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DESIGNING OF DIDACTIC GAME PROGRAMS IN MATHEMATICS FOR PRIMARY SCHOOL USING ADOBE FLASH

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Abstract

The article discusses the relevance of the didactic game programs for elementary school Adobe Flash means. The possibility of creation of electronic educational resources in mathematics for elementary school program Adobe Flash CS 3 Professional on the examples of didactic game programs "Sport mathematics", "Geometric coloring" and "Geometric designer" created by the author. In order to create electronic educational games, it's not so necessary to have an excellent knowledge of programming languages. It is enough to be able to work in the program Adobe Flash have a good handbook with step by step algorithm for the creation of one or other of the didactic games. Using Adobe Flash program, the teacher will be able to model their own educational games for younger students, given the peculiarities of the class students.

Keywords: mathematics, elementary school, didactic game, Adobe Flash, Action Script.

Introduction

The changes that are taking place in recent years in society, require the introduction of new ways of organizing the learning process, the use of educational technologies that have helped to shape the foundations of learning skills.

Computer technology has become a new way of knowledge transfer that meet higher quality learning content and development of the child, let him learn with interest, to find sources of information, foster independence and responsibility at the time of acquiring new knowledge, develop the discipline of intellectual activity. Most children get acquainted with the computer long before the school offers. It should be borne in mind that new generations of children come to school who live in the information, dynamic, emotional and stressful environment.

Primary teachers are trying to keep up with the requirements of today's primary school students and working to create electronic educational copyright resources . The most popular are didactic computer games.

Topical application of didactic game programs in training of younger pupil to the mathematician.

Designing of didactic game in mathematics for elementary school programs should pay special attention, because the computer is part of student life through the game. Games form the student's motivation and intellectual commitment to the use of computer tools to carry out their activities. For primary school age characteristic brightness and immediacy of perception, ease of entry into the images. Children easily involved in any activity, especially gaming. The present teacher and student collaboration is possible provided when not forced to learn and carry away jobs in an interesting way, which allow students to discover and able to strengthen its capabilities and insecure in their knowledge - to develop the initiative, ingenuity, thinking.

Consequently, in the elementary school game remains the leading activity. Playing, pupils unconsciously learn and reinforce difficult concepts and skills. Reporting on a computer screen in the form of a game is the children of great interest to the work with him, as well as to perform mathematical tasks. The game continues to have a major influence on the development of cognitive processes, properties and states of the student's personality, so it is one of the most effective methods of teaching in primary schools [2].

Didactic games get along well with "serious training". Computer games allow you to increase the motivation of the student. Not only the novelty of the work with the computer, which in itself contributes to increased interest in learning, but also the ability to adjust the presentation of educational objectives of the degree of difficulty, the promotion of the right decisions has a positive impact on motivation [3].

Computer educational game - a game for the formation and development of children of common intelligence, goal-setting, the ability to mentally correlate their actions in the game to create an image control in a computer game, for the development of fantasy, imagination, emotional and moral development [4].

Computer game programs there are many, but for the most part it's entertaining games. If there are educational games, they are insufficient. Almost no proven techniques correct application of them in the educational process in the educational institutions. Therefore, the actual problem is the theoretical study of the phenomenon of computer didactic game, developing methods of using games in the educational process of an elementary school [5].

In elementary school, the game remains the leading activity. Playing, pupils unconsciously learn and reinforce difficult concepts and skills. Independent work on a computer - the main means of painless gradual transition from the normal game to the new more complex learning and cognitive activity. Autonomous activity increases a child personal responsibility and autonomy of decision-making in conjunction with their positive results, gives positive emotions, it creates confidence and a strong desire to resume work, gradually moving to a more difficult level of work. Reporting on a computer screen in the form of a game it causes children's interest to the work with him, but at the same time to perform mathematical tasks. The game continues to have a major influence on the development of cognitive processes, properties and states of the student's personality, so it is one of the most effective methods of teaching in the first grade and reception work in subsequent classes.

Didactic games get along well with "serious training". Inclusion in the lesson of didactic games and gaming moments makes the learning process more interesting, creating a cheerful pupil's working mood, easier to overcome difficulties during learning. A variety of game activities, through which it is solved, or another job in mathematics in primary school, maintains and enhances the interest of children to this school subject. The game should be seen as a powerful, indispensable lever of the child's mental development as an activity to organize the learning process in order to develop cognitive interests [6].

Keep in mind that electronic educational resources must comply with didactic requirements, which include the following criteria: scientific, accessibility, visibility, independence, consistency, sequence of learning strength and unity of educational, developmental and educational functions of study, choice of training tempo, variability of training, interactive training, corrective actions, development of intellectual potential [7].

System Adobe Flash as a design tool of didactic game in mathematics for elementary school programs.

One of the leading trends in the development of multimedia products is usage of Flash technology. Full educational games can be developed using Flash technology [8].

Technology Adobe Flash, designed to create interactive content and multimedia is a powerful vector graphics editor with many features, which allows you to create 2D vector graphics and animations, use the graphics, as well as to connect audio and video [9].

In this program, you can create interactive spreadsheet and presentation, educational computer models, didactic computer games and activities that contribute to the formation of logical and algorithmic thinking [10].

Flash is a rich environment for the development of electronic educational resources. The attractiveness of the environment is that the built-in graphical tools provide ample opportunities for the development of software tools for design, but rather a powerful built-in Action Script programming language implementation provides effective management of software product [11].

In order to create a good electronic benefit, is not so necessary to have an excellent knowledge of Action Script programming language. It is enough to understand that object does not work on its own, it must receive a command (script). Therefore, having a good handbook with step by step description of the creation of one or other of the didactic games, the teacher will be able to model their own educational games for younger students. Knowing which commands (scripts) to be administered to the frames, buttons, clips, teacher will be able to create a variety of game learning tools for their students. The Adobe Flash can create two types of games. To create a game of the first type, you need to create a normal presentation. Setting the student sets the fairy-tale hero. This can be examples tasks conversion expressions with logical reference load, etc. If a student decides to task correctly, then it moves to the next frame and is able to get from the fairy-tale hero the next task. If the job is decided incorrectly, the teacher at the time of the creation of the game planning frame - help. In this picture (slide in Microsoft Office PowerPoint) he places the information (Fig. 2), by which the student will be able to better grasp the subject. For the modern disciple is not news, because younger students are accustomed to tips, playing games at home. Therefore, the teacher and should use the maximum possibilities of the game. Usually one game for primary school students is not enough, so you need to create some game in this sample program (Fig. 1). By choosing one of the game programs, the student performs tasks, and only in the last frame has the ability to go to the title page, or e to quit the game. This type of games is better to apply at the stage of consolidation of knowledge in order to identify gaps in learning topics (Fig. 1, Fig. 2). The aim of such teaching is to develop the gaming general learning tasks, the development of constructive thinking, ordering, etc., which is realized at the same time and play components, and training goal. The main advantage of such programs lies in the fact that learning activities supposedly "masked", the child acquires knowledge, possessed certain skills while playing. Together with your favorite characters child performs training exercises and activities to develop logical thinking, formulation and solution of examples, problems, etc. The main difference of this kind of learning from the traditional is the presence of another member - or the literary fairy-tale character which plays the role of organizer of learning activities, tasks offers educational nature and monitors the progress of its implementation.

The computer allows you to increase the motivation of learning and makes the ability to adjust the presentation of educational tasks in complexity, encouraging to the right decision. In addition, the computer allows you to completely eliminate one of the most important causes of the negative attitude to learning - a weak performance due to lack of understanding of the essence of the problem, significant gaps in knowledge. Working at the computer, the student is able to bring the solution to any learning task to the end, to eliminate the gaps and errors in knowledge [12]. Fig. 1- Fig. 2 shows screenshots of the didactic games "Sports mathematics". On the cover page of the electronic (Fig. 1) the student must read the instructions, and you can choose to play. The student goes to the first frame of the selected game starts executing tasks. Fig. 2 you can see three different answers to the same task, but the number of them may be different. Only one of the answers is correct. Having chosen the correct answer, pupil moves on to the next task. If you choose the wrong answer, child shall be assisted, and again moves to the assignment that he performed improperly. Hence, the frame - help - the main tool of the teacher what will help the absorption of pupils of educational material. In this picture, on behalf of the characters in the game the teacher refers to the student and places the information it deems necessary. This can be a table, diagram, the rules

explaining the tasks and examples. After all, only the teacher knows the students in their class needs, what mistakes they admit more often. The main disadvantage of this type of game programs that can be found on the Internet, is that teachers do not pay attention to it in the frame - help. But for the sake of the frame (slide in PowerPoint) and didactic game is created. Without this frame (slide) the student can press the buttons with the answers so far, until it finds the correct answer. In fact, each didactic game should be useful for the student to a junior high school student could not only play on the computer, but also to get the planned teacher training information on this or that topic.



Fig. 1. Cover page electronic didactic game "Sports mathematics".

The game "Sports mathematics" is necessary to solve examples of addition and subtraction. If a junior high school student chooses the correct answer, the arrow hits the target (Fig. 2). Otherwise, the student is given a hint (Fig. 2), after which he presses the left mouse button on the arrow image and return to the page with the unresolved example.



Fig. 2. The website of the didactic game "Math shooting gallery" with the selected right and wrong answers.

Playing, pupils unconsciously learn and reinforce difficult concepts and skills. Didactic games are well connected with "serious training". Inclusion in the didactic lesson gaming software makes the learning process more interesting, creating a cheerful schoolchildren working mood, easier to overcome difficulties during learning. Games Microsoft Office PowerPoint second type can't be created without the use of a programming language. And so it is better to create Adobe Flash means. These game-coloring, game designers, game in which you need to find the extra geometric figure or an object, as well as games in which the student needs to be written in the space provided

the answer and many others. According to the discretion of the author's game, such game programs should be "Clean" button "Check", "Hint" (Fig. 4). Consider two educational games: "Geometric coloring" and "Geometric designer". These educational games are made up of the title page, and external files, cover page file is stored in exe format, and external files are saved in the format of swf. The game "Coloring Geometric" consists of eight swf- files, and the game "Geometric designer" is composed of ten swf - files.

Consider the electronic textbook "Geometric coloring." The manual was created with the aim of better absorption of educational material about geometric figures. In addition, this software is to promote the development of logical thinking and creative abilities of younger schoolboys, as in the geometric material much in common with the artistic perception of the world as a significant place in the geometry belongs to

Creative thinking. This guide consists of a title page e, where one out of eight jobs can be selected (Fig. 3).



Fig. 3. Cover the electronic page of the didactic games "Geometrical colorations".

Students can paint the picture the way they see fit. But have to repeat any of the geometric shapes is a particular image, and in the empty cells to record the number of geometric shapes used in this electronic page (Fig. 4). In order to find out the right job is done or not, you have to press the left mouse button on the image of the red arrow. In the case of an incorrect answer, you need to click on the button with the image of the eraser and start working again, taking advantage of the pre-hint.



Fig. 4. Type of assignment during the work and at the end of this process.

On the Internet you can find a lot of coloring in electronic form. To put really love them. But still few colorings, which would encourage the pupil not only paint the picture, but also to perform

certain mathematical tasks. Therefore, should learn how to create the game-coloring. Without noticing it, the student with a passion can solve tasks in mathematics while working with a computer. Consider the didactic play "Geometric designer". Puzzles or geometric designers are known from time immemorial. The essence of the game is that the child should be played on a plane silhouettes of objects modeled. Develop, nurture and educational influence of geometric game programs multifaceted. They develop spatial imagination, constructive thinking, combinatorial skills, ingenuity, inventiveness and creative imagination and sensory abilities. On the cover page of the e-didactic game "Geometric designer" (Fig. 5), pupil can choose the image that he will have to be composed of geometric shapes.



Fig. 5. Cover the electronic page of the didactic games "Geometric designer".

The pupil can make an image of geometric shapes on the model (Fig. 6), which can be hidden if desired. The child can train his or her memory in such way. It should be noted that younger students are very fond of the game of this type.

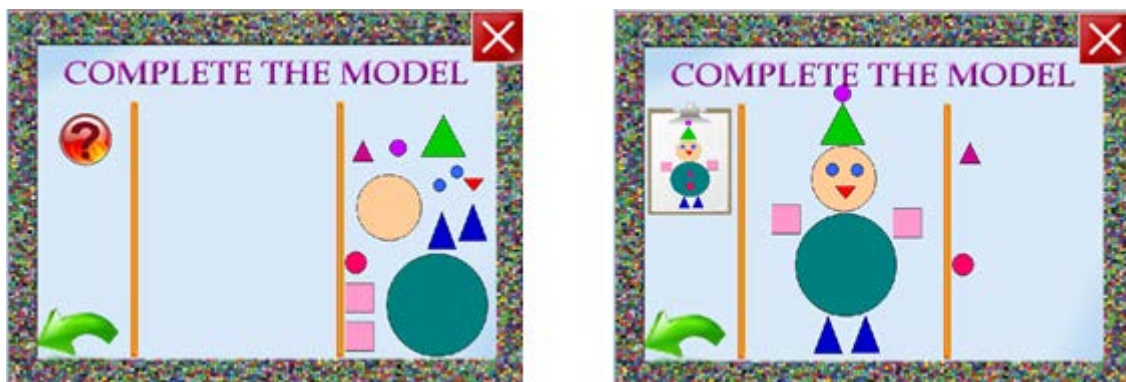


Fig. 6. Type one of the selected job in the beginning and in the course of work.

Since the thinking of younger schoolboys visual-motor and visual-figurative, the geometric material is absorbed by the baby in the course of various design tasks.

Conclusions

Of course, not all teachers want to create their own e-learning resources, but computer technology is rapidly evolving, becoming more affordable for the average user. Teachers know what games like more of primary school pupils. In addition, a lot of interesting and useful material, which can be found in the academic literature on paper, it remains out of sight of the developers.

Seeing the cool stuff, creative teacher immediately begins to think, what kind of game you can create didactic. Create copyright of electronic resources contributes to the development of the teacher, allowing him to remain always modern, interesting and useful for children. And the use of modern electronic educational resources can not only improve the very quality of education and training, but also enhance the cognitive interest of pupil. A variety of game activities, through which it is solved, or another job in mathematics in primary school, support and enhance children's interest in this school subject. The game should be seen as a powerful, indispensable lever of the child's mental development as an activity to organize the learning process in order to develop cognitive interests. To effectively use the computer in the classroom and after school teachers and students of higher educational institutions should possess and the theoretical knowledge and practical skills that enable to use different programs to solve a variety of tasks in the classroom. The study of the complex problems associated with the use and development of computer games in the educational process, is one of the most important studies in the computer training industry. Many scientists believe that using the teaching of computer games more educational capabilities of your computer may be disclosed in the primary grades.

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