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Organizing Subject Olympiads to Enhance Mathematical Knowledge in Primary School Students

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Annotation: This article explains the purpose of holding a science Olympiad in elementary school mathematics to expand and deepen students' mathematical knowledge, improve their logical thinking, identify talented students, and instill a love of science. It also discusses the order in which the Olympiads should be held and what to pay attention to when creating assignments.

Keywords: Olympiad, talent, student, mathematics, task, stage, gifted, problem.

Introduction: One of the most important tasks facing general education schools is to equip the younger generation with the foundations of modern science, enabling their maximum intellectual development. For students to successfully master mathematics, physics, chemistry, and other subjects in higher grades, they must thoroughly understand mathematics in primary school and develop practical skills. To enhance the knowledge and improve the learning outcomes of primary school students, it is necessary to conduct extracurricular activities in addition to regular classroom lessons. Extracurricular activities in mathematics are understood as sessions organized to broaden and deepen students' mathematical knowledge and develop their logical thinking skills.

Main Body: One of the methods that aids in discovering and developing talent is organizing subject Olympiads. An Olympiad is a competition among students aimed at solving specific tasks in a particular field of knowledge in the best possible way.

The objectives of conducting subject Olympiads include:

- Promoting the all-around development of primary school students by sparking interest in the subject;
- Developing students' ability and desire to independently acquire knowledge and apply it in practice;
- Helping students correctly and effectively approach non-standard problems;
- Building resilience to psychological stress while working in unfamiliar environments;
- Sustaining and enhancing students' interest in academic subjects;
- Expanding and deepening knowledge in mathematics while developing cognitive abilities;
- Fostering students' creative potential, and more.

When organizing an Olympiad, it is essential to create a comfortable, even festive atmosphere for the participants, ensure precise organization, and clearly formulate tasks. Participants should be informed that they can answer the questions in any order they find convenient. If the teacher distributes pre-prepared answer sheets, sufficient rough paper must be provided for students to draft their responses.

It is also crucial to remember that, alongside the principle of "the strongest wins," it is important to follow the principle of "there are winners in the Olympiad, but no losers," as participation itself is significant. Due to the large number of participants and the multiple stages involved, Olympiads

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provide an opportunity to identify "the most talented." Olympiads allow students to "discover" themselves and establish their place in their environment.

From which grade can mathematical Olympiads be organized? Preparing for the Olympiad is a serious task; it requires gradual and thorough preparation, not within a week, a month, or even a year. By the end of the first year of primary school, sufficient material has been gathered to conduct a mathematical Olympiad. At this stage, the students' level of development enables every willing student to participate. Any second-grade student should be allowed to participate in a mathematics Olympiad and be given that opportunity.

Preparation for a Mathematics Olympiad begins in the classroom, during lessons. Nearly every lesson should include arithmetic puzzles, logical problems, tasks involving the cutting and construction of figures, or other exercises to stimulate the mind. Classroom activities in mathematics are supplemented with mathematics clubs. The club should meet once a week, with sessions lasting 40 minutes. All students interested in studying mathematics can participate. Each session begins with a warm-up, which includes simple tasks like riddles, puzzles, or poetry-based problems with mathematical elements. In the club, students discuss problem-solving strategies and receive homework assignments to be discussed in the next session.

During the academic year, teachers can organize various mathematics competitions, such as math Olympiads, either within a single class, across parallel classes, or even with students from other schools at the same level. The content of the Olympiad must align with the mathematics curriculum for that particular academic year.

If a teacher is interested in developing the Olympiad tasks themselves, this approach is highly commendable. A teacher familiar with the primary school curriculum can design multi-stage tasks that suit the age and psychological characteristics of the students. The number of tasks should depend on their complexity and the students' preparedness. Teachers can also involve curious middle or high school students in creating Olympiad tasks. These older students can engage in this creative work by designing interesting questions and assignments for younger students.

An Olympiad is a non-standard situation where young students can discover their potential. The unusual nature of the tasks, the limited time for their completion, the need to make independent decisions, and the desire to win create certain challenges that the teacher or Olympiad organizer must consider. It is important to carefully plan the tasks presented at various stages of the Olympiad. Tasks for younger students cannot be as diverse as those for older students. The content of the tasks should primarily reflect the optimal scope of skills for each grade level but should not repeat textbook material or follow a standard format. Instead, tasks should spark students' interest. Referring to the world around them or even using fairy tale plots in problems can be beneficial.

All tasks can be divided into three groups:

- Reproductive (based on recall and application),
- Partially exploratory, and Creative.
- When preparing tasks, certain requirements should be met:
- A variety of tasks should be prepared for all participants;
- Some tasks should allow for multiple approaches to finding a solution;
- Tasks of a creative nature should be included, as they help identify talented students;
- All tasks should be chosen to encourage students to use their fundamental knowledge (combinatorial, logical, developmental, quick-thinking) creatively;
- Olympiad participants should leave the competition not only having demonstrated their existing knowledge but also having gained new knowledge;

- The volume of independent work should be planned so that completing the tasks does not take more than one hour.

The primary material for the Olympiad consists of tasks based on the knowledge, skills, and abilities students have acquired at a certain stage of preparation. However, these tasks should also require the application of that knowledge in new, non-standard situations.

Conclusion: Mathematics competitions and Olympiads play a significant role in addressing various challenges related to mathematics education in general education schools. They spark students' interest and love for the subject, teach them to think independently, and help them make decisions in complex real-life situations. Therefore, organizing mathematics competitions and Olympiads, along with preparing for them through math clubs, elective lessons, and additional mathematics activities, should captivate students with their unique features and engaging formats.

However, unfortunately, multi-stage Olympiads for primary school students are currently unavailable. The only options are paid Olympiads organized by non-governmental organizations. While the school-level stage is conducted exemplarily in some primary schools, in others, it is entirely absent. This highlights a weakness in our education system.

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