MODERN REQUIREMENTS FOR MATHEMATICS TEACHING IN ACADEMIC LYCEUMS

M.M. Khabibullina
teacher of mathematics of the highest category at the Academic Lyceum of Turin Polytechnic University (Tashkent, Uzbekistan),
Akhmedova F.A
teacher of mathematics of the highest category at the Academic Lyceum of Tashkent International Westminster University (Tashkent, Uzbekistan)

Abstract: *One of the priority directions for the development and improvement of the educational system in academic lyceums, an approach to understanding the quality of education is the introduction of modern interactive teaching methods into the educational process.*

Keywords: *mathematics, innovation, modernization, mathematics methodology.*

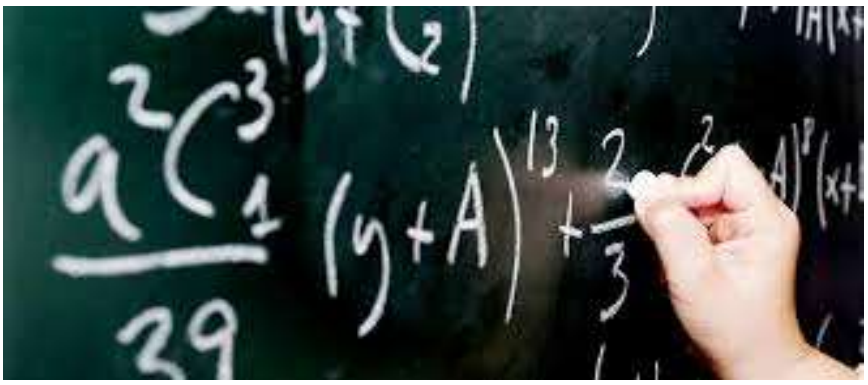
СОВРЕМЕННЫЕ ТРЕБОВАНИЯ К УРОКУ МАТЕМАТИКИ В АКАДЕМИЧЕСКИХ ЛИЦЕЯХ

Аннотация: *Одним из приоритетных направлений развития и совершенствования системы образования в академических лицеях, подход к пониманию качества образования является внедрение в учебный процесс современных интерактивных методов технологий обучения.*

Ключевые слова: *математика, инновации, модернизация, методология математики*

The main components of any lesson are the knowledge of the material and its consolidation. The knowledge of the material of a new topic in the lesson should be carried out in the process of active learning of students with intensive use of their independent thinking. The communication of ready-made knowledge should be limited to the necessary minimum, and the teaching function should be reduced mainly to the organization and management of active, developing learning. This should be constantly sought, striving to find and develop materials that allow highly effective modern teaching of mathematics.

The need for consolidation is based on the psychological regularity of the process of assimilation of new knowledge or method of action. During the lesson, the learning of new material often naturally turns into its consolidation, and sometimes alternates with it. In programmed learning, reinforcement learning is usually included in the program itself.



In problem-based learning, reinforcement is carried out in the process of checking and discussing an independent solution to a problem and its outcome. The same thing happens in the process of learning new material. In a lecture presentation, only the more difficult parts of the topic are consolidated by reproduction. The consolidation of the material in this lesson also includes its first application to problem solving. Already here it is necessary to practice independent decision making, which is the main method of teaching in training lessons, fully devoted to solving problems in order to develop solid skills and the ability to apply theory.

When developing a model of a modern lesson in the form of a lesson plan, which, like a scenario, defines the activities of the teacher and students at any moment of the lesson.

When developing such a plan, it is necessary to follow the following steps of the lesson:

- In accordance with the calendar and thematic plan and the mathematics program, carefully read all the material in the textbook, familiarize yourself with the tasks, questions, and think over their solutions;

- read the relevant paragraph of the teacher's manual, creatively use the recommendations contained there, additional exercises and independent work options;

- to distribute the material of this point of the textbook according to the given point of the lesson.

Think through and consider the connections of this lesson with previous and subsequent lessons.

- Formulate the objectives of the lesson: the main didactic, as well as developmental and educational (specifically);

- determine the equipment of the lesson: visual aids, technical teaching tools, didactic materials, measuring and drawing tools. When presenting the course of the lesson, indicate where and how this equipment will be used.

- it is advisable to choose the type and type of lesson. If you are studying new material, but taking into account its volume and nature, choose a lesson of new knowledge or a combined lesson.

- in accordance with the type and type of lesson, outline its structure, the stages of the lesson, their sequence, and approximately indicate the time allotted for each structural element of the lesson;

- identify the teaching methods that are appropriate to apply in this lesson, highlighting the main one among them. It is recommended to plan the lesson stage devoted to the study (cognition) of new material using mainly problem-based heuristic methods that provide exploratory cognition and active learning.

- in terms of teaching new knowledge, they form questions (or a small practical task, an oral account) that should prepare students to study a new topic, and immediately proceed to this study. The basic knowledge is updated in other lessons as well.

- at the first stage of the combined (and training) lesson, they plan to check the completion of written homework and interview students based on the material of the previous lesson and on repetition. In the plan, it is necessary to specify what exactly is from the homework and how it will be checked in the lesson.

- when introducing a new concept or rule in the lesson, it is necessary to develop in the lesson plan the application of a specific inductive approach, the method of expedient tasks, and when consolidating a new concept, practice compiling its pedigree, and when repeating, give tasks for classifying concepts and other creative work with them, reflecting this in the plan.

- using a problem-based approach, it is necessary to show how a problem situation will be created and the problem isolated from it, and what specific participation students will take in the formulation and solution of the problem.

- when studying new material, proving a theorem, and solving a problem frontally, the method of heuristic conversation is effective in activating the process of cognition and learning. In the plan, it is necessary to write down a well-thought-out system of logically consistent questions for the class and the expected answers of the students.

Combine heuristic conversation with the use of analytical methods (analysis-search) in proving or solving.

- the mathematics lesson should correspond to the principles of developing learning, the ideas of pedagogy of cooperation, it is necessary to creatively use the experience of advanced teachers.

To increase the effectiveness of the lesson, it is necessary to expand the methods, techniques, forms and means of teaching, to practice lectures and workshops more widely, and to develop students' ability to work with books and other sources of knowledge.

At various stages of the lesson and in the process of doing homework, in the process of self-preparation, it is necessary to use existing computer programs.

In the modern information world, it is already difficult to imagine a field of activity that would not require confident knowledge of information and computer technologies. Students and, unfortunately, most parents, see the computer only as a toy and are excellent at it at this level. But a computer should be used as a tool to teach students how to pose and solve cognitive problems, and for this it is necessary to find, process, use and create information, and navigate the information space. Therefore, one of the most important tasks of the teacher is to use information modules to explain new material in the classroom, as well as to independently study a topic that the student has missed.

Such a system of work will allow us to embark on the path to a new quality of education, to teach children in a new way, and for the teacher to prepare for the lesson and spend it better with the least amount of time.

The intellectual development of students is one of the tasks of academic lyceums, and the relevance of the problem of developing students' thinking is determined by the current state of our society. Only the teacher's purposeful work on the formation of logical skills contributes to the improvement of the level of development of schoolchildren. Math teachers work with all forms of thinking in their lessons. To develop logical thinking and confidently navigate the patterns of the surrounding reality, as well as to use the acquired knowledge in everyday life - all this can be learned by working with tasks in math lessons.

REFERENCES:

1. Суяров К.Т. Уровни проверки экспериментальных знаний, обучения и навыков учащихся по математике и их практическое применение //Образование, наука и инновации. 2016.

2. Абдалова С. Роль креативных технологий в управлении самостоятельным образованием и развитии творческих способностей учащихся. Математика. «Учитель»-1989.

3. Бандаркова А. Креативная педагогическая технология формирования профессиональной культуры обучающихся // Научно-методический журнал. - Москва, 2008.

4. Karimova, G., & Makhamadaliev, L. (2022). The importance of innovative ideas in increasing the effectiveness of education. *Asian Journal of Research in Social Sciences and Humanities*, *12*(6), 143-148.

5. Karimov, U. (2024). SOCIAL PROJECT: DEVELOPMENT TECHNOLOGY. *INNOVATIVE ACHIEVEMENTS IN SCIENCE 2024*, *3*(35), 13-17.

6. Akbarov, D., Umarov, S., Turdimatov, M., Sotvoldiyev, H., Abduqodirov, A., & Karimov, U. (2024). Research on the criteria of cryptographic resistant of continuous encryption algorithms. In *E3S Web of Conferences* (Vol. 587, p. 03005). EDP Sciences.

7. Akhmedova, F., & Khabibullina, M. (2020). MATHEMATICS SCIENCE. *SCIENTIFIC IDEAS OF YOUNG SCIENTISTS*, 45.

8. Akhmedova, F. A., & Khabibullina, M. M. (2021). NON-TRADITIONAL EDUCATIONAL APPROACHES IN TEACHING MATH. In *НАУКА И ПРОСВЕЩЕНИЕ: АКТУАЛЬНЫЕ ВОПРОСЫ, ДОСТИЖЕНИЯ И ИННОВАЦИИ* (pp. 221-223).