Therefore, when developing pedagogical, technical, and technological tasks for solving problems, it is necessary to take into account the didactic features of educational tasks. If the tasks are formulated correctly, they can be accepted by the student and recognized as a set of requirements for academic performance [5]. Goals and objectives of mathematical education.

The importance of mathematical education is determined by its role in scientific and technological progress, in the production of information and communication technologies and in everyday life. In addition to training creative and innovative personnel to meet economic needs, it is also necessary to provide quality education to those who, as consumers, will benefit from these achievements.

The rapid development of science and technology, the globalization of the world, the development of information and communication technologies change people's worldviews, ways of achieving success, and human potential, abilities and creative activity act as the main capital of society. In this case, one of the tasks facing our state is the formation of the personality of each student, competitive in society, the formation of a person adaptive to the changing socio-economic environment, active, socially mature, with a high level of knowledge, spiritually and mentally mature.

The aim of the course is to develop students' creative abilities, paying special attention to design, linking practical actions with observations, and demonstrating and developing their skills in creative, critical thinking and logical analysis, curiosity, problem solving and innovation. The main objectives of teaching mathematics are: ensuring that students acquire knowledge and skills about mathematical concepts, properties, forms, methods and algorithms; understanding the importance of mathematics in the development of man and society, teaching the successful application of mathematical knowledge and skills in socio-economic relations and everyday life; developing the individual characteristics of students and developing independent learning skills; developing students' national and universal values, creative abilities taking into account the integration of disciplines, orienting them towards an informed choice of profession.

To some extent, the current approach to the theoretical teaching of mathematics and the provision of students with ready-made educational materials had to be abandoned, and the main attention was paid to the formation and development of students' ability to apply mathematical knowledge in everyday life, as well as the manifestation and activation of students' independent thinking skills [5]. Priority areas for the development of mathematical education.

Based on the above analysis, it is advisable to highlight the following main areas for the development of mathematics teaching in the public education system:

To ensure that the requirements of the state educational standard in mathematics are based, first of all, on the needs of the future modern state and society, meet international requirements for the quality of education and training of personnel in accordance with the competencies of the 21st century; formation of an integrated system that ensures close interaction, continuity and coordination of the activities of pre-school, general education, secondary specialized and vocational, higher educational institutions, scientific, methodological and research structures; improving the quality of mathematics teaching in secondary general education and secondary specialized, vocational educational institutions, organizing and developing a network of schools with a mathematical focus in the regions; develop a system for training and retraining mathematics teachers, especially for rural schools; improving textbooks and teaching aids in mathematics.

Identifying talented young people and ensuring their successful participation and prize-winning places in city and international mathematics Olympiads; qualitatively updating the content of mathematics, as well as improving teaching methods, gradually introducing the principles of individualization of the educational process; improving and optimizing the content of mathematics and strengthening its integration with other general education

subjects; developing mathematical literacy, critical, creative and imaginative abilities of students, as well as applying the acquired knowledge and skills in real life situations; introducing modern digital technologies and innovative approaches to ensure the efficiency and effectiveness of the mathematics teaching process; creating a new assessment system based on advanced foreign experience in assessing student achievement and the results of international research in this area, and on its basis introducing a national certification system for assessing the level of knowledge in mathematics;

Bringing the teaching of mathematics to a new qualitative level, including the introduction of new scientific directions and principles of organizing the educational process using modern information and communication technologies, electronic textbooks, modern laboratory equipment; ensure harmonious education and upbringing, form students not only as educated, but also as spiritually and morally mature individuals;

Creation of a healthy creative environment in mathematics lessons, bringing the quality of education to a new level due to the introduction of advanced innovative modern technologies into the educational and upbringing process, development of students' worldview, thinking, and skills of logical independence of thinking;

Radically update the content of extracurricular and after-school clubs, electives and elective courses in the teaching of mathematics; development of scientific and methodological support for teaching mathematics; improvement of the system of incentives for the work of young people, winners of international scientific Olympiads, and their mentors; formation of an innovative infrastructure through the introduction of digital technologies and modern methods into the educational process [6.124 Art.].

Conducting educational research in the classroom and at extracurricular activities in order to demonstrate the relevance of knowledge, skills and competencies acquired by students in the field of mathematics for everyday life, developing creative abilities aimed at design, and developing their interest in creating innovations [4].

Schools will be equipped with modern classrooms and laboratories, new types of educational furniture, equipment and tools, visual aids, computer equipment and other teaching aids, and within the framework of the state program "Modern School" in general education schools a network of SMART classes, classrooms and workshops designed for conducting STEAM classes will be gradually introduced [7].

Mathematics Content Standards (Knowledge and Skills)

Brief description: Understand the essence of basic mathematical concepts and relationships and use them to solve typical educational problems.

These standards also provide for common practical applications. Consists of standards that measure the following mental activity of students:

covers areas (for ease of use in the future, see

the activity areas designated as M1, M2, M3, M4 and M5 respectively):

- Reasoning and Logic (M1); to justify an idea about mathematics,
- give logically sound and understandable arguments to confirm or respond to the opinion of others;
- Modeling (M2): using mathematics to solve educational and life problems.
- express them in language, build their mathematical model;
- Problem Solving (Problem Learning) (M3): solving a problem using mathematics;
- Communication (M4): mathematical concepts, symbols, and images
- communicate in the language of mathematics;

Data Processing (M5): data collection, analysis, and representation in various forms. These standards define what students should understand and be able to do while learning mathematics.

One of the signs of understanding mathematics is the ability to justify whether a particular mathematical expression is true or false, or where a particular mathematical rule comes from, based on the student's level of mathematical skill. Understanding the essence of mathematical concepts and the ability to perform typical operations are equally important and are assessed using standard tasks of a certain level of complexity [6, 124 p.].

The standards for the content of mathematics are expressed in the form of general requirements that cover the following sections of mathematics (for ease of use in the future, the names of the sections are coded with two capital letters): - Numbers and Operations (SA); - Algebra and Functions (AF); - Geometry and Measurement (GO); - Statistics and Probability (SE);

- Fundamentals of Mathematical Analysis (MA); Numbers and Operations (SA).
- Have an idea of numbers and quantities, know the methods of their representation and number systems,
- Establish and understand the relationships between numbers and quantities and apply them to solve word problems;
- Know the essence of mathematical operations and understand the relationships between them;
- Perform calculations with numbers and quantities without difficulty, correctly evaluate the results and give them an assessment [6,122 st].

The role of mathematics in human life and various approaches to its teaching. Raising a younger generation worthy of our great scientists such as Muhammad al-Khwarizmi, Ahmad al-Fergani, Abu Rayhan Beruni and Mirzo Ulugbek, who made a great contribution to the development of mathematics, the transfer of modern knowledge to students, the creation of conditions for the youth of our country to enjoy the beauty of mathematics, is the duty and responsibility of everyone [6,126].

Mathematics is the basis for understanding the world around us and plays an important role in revealing specific patterns of events and phenomena occurring around us, as well as in the development of production, science, engineering and technology.

It is known that mathematics sharpens a person's mind, develops attention, fosters determination and the will to achieve a goal, algorithmically accustoms to discipline, and most importantly, encourages reflection and expands thinking. As our esteemed President Sh.M. Mirziyoyev noted:

"Mathematics is the basis of all sciences. "A child who is well versed in this subject will grow up smart, broad-minded and successful in any field" [6, art. 127].

In our country, mathematics is defined as one of the priority areas of scientific development in 2020, a number of systemic works are being carried out aimed at bringing the development of mathematical science and education to a new qualitative stage.

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