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Training at school should promote to development of various cognitive processes such, as representation, imagination, thinking, including spatial thinking which provides creation of spatial representations and operating by them. This kind of thinking is an essential element of game, educational, labour activity of the child where it is necessary to use skills to be orientated in space.

Formation of structures of spatial thinking is of great importance for the visually impaired child. Seizing ways of creation and operating by spatial representations, the child acquires knowledge of surrounding space and skill of interaction with it, develops sensual experience, cognitive activity, creativity, improves practice of spatial orientation, and also raises success of the training at school. All this in turn promotes versatile development of the pupil and his successful integration into a society.

At definition of the contents of pedagogical work on formation of skills to create spatial representations and to operate with them it is necessary to take into account, that younger schoolchildren most frequently meet spatial representations during studying elementary geometry at lessons of mathematics. Studying of a geometrical material, demands mainly emotional-imagined cognitive strategy, which is organic for children of younger school age, and gives the big opportunities for their high-grade intellectual, emotional and aesthetic development. To regular studying of elementary geometry should be given much more places in primary school, than it takes place now. And, at special school such position can be put forward as the special requirement to process of training. Its realization assumes the organization during training dynamic interaction of schoolchildren with surrounding space, with objects filling it, dynamical change of their spatial properties. It allows to fill that the child do not have in the ordinary experience because of the restrictions caused by visual impairment.

At definition of the contents of initial mathematics it is necessary to take into account character of educational actions with a geometrical material. The traditional system of the mathematical exercises intended for studying of a geometrical material in primary school, is limited to tasks into which pupils are offered to allocate properties of geometrical figures, to compare them, to define a belonging of a figure to some class, to calculate its perimeter and the area. Such exercises enable to form at children of skill to create various spatial representations about the form and the sizes of subjects, properties of their components.

Together with these tasks, certainly, rather important for formation of knowledge and skills of pupils, their intellectual development, necessarily there should be tasks for change of geometrical objects, their transformation. Such exercises enable to form composite skills which allow to transform and combine spatial representations in younger schoolchildren, to create on their basis new spatial representations.

Necessity of inclusion of such exercises for the contents of mathematics of primary school proves to be true the regulations about proved in psychology similarity of spatial thinking structure to structure of geometrical transformations group. According to this position of skill of the child to operate with spatial representations it will be coordinated to his ability to carry out the certain set of geometrical transformations.

Now such tasks yet have not found the regular reflection in the contents of mathematics of primary school. Still, the traditional sight at a geometrical component of the contents of initial mathematics as on auxiliary concerning its arithmetic component prevails. Studying geometrical transformations is traditional is included in the contents of mathematics of average and senior school.

But, last decade the significant amount of scientific publications has appeared in which the opportunity of carry of studying of some kinds of geometrical transformations to primary school and even is proved during the preschool childhood. The opportunity of such carry is based on regulations about presence the sensitive periods in process development of the person which are optimum for formation of the certain mental functions. The age of 6-12 years is sensitive for development of figurative components of thinking, and therefore is optimum for development and spatial thinking.

Inclusion of geometrical transformations to the contents of mathematical education of primary school for children with visual impairment has the important correctional value for their development. Mastering of knowledge of properties of geometrical transformations, mastering by skill of them to carry out, helps the child to compensate lacks, incompleteness of his sensual experience, a significant place in which just and belongs to knowledge and the skills basing on spatial properties of objects of the surrounding reality. Spatial transformations of various kinds, can be considered as model of spatial interaction of the child with environment. Just as the thinking as a whole carries out compensatory function in mental development of blind and visually impaired children, and the spatial thinking carries out the same function in developments of various kinds of the activity demanding use of spatial properties of objects of the surrounding reality.

Pupils of younger school age accessible to mastering are such geometrical transformations, as symmetry of various kinds (central, axial), parallel transposition, rotational displacement, and also their compositions. There are some reasons for such choice. First, there are many examples of these geometrical transformations in the environment surrounding the child, in his life experience. Second, their properties and

a rule of performance are simple enough and accessible to pupils of age of primary school. Thirdly, these transformations form mathematical group, the composition of several geometrical transformations can be replaced with one. For example, it is possible to replace two consecutive axial symmetry one parallel transposition or rotational displacement.

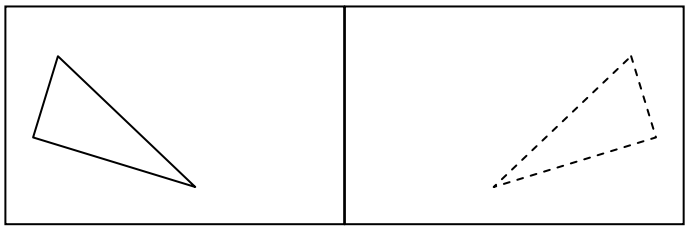
As is known, cognitive activity of the child with visual impairment demands creation of special conditions for the development. An integral part of the new contents of mathematical education in primary school is using of special educational tools, so-called dynamic models of geometrical transformations. These educational tools should provide to children with visual impairment an opportunity not only demonstrations of all stages of geometrical transformation from initial and before final position geometrical object, but also performance of them by them. Such dynamism of demonstration and realization of geometrical transformation is necessary for reliable mastering rules of geometrical transformations performance and their properties by the child with visual impairment.

Studying of geometrical transformations by younger visually impaired schoolchildren occurs in some stages. In the beginning actualization of representations and ordinary experience of pupils, demonstration of examples of geometrical transformations in the nature and in activity of the person, an opportunity of use of knowledge and skills about them in own educational and daily activity, development of interest of children to studying this material is carried out.

Then knowledge of properties of geometrical transformations and rules of their performance are formed. For example, for studying such geometrical transformation as axial symmetry it is possible to use the following dynamic model. It will consist of two parts of the rectangular form and can be opened and closed, as the book. The internal surface of this educational tool is adhesive. For work with this model pairs identical geometrical figures which one surface also is adhesive are used.

Studying of properties of axial symmetry occurs as follows. The schoolboy or schoolgirl attaches a figure to the left party of the educational tool, then puts on it other the same figure the adhesive surface upwards. After that the educational tool is closed and again opens. The pupil sees, that one figure is located at the left, and another is located on the right. They have the identical form, the sizes and position concerning a bend line of model. It is judged: these two geometrical figures are located symmetrically.

At the following stage pupils practically carry out geometrical transformations, using dynamic models which allow to track dynamics of performance of geometrical transformations. Children also use cards where properties and rules of performance of geometrical transformations are written down. Pupils necessarily pronounce all their actions. After finish work with the educational tool, schoolchildren make corresponding figure on a paper.



Further the dynamic model described above is not used any more. Operating by spatial representations is carried out with the help of movements of hands in air which simulate the mechanism of action of the educational tool. Children put palms of hands together and then open them, as the book. Further pupils draw result geometrical transformation on paper.

At the closing stage younger schoolchildren with visual impairment carry out geometrical transformation by way of mental actions, silently. Cards where properties and rules of performance of geometrical transformations are written down, are not used any more. The teacher can see only final result in a graphic kind.

Such new contents of mathematics in primary school for children with visual impairment provides not only development of spatial thinking, but also, as a whole, all mental sphere of this category of children.