ELECTRONIC INFORMATION AND EDUCATIONAL RESOURCES AND THE DEVELOPMENT OF MATHEMATICAL LITERACY AS A MEANS OF STUDYING MATHEMATICS IN ACADEMIC LYCEUMS

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Abstract: *The basis of a high level of mathematical education at different levels of education is the mathematical literacy of the younger generation. Therefore, the formation of mathematical literacy among students of academic lyceums is a priority task in ensuring the quality of mathematical education. Modern society awaits thoughtful, proactive, creative applicants with a broad outlook and solid knowledge.*

Keywords: *mathematics, information technology, mathematical modeling, modernization, innovation, electronics.*

Аннотация: *Основой высокого уровня математического образования на разных ступенях обучения является математическая грамотность подрастающего поколения. Поэтому формирование математической грамотности учащихся академических лицеев является первоочередной задачей в деле обеспечения качества математического образования. Современное общество ждет мыслящих, инициативных, творческих абитуриентов с широким кругозором и прочными знаниями.*

Ключевые слова: *математика, информационные технологии, математическое моделирование, модернизация, инновации, электроника.*

The essence of interactive learning lies in the fact that the teacher organizes the cognitive and educational activities of the student in such a way that the student, relying on his potential and already acquired knowledge, independently solves certain situations, problems in the process of interaction of various kinds. And one of the most important interactions is precisely the student–information interaction.

In the modern information world, it is already difficult to imagine a field of activity that would not require confident knowledge of ICT.

Children and, unfortunately, most parents, see only a toy in a computer and are excellent at it at this level. Most people do not even think that a computer can be used as a tool to teach a student to pose and solve cognitive problems, and for this it is necessary to find, process, use and create information, navigate the information space.

Therefore, one of the most important tasks of academic lyceum teachers is the following:

- to show students and their parents how to use a computer in the learning process, and that this process is no less exciting as a game.

To date, the following modules should be used in teaching activities:

1. Information modules – for explaining new material in lessons, as well as for self-study of a topic missed by a student;

2. Practical modules – for consolidating the studied material and independent work at home;

3. Control modules – for repetition and correction of students' knowledge, as well as for independent preparation of students for diagnostic work.

Such a system of work will allow us to embark on the path to a new quality of education.

Each teacher in his pedagogical activity directs his efforts to find ways to improve the lesson. Let's highlight the most significant of these areas:

1. Strengthening the purposefulness of the teacher and students in the classroom. One of the important tasks of a teacher is to mobilize students to complete their tasks and achieve goals directly in the lesson. To do this, it is necessary to plan each lesson in such a way that it provides the shortest paths leading to the set goal, and first of all, the structure, methodology and means of teaching are outlined in strict accordance with the set goal.

2. The implementation of a clear organization of each lesson from the first to the last minute. Visual aids, technical equipment, student supplies, reference and additional literature are prepared in advance, everything necessary for each workplace is laid out.

3. Increasing the cognitive independence and creative activity of students. The direction is related to the issues of using methods and techniques of problem-based learning and creating problem situations in the classroom as a means of increasing the cognitive activity of students, this contributes to improving the quality of knowledge and developing the necessary skills and abilities. It also provides for independent work of students with educational and scientific literature, dictionaries, reference books and encyclopedias, tables, diagrams, graphs, maps.

4. It is necessary to choose the best options for combining various methods, techniques, and teaching tools that lead the shortest way to achieving the goals of the lesson.

5. Improving the typology and structure of the lesson. The use of modern educational technologies in the work allows the teacher to design the most diverse types and structural elements of lessons, which provides different, specific conditions for learning, education and development of students.

The teacher's skill in the lesson consists, among other things, in skilful mastery of teaching and upbringing methods, creative application of the latest achievements of pedagogy and advanced pedagogical experience, rational guidance of cognitive and practical activities of students, their intellectual development. The teacher monitors the accuracy, thoroughness and timeliness of students' fulfillment of each requirement.

The teacher's will and character are manifested in the lesson in all his activities. Students especially appreciate the teacher's demanding attitude combined with fairness and goodwill, respect and pedagogical tact. The teacher should be distinguished by self–control and self-control in order to overcome a negative mental state in the lesson - insecurity, stiffness or, conversely, excessive self-confidence, playfulness, increased excitability.

When organizing educational activities, it is necessary to form universal skills among students that will help eliminate difficulties in the future:

- understanding the essence of the task presented in a form that was not used in the lessons;

- work with information presented in various forms (text, table, diagram, other model);

- orientation in the data presented in different parts of the task, the choice of information to solve (refusal to use "superfluous" information);

- mastery of individual self-control actions (whether all questions have been answered, whether the answers correspond to the questions);

- using the method of iteration of options, the method of the algorithm; explanation of the answer using the studied terminology;

- the ability to reformulate the problem in a convenient form;

- the ability to independently move from one form of information presentation to another, choose the form of recording a decision, response;

- attracting information that is not directly contained in the task condition (using educational or life experience);

- proficiency in self-control of the course and result of actions (checking the response for reliability, accuracy of using a rule, formula, algorithm);

- proof of the correctness of the received answer (based on facts, algorithms, rules).

The use of tasks with practical meaning and subjects relevant to schoolchildren in the educational process eliminates the mechanical reproduction of knowledge by schoolchildren, develops the ability to further solve theoretical problems, reveal ways to solve practical problems.

It is necessary to develop mathematical literacy gradually. Regularly include tasks on "change and dependencies", "space and form", "uncertainty", "quantitative reasoning", etc. in the course of the lesson.

These tasks can be used at the discretion of the teacher:

- As a game moment in the lesson; - as a problematic element at the beginning of the lesson;

- as a task – a "push" to create a hypothesis for a research project;

- as a task for changing activities in the lesson;

- as a model of a real-life situation illustrating the need to study a concept in the lesson;

- as a task that establishes interdisciplinary connections in the learning process;

- Some tasks will force you to formulate your point of view and find arguments to defend it;

- you can collect tasks of the same type and conduct a lesson in accordance with some kind of educational technology;

- you can combine all the tasks into groups and create your own elective course on the development of mathematical thinking;

- tasks of this type can be included in school Olympiads, math quizzes.

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