

APPLICATION OF THE GEOGEBRA PROGRAM FOR THE ORGANIZATION OF EDUCATIONAL AND COGNITIVE PUPIL'S ACTIVITIES

The mathematics course is one of the fundamental and basic disciplines in the comprehensive school. The study of mathematics at school should provide a strong and conscious student's mastery of the system of mathematical knowledge and skills required for the general development of the student, for the studying of other related school subjects (Physics, Drafts, Chemistry, etc.), for continuing of education. Knowledge of mathematics is important for the formation of the ability of the student to formulate, to investigate, to analyze, to find an algorithm for solving different problems, to conduct experiments and process their results, to distinguish true reasoning from false, to find several ways to solve the same problem, to choose the most optimal decision. To make teaching of mathematics interesting for the student, to stimulate him to work, it is very important to use information technologies directly at the lesson while teaching, to form tasks at the lesson and for individual work.

GeoGebra is one of the specialized software for mathematics education. The application of GeoGebra gives an opportunity to get substantial results in studies, to solve tasks that were previously impossible to solve in a lesson because of large amounts of the same type of calculations, or time consuming drawing of figures. The spatial tools of this program allow to build geometric bodies, their combinations, to construct planes, to build cross sections, to make measurements, to determine angles and more. The use of GeoGebra in learning influences the purpose, objectives, content, methods, tools, organizational forms of learning and other components of the learning system.

The article summarizes the experience of using GeoGebra software tools as a system for activating educational and cognitive activity of pupils in the process of learning mathematics. An important task of school education is the presentation of logically structured material with some elements of graphical representation for quick perception and process in of the necessary information, therefore, of course, in the process of teaching mathematical disciplines it is expedient to use separate

components of a computer-oriented learning system for the development of project and research activities of pupils.

GeoGebra was investigated as a tool for creating dynamic models when studying problems with parameters and developing the main ways of implementing this program in the education of students in comprehensive schools.

The benefits of a software product, such as the ability to display the shape of figure step by step, are important for exploring the solution of a task with parameters.

Different groups of problems are created, solving which it is advisable to use the software for automation of constructions and computing GeoGebra. Some examples are given on application of dynamic mathematical modeling programs to different types of tasks and methodical peculiarities of using an interactive mathematical environment.

Solving of tasks is considered with the parameters of such types : research of function on an increase depending on to the parameter; research of charts of functions; solving of irrational inequalities, that contain a parameter. All the examples are presented in the tables, where in detail research of task is represented by means of mathematics and corresponding step by step research by means of the GeoGebra system.

The article states that being able to organize groups in the GeoGebra environment is important for organizing learning activities. These can be class division groups, or they can be divided into books (sections) with different types of tasks. When divided into groups, it will be convenient to access and use exactly the tasks you need to study.

In this research work functional capabilities of the system of dynamic mathematics from the point of view of innovation and prospects of its use in the educational process are analyzed. The possibility of organizing an empirical study of the properties of mathematical objects is considered.

In the article it is analyzed that, in the process of learning mathematics, system GeoGebra is used as the mean for visualization of the studied mathematical objects, expressions, depicting methods of construction; as an environment for modeling and

"mathematical experiment" to identify the properties of the objects under research; as an instrumental computing complex.

The importance of implementation of solving research problems theory with the use of information and communication technologies is confirmed, this will promote a pupils' interest in the process of learning, the development of pupils' research activities, increase their mental activity and will provide the student with a set of specialized tools for creating and transforming objects, as well as measuring the required parameters.