

Method of forming elementary mathematical representations of preschool children with serious speech disorders (SSD)

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1. The concept of the method of the FEMR of children of preschool age with SSD, relationship with other Sciences

The special method of FEMR in the system of pedagogical sciences is designed to provide assistance in preparing preschool children with SSD to perceive and learning mathematics, promote the education of a fully developed personalities.

The subject of the special FEMR methodology: the study of the main regularities of the process of formation of elementary mathematical children of preschool age with SSD in the conditions of special education preschool education.

Issues considered by the special FEMR methodology:

- Scientific justification of program requirements for the level of development quantitative, spatial, temporal, and other mathematical methods representation of children with SSD in each age group;
- Determining the content of factual material for preparation a child with SSD in preschool to learn mathematics;
- Implementation of continuity in the formation of basic mathematical models performances in special pre-school institutions and schools;
- Development and implementation of effective tools, methods and various forms of organization of the EMR development process in children with SSD;
- Development of the problem of training qualified personnel;
- Development of scientific-based guidelines for parents on development of EMR in children with SSD in a family environment.

Connection with other sciences:

- with preschool speech therapy;
- with speech psychology;
- with speech therapy;

- with private special methods of preschool education and training;
- with sensory education;
- with the methodology of teaching mathematics in primary classes.

2. Characteristics of the features of mathematical representations in preschool children with SSD

1. Children have practical counting skills, can perform comparison the number of groups of items, the actions of addition and subtraction. However their knowledge about the set, number, and count are unstable, requiring constant visual support.

2. Insufficiently generalized sensory experience makes it difficult to expand and increasing knowledge about the relationships between variables.

3. The lack of commenting on mathematical operations makes it difficult transition to the mental form of performing actions.

4. Verbal support for the progress of the task significantly reduces the pace of work.

5. Difficulties in speech regulation of activity prevent self-correction of errors, formation of self-control.

6. When they focus on remembering the next number, they forget, what items have already been counted.

7. Have difficulty understanding the instructions for the task, mathematical terms that cannot be included in a speech utterance.

8. Children are able to create a seriation series in size, distinguish length, the width and height of the object, it is difficult for them to operate with existing knowledge, include them in more complex activities.

9. Ideas about the form are formed, but there are difficulties in speech registration of existing knowledge and their inclusion in the conceptual apparatus.

10. Children mistakenly differentiate similar geometric shapes, because generalization is not based on the essential features of the selection of properties and analysis of parts, and based on visual perception.

11. Lag in the perception of spatial relations between objects. Objects located close to each other are perceived by them as continuity.

12. Have difficulties in determining the location of the item and its relationships to themselves and other subjects (especially children with dysarthria).

13. Perception of time: in general, preschool children with SSD they understand the change of events, their frequency, and determine the main features time interval. But they have poor ideas about time, superficial, because the ability to build a coherent is not formed a statement about the content of an activity in a certain period of time.

14. Children with SSD do not explain cause-and-effect, temporary relationships do not understand the meaning of words denoting relative relationships (yesterday, today, tomorrow).

15. When performing familiar math tasks, children need not only organizing and directing assistance, but also a private analysis of the work performed actions, task simplification, and often a full joint review, as well complete the entire task together.

16. They do not know how to use verbal samples, do not rely on they are difficult to transfer to a similar one when building a phrase task.

17. Most children can not remember the instructions, keep them in memory verbal organization of the practical task.

3. The main tasks of pre-mathematical training of children preschool age with SSD

- 1) Formation of a system of elementary mathematical representations.
- 2) Formation of prerequisites for mathematical thinking and individual logical structures.
- 3) Formation of sensory processes and abilities.
- 4) expanding the vocabulary and developing coherent speech in the process of conducting FEMR classes.

Children with **SSD** are taught:

- To recognize (not only on the sensory level) the magnitudes of objects, but it is also correct to reflect your ideas in the word: wider-narrower, higher-lower, thicker-thinner, etc. because children with SSD tend to use words: more-less, big-small, instead of wide-narrow, high-low.
- Learn the vocabulary of time signs: day, morning, evening, night, yesterday, today, tomorrow, fast, slow, names of days of the week, months, seasons

5) Formation of the initial form of educational activity.

Teach:

- * draw conclusions and generalizations, prove their correctness, etc.,
- * we develop organization and discipline,
- * activity and interest in solving problems,
- * arbitrariness of mental processes and behavior.

4. Content of pre-mathematical training of children with SSD

Directions of the FEMR section:

1. Quantity and invoice;
2. The value;
3. Geometric shapes;
4. Orientation in space;
5. Orientation in time.

Differentiation of directions is conditional because the main components elementary mathematical representations: set, count, quantity, relationships are formed in the interconnection of interdependence.

The program also includes requirements for the level of development:

- Quantitative,
- Spatial,
- Temporary representations in children with SSD at each age stage, this makes it possible to use them for monitoring and checking the degree of mastering the basic knowledge of preschool children with SSD.

The basis of FEMR, in children with SSD, is linear-concentric principle: repetition at each age stage of a higher level of that, what was mastered at the previous stage, and further progress.

5. Methods, tools and techniques for teaching preschool children age with SSD elementary mathematical representation

Methods: practical, visual, verbal.

A number of factors are taken into account when choosing:

1. Goal;
2. Tasks;
3. The content of the generated mathematical ideas on this stage;
4. Speech, age and individual characteristics of children;
5. Didactic tools;
6. Specific conditions, etc.

Practical method

- ☐ Best matches the specifics and features of EMR;
- ☐ Age-related opportunities;
- ☐ The level of thinking development of children with SSD.

Exercise-repeated practical and mental repetition actions.

2 forms to complete:

Collective;

Individual;

Exercises should be differentiated:

- ☐ By degree of difficulty;
- ☐ Taking into account the speech and psychological characteristics of children;
- ☐ To have a game character;
- ☐ Children become more complex as they age.

The exercise system for each age group should be based on relationship principle: each previous and subsequent exercise they must have common elements: material, methods of action, and results.

Game-refers to practical methods.

In the educational process, a variety of methods are used **didactic games**:

- Object;
- Verbal;
- Desktop-printed.

There are didactic games *for the formation of*:

- Quantitative concepts;
- Representations of size, shape, shapes, space, time with taking into account:
- ☐ age-related,
- ☐ speech,
- ☐ cognitive capabilities of children with SSD.

Literature:

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