METHODS OF TEACHING THE SOLUTION OF PLANIMETRIC TASKS IN THE TOPIC "QUADRANGLES" IN GEOMETRY COURSE AT BASIC SCHOOL

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Abstract. The article is devoted to consideration of the placement of this topic in a geometry course. The main difficulties encountered by pupils when studying quadrilaterals in a geometry course are explored. There is a description of method of solving planimetric problems through modelling. The basic requirements for students and the teacher in the study of this unit are given.

Keywords: geometry, planimetry, modelling, system of tasks, theorems, concept, quadrilaterals.

The science which studies geometric shapes and their properties is geometry. As far as we know, it is divided into stereometry and planimetry in a school geometry course. Planimetry studies the properties of shapes and their quantitative relationship in the plane (e.g. quadrilaterals, segments, triangles, circles, etc.).

During the logical and mathematical analysis of this topic, it turned out that all figures are given definitions and all material on this topic is made on a deductive basis. Other sections are studied and built on this topic, so studying this topic for students is very important and traditional in school education.

When studying one of the important topics in geometry, "quadrilaterals", pupils encounter some difficulties. These difficulties may arise when the student is solving construction problems or when solving practical problems. The student may also have difficulty applying definitions and properties to prove a theorem.

At school, mathematical models are most often used to solve story problems, so modelling techniques should be used. In particular, emphasis should be placed on analytical and algebraic models. When solving such problems, the models may be equations, inequalities, functions, etc.

Students should be able to prove and formulate statements about the special properties of rectangles and rhombuses and inverse statements about the features of rectangles and rhombuses; they should understand and be able to clearly formulate definitions of rectangles, rhombuses and squares. In investigating the topic, students should develop the ability to independently justify new statements on the basis of their experience.

Pupils fully develop an understanding of all the concepts of planimetry through the system of tasks. The system of tasks fully forms the basis for learning how to solve planimetric tasks.

Children are introduced to the main types of problems, ways of solving them and the correct formulation of entries in this topic. All concepts of all types of quadrilaterals are also covered in this topic.

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introduced to the main types of problems, ways of solving them and the correct formulation of entries in this topic. All concepts of all types of quadrilaterals are also covered in this topic. The pupils must then know and be able to use all the skills and knowledge to be successful in introducing new theorems and concepts.

Teachers in schools are required to have the skills to apply the methods of scientific inquiry at all stages of teaching in order for students to develop logical thinking.

We analyzed the textbooks included in the Federal list of textbooks recommended by the Russian Ministry of Education and Science. All textbooks contain sufficient theoretical material and tasks, which are aimed at strengthening skills at a basic level and forming skills on this topic. It should be emphasized that for a more in-depth study of this topic, the task material needs to be expanded.

In order for the lesson to go well, the teacher must prepare carefully for it, he must choose the right visual aids and choose carefully the textbook he will use to teach the students.

In conclusion, the importance of studying the topic of quadrilaterals is undoubted, as this section forms the basis of the other sections. The main difficulties encountered by students are related to construction problems, the application of definitions and properties to prove theorems. Analytical and algebraic modelling is recognized as an effective method for solving problems. Pupils should be able to formulate formulations and construct proofs, provide basic definitions, and develop the ability to independently justify new statements on the basis of experience. The teacher should use all the different cognitive methods in his/her work, using appropri

References:

1. Grudenov YA.I. Psihologo-didakticheskie osnovy metodiki obucheniya matematike, M.: Pedagogika, 1987, 158 p.

2. Gusev V.A. Metodika obucheniya geometrii: ucheb. posobie dlya stud. vyssh. ped. ucheb. zavedenij [Tekst] / V.A. Gusev, V.V. Orlov, V.A. Panchishchina i dr.; pod red. V.A. Guseva, M.: Izdat. centr «Akademiya», 2004, 368 p.

3. Metodika prepodavaniya matematiki [Tekst]: uchebnik dlya vuzov / V. A. Oganesyan, YU. M. Kolyagin [i dr.], M.: Prosveshchenie, 1980, 368 p.

4. Ovechkin K. A. Ispol'zovanie metodov nauchnogo poznaniya pri izuchenii temy «CHetyrekhugol'niki» // Poznanie processov obucheniya fizike [Tekst]: sbornik statej. Vyp. devyatyj / pod red. YU. A. Saurova, Kirov: Izd-vo VyatGGU, 2008. P. 54–59.

5. Sarancev G. I. Obshchaya metodika prepodavaniya matematiki: Uchebnoe posobie dlya studentov mat. special'nosti Ped. Vuzov i universitetiov, Saransk: Tip. Krasnyj Oktyabr', 1999. 208 p.

6. Sichivica O. M. Metody i formy nauchnogo poznaniya [Tekst] / O. M. Sichivica, M., Vysshaya shkola, 1993.