

TEACHING BLIND AND VISUALLY IMPAIRED STUDENTS TO ORDER NON-NEGATIVE INTEGERS UP TO 10

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Abstract: This article provides information on the methodology of teaching blind children in preparatory groups and first grade to order non-negative integers up to 10.

Keywords: students with visual impairments, mathematical concepts, numbers, ordering, arithmetic operations, methodology, exercises.

Introduction

One of the primary goals of special education for children with visual impairments is to develop their mathematical concepts. This process must account for their developmental characteristics, primary and secondary speech defects, and specific psychological processes. Students entering first grade come with different levels of mathematical preparedness, which necessitates differentiated methodological approaches tailored to their cognitive abilities and visual limitations.

Main Content

At the beginning of schooling, it is crucial to consider the nature, sequence, and quantity of exercises as well as appropriate visual aids. The teacher should prepare students to complete a range of exercises and, where necessary, break them down into manageable steps. This structured sequence enables the child to engage multiple sensory analyzers, thus promoting cognitive development.

During the preparatory phase, exercises that involve comparing objects can be used to build a foundation for understanding numerical order. These practical tasks help develop motor actions, which, from a correctional standpoint, are essential for forming concepts such as preceding and succeeding numbers. This multi-level didactic strategy enhances students' memory, visual perception, logical reasoning, and independence.

To ensure students understand that numerical order is not dependent on spatial layout, exercises with vertically arranged objects should be increased. This reinforces the notion that numerical values are not influenced by object size or arrangement.

Special attention must be given to developing students' listening, reasoning, and conclusion-drawing skills. Teachers should guide students in developing logical thought processes, beginning with listening and dialogue, followed by independent reflection. Distribution of varied tactile materials also plays a significant role.

When learning to order numbers up to 10, students must understand the formation, naming, and sequence of numbers. Visual materials assist students in learning to count and complete practical tasks. From the start, students should be encouraged to verify both interim and final results, fostering self-assessment skills.

Students must also connect quantity with number through regular exercises involving object images. These exercises strengthen the ability to match quantities with corresponding numerical values.

Additionally, activities like building a “number ladder” using object templates and split numbers help teach students to construct a natural number sequence. The number ladder can be customized to suit each student’s visual capabilities, and card-based exercises support number sequencing and recognition.

Comparative tasks involving pairs of numbers enhance students' understanding of inequalities. Visual comparisons are initially made with objects, and later with numerical symbols and inequality signs. Such exercises build precision and reinforce the understanding of "greater than" and "less than."

Working with number lines develops spatial orientation and allows students to quickly identify necessary numbers, understand inequalities, and correctly place numbers. The teacher adjusts the level of support and complexity based on students’ developmental levels and learning pace. Exercises with cards also reinforce verbal mathematical accuracy.

Mathematics education is vital for every student, and it requires specialized approaches for blind and visually impaired learners as well. Teaching students to order whole non-negative integers from 0 to 10 is a crucial step in reinforcing their mathematical foundations. This article discusses effective methods and tools for teaching number ordering to blind and visually impaired students.

1. Adapting Traditional Learning Materials

Adapting conventional tools is essential when teaching math concepts to blind and visually impaired students. For example, tactile materials, Braille notation, and audio-based devices enable students to feel and understand numbers through touch and sound.

2. Tactile Number Lines

Tactile number lines are an effective tool for helping visually impaired students grasp numerical relationships. These raised or textured lines allow students to sense the increasing or decreasing order of numbers through touch.

3. Real-Life Examples

Connecting math concepts to everyday life improves understanding. For example, students can learn to order numbers using familiar objects they encounter daily.

4. Adapted Games and Activities

Interactive games and hands-on activities increase engagement and reinforce learning. You can create number-ordering games using tactile materials to make the process both fun and effective.

5. Individualized Approach

Each student has unique abilities and needs. Adopting an individualized teaching approach ensures that students learn number ordering in ways that suit their personal learning styles.

Conclusion

Teaching blind and visually impaired students to order whole numbers from 0 to 10 requires a diverse toolkit: tactile materials, real-life examples, interactive games, and personalized instruction. By integrating these methods, educators can enhance the effectiveness of learning and support deep mathematical comprehension.

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