

Техникалық ғылымдар



Технические науки



Technical sciences

FTAMP 27.01.45

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METHODOLOGICAL FEATURES OF COMPILING AND CONDUCTING CONTROL TASKS IN MATHEMATICS

Abstract. The article is devoted to the study of methodological features of compiling and conducting control tasks in mathematics. Possible options for tests used to test students' knowledge, as well as the main tools in the preparation of control tasks, are considered. An algorithm for compiling and conducting control tasks in mathematics is provided.

Keywords: mathematics, control work, control tasks, methods of conducting control work.

Introduction. The control of students' knowledge is an integral part of the learning process, so its improvement is an important task for the teacher. The relevance of the chosen topic is due to the fact that the requirements for conducting and compiling control tasks in mathematics are different from conducting tests on other subjects.

In other researches, for example, and specific mathematical anxiety is associated with the knowledge of arithmetic. However, it is not clear when math anxiety appears in young children and how it is related to academic performance in arithmetic at an early age. As a result, this study investigated the premature association between mathematical anxiety and arithmetic performance in grades 2 and 3 by taking into account joint anxiety and subsequent study of the prevailing direction of the anxiety-performance relationship. The results showed that this association was actually important in the 3rd grade, with the dominant direction from math anxiety to academic performance, and not vice versa. Overall, these findings highlight the importance of predicting early anxiety in school for improving academic achievement [1].

The preferences of utilizing advanced assets in instructing arithmetic in essential classes in the advancement of understudies' cognitive capacities are analyzed. For illustration, the focal points of accessibility of instruction, personality-oriented learning, creation of an data educational environment, the plausibility of choosing an person direction, imaginative movement, motivational breakthrough, exhibit circumstance, etc. are described [2].

Conditions and methods of research. When writing the work, the method of searching and summarizing information on the topic of the article was used.

During the online lessons, there were difficulties with control works. For example, prior to the flare-up of the widespread, online lessons were utilized exceptionally small in the schools included. Arrangements have been completely lacking by instruction specialists and local decision-makers in schools, as well as by instructors, guardians and students. This created considerable challenges and different drawbacks for a few bunches of understudies. On the other hand, the switch from face-to-face to online instructing driven to certain benefits that the surveyed bunches had suggested for future shapes of educating [3].

Results and discussion. By definition, control is the ratio of the results achieved to the planned learning objectives. Properly set control of students'

learning activities allows the teacher to evaluate the knowledge and skills they receive, provide the necessary assistance in time and achieve their learning goals. All this together creates favorable conditions for the development of cognitive abilities of students and the activation of their independent work in mathematics lessons.

Test work is one of the main forms of knowledge testing, performed in accordance with the curriculum, contributing to the consolidation of theoretical knowledge and forming additional skills in students for independent analysis of theory and practice. The control work is a written answer to a question (solving a problem or performing a specific task), which is considered within one or more topics of the academic discipline.

The purpose of the control work is to check the assimilation of the topic at the end of its study. The content of control tasks corresponds to the program of mathematics. When compiling control tasks, it should be remembered that as a result of the work, the material required for assimilation must be checked at the level required by the program.

The control work should include mainly tasks of a reconstructive nature, the work should include exercises that test several skills, it is recommended to include tasks of increased difficulty in the control work. The topics of examinations are developed by the teacher of mathematics, they must cover the full course of the discipline. Answers to tasks should be specific and logical [4].

Control tasks must meet the following requirements:

- tasks should be equivalent in content and volume;
- they should be aimed at developing basic skills;
- they should provide a reliable check of the level of training.

In the recommendations for the preparation of examinations, evaluation criteria are given, the number of recommended options is indicated, and the approach to selecting tasks. When compiling and conducting control tasks at school, the teacher must comply with a number of methodological requirements:

- Pupils should be warned about the upcoming test work a few weeks in advance and appropriate training should be carried out in connection with this. Simultaneously with the study of the lesson material, it is advisable to offer students similar tasks that are assumed in the control work so that they develop a clear mechanism for completing tasks of a certain type. It is also useful to carry out the so-called preventive test work, which allows you to determine the degree of preparedness of students for the upcoming test work;

- it is important that the content of the test cover both the main provisions of the material studied (the main part), and also preferably include such questions, the solution of which would require students to show intelligence and creativity (additional part);

- when conducting tests, it is necessary to ensure that students independently complete the tasks given, to prevent prompts and cheating. To do this, it is advisable to prepare options for tasks of various levels of complexity that meet the requirements for knowledge, skills, skills of students on a particular topic or course of the subject, as well as take into account the individual characteristics and abilities of the child (individual and differentiated approach);

- the teacher must first complete the tasks proposed in the control work; write down the text of the work on the board before the lesson (children with visual impairments must be given a card with the assignment of its version); provide for a multi-level test material in terms of complexity (the use of checkboxes with options);

- up to 35-40 minutes of the lesson are allocated for the performance of the control work held at the end of the quarter (in the first grade 20-30 minutes); the duration of work related to checking students' mastery of a particular topic should not exceed 25 minutes;

- tests, as a rule, should be carried out in the first half of the week and preferably in the second and third lessons. Transferring tests to the end of the week or to the last lessons is not advisable, since at this time students experience increased fatigue, which, of course, can adversely affect the performance of tests and, ultimately, the results. It is also unacceptable to conduct several tests on the same day;

- final examinations (quarterly, semi-annual, annual) are carried out in special notebooks for examinations and are kept by the teacher during the school year, and notebooks of poorly performing students - during all years of education in elementary school, in the middle level, in high school. When transferring to another school, the student, along with the "Diary of Observations", is also given notebooks for examinations. When moving from one link to another, notebooks are transferred to another teacher to analyze gaps in knowledge and organize differentiated work;

- the teacher is obliged to carefully check and objectively evaluate the tests, as well as analyze the quality of their performance, classify the mistakes made by the students and carry out subsequent work to eliminate gaps in their knowledge;

- in the next lesson after the test, under the guidance of the teacher, work on mistakes is organized, which is carried out in control notebooks. The student completes only the task in which he made a mistake. After individual work on the mistakes in the same lesson, a repetition of the material with students of the whole class is organized, taking into account the analysis of control work.

Understanding the relationship between compiling and conducting control tasks will allow the teacher to achieve an increase in the efficiency and effectiveness of compiling and solving problems. The sequence of operations in the process of compiling tasks is as follows:

- detection and presence of a mathematical problem situation;
- identification and analysis of the elements of the task situation (the primary model of the task);
- a brief record of the task condition with the execution of a drawing, drawing, graph or diagram;
- secondary analysis of the condition with the allocation of theory and laws that describe the problem situation;
- simplification of the condition, addition of the condition with missing data, constant;
- the choice of methods, techniques, ways of solving the problem;
- selection of links (equations, conclusions, etc.);
- finding and implementing a solution in a general form;
- analysis of the problem model, its precise formulation and correction;
- verification and evaluation of the conditions of the problem;
- study of the problem, its final revision, discussion, selection and formulation of new problem situations [5].

For the compilation and implementation of mathematical problems, it is the facts from the practical activity of man to meet human needs that serve as the basis. The worldview orientation of the task approach to mathematical education requires:

- a holistic vision of the subject of mathematics at each stage with a deepening of the picture of mathematical reality from stage to stage;
- “proportionality” to a person, his needs, emotional and intellectual spheres;
- reflection of worldview ideas and conclusions [6].

A typical test consists of 1 - 2 or 1 - 4 options, which are approximately equal in difficulty. In turn, each option includes tasks that check whether the student has mastered any well-defined skill. However, a job with few options inevitably increases the likelihood of cheating, especially in high school. Therefore, in order to ensure individual work of students, some teachers increase the number of options. Basically, the test consists of 5 tasks. The student receives a grade corresponding to the number of correctly solved tasks.

According to the methodological features of conducting control tasks in mathematics, it is allowed to carry out tests at different levels. Control tasks according to the level of complexity are usually divided into basic, basic and advanced.

The basic level is designed for poorly trained students. It is focused mainly on the achievement by students of the required level of preparation. For many tasks, answers, instructions, step-by-step instructions, some data for self-control are given here.

The main level includes tasks similar to tasks from the main material of the textbook. They are considered preliminary in the lessons, but are not so simple or important that the ability to solve them becomes mandatory for all students.

The advanced level is designed for students with good preparation. It includes tasks that require not only free possession of acquired knowledge, but also creativity, ingenuity and ingenuity.

The teacher himself determines which option to work for a particular student. Moreover, during the academic year, the student can move from one option to another. All three of these options are assessed in the same way as the classic test papers.

There are some objections to such tests. First, the distribution of options among students differentiates them by level even before the work is checked. Secondly, students who solved different options with the same assessment completed the work of different levels of complexity.

It is widely believed that, by virtue of their abilities, they showed equal zeal. And the labor of one student, spent on easier tasks, is equal to the efforts of another, engaged in more difficult tasks. It is the final result that should be the measure of the assessment of the work of the student. It is necessary that, according to the assessment, it was possible to immediately present the specific abilities of the student on this topic. These questions can be answered by conducting different types of control work at different levels.

Multi-level control work must meet the following requirements:

1. All options must be equivalent, although in different options tasks with dissimilar wordings are acceptable.
2. Any variant is divided into levels, each of which covers all the tested skills and abilities [7].

Compiling a problem in mathematics should be understood not as a simple reproduction of a problem from a collection or textbook, but as an independent formulation and solution of a problem by students, which in the general case is solved with the help of logical conclusions, mathematical actions based on the laws and methods of mathematics.

When compiling control tasks, the following tools are used:

- open tasks are problem situations that occur in real life. To solve them, it is necessary to independently comprehend, formulate the condition, the question of the problem, sometimes find the information necessary to solve it. Open problems can be divided into "inventive" and "research". Open problems have a "fuzzy" condition, different solutions and ambiguous answers;

- closed problems, in which there is a clear condition, a well-known solution algorithm and a single answer. Closed problems are of two types: for the calculation of some quantity or for proof. Such tasks can even be called exercises to develop some learning skills while learning new material.

Tasks in school textbooks are, as a rule, closed tasks. It is in the power of the teacher to make a miraculous transformation with them. To compose open problems, three basic requirements for the condition of an educational (inventive or research) problem should be observed:

- sufficiency of the condition;
- correctness of the question;
- the presence of a contradiction [8].

In this case, the condition of the task should be related to the life situation. What should be kept in mind when creating an open task? It should be interesting, understandable in the text and fundamentally solvable. It can be assumed that the use of open tasks in control tasks contributes to the formation of non-standard thinking in students, which makes it possible to achieve meta-subject results.

All tests are graded by the teacher and the grades are recorded in the classroom journal. When evaluating the written work of students, teachers are guided by the relevant standards for assessing the knowledge, skills and abilities of students. After checking the written work, students are given the task of correcting errors or completing tasks that prevent the repetition of similar errors. Work on errors is carried out in the same notebooks in which the corresponding written work was performed.

Conclusion. Thus, if you teach a lesson or present a topic, and then immediately conduct a knowledge control, learning does not occur. Mistakes that students make in intermediate classroom and homework are corrected by the teacher. Misunderstood material is reworked. Only a complete study of the topic with students allows you to proceed to the final test of knowledge. Therefore, control tasks should be carried out after the time allotted for the passage of the topic has been exhausted. Only after the topic has been worked out, it is possible to assign a control assessment of knowledge. After checking the completed tests, the teacher sums up the results for the students. Students work on mistakes, thereby reinforcing the learning material.

Hence the conclusion follows: in the system of educational work, all the above methods of compiling and conducting tests in mathematics should be applied in order to test and evaluate knowledge in order to ensure the necessary systematic and depth control over the quality of students' progress.

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Material received 22.02.22.

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МАТЕМАТИКАДАН БАҚЫЛАУ ТАПСЫРМАЛАРЫН ҚҰРАСТЫРУ МЕН ӨТКІЗУДІҢ ӘДІСТЕМЕЛІК ЕРЕКШЕЛІКТЕРІ

Аңдатпа. Мақала математикадан бақылау тапсырмаларын құрастырудың және өткізудің әдістемелік ерекшеліктерін зерттеуге арналған. Студенттердің білімін тексеру үшін қолданылатын тесттердің мүмкін нұсқалары, сонымен қатар бақылау тапсырмаларын дайындаудағы негізгі құралдар қарастырылады. Математикадан бақылау тапсырмаларын құрастыру және өткізу алгоритмі берілген.

Тірек сөздер: математика, бақылау жұмысы, бақылау тапсырмалары, бақылау жұмысын жүргізу әдістемесі.

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МЕТОДИЧЕСКИЕ ОСОБЕННОСТИ СОСТАВЛЕНИЯ И ПРОВЕДЕНИЯ КОНТРОЛЬНЫХ ЗАДАНИЙ ПО МАТЕМАТИКЕ

Аннотация. Статья посвящена изучению методических особенностей составления и проведения контрольных заданий по математике. Рассмотрены возможные варианты контрольных работ, применяемых для проверки знаний учащихся, также основные инструменты при составлении контрольных заданий. Предоставлен алгоритм составления и проведения контрольных заданий по математике.

Ключевые слова: математика, контрольная работа, контрольные задачи, методика проведения контрольных работ.