
WORK ON A PROJECT IN THE SECOND GRADE

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Abstract: In the light of the ongoing educational reform in Bulgaria, the competence approach emerges. The educational objectives, including those for the initial stage of the primary education, are oriented towards creating conditions for formation of key competences in the students of I to IV grades necessary for their successful education in the next stages of education and in life. These competences include both mastery of basic mathematical knowledge and skills, as well as more transversal skills such as independent research, mastering teamwork skills, managing information from different sources, working on projects, and more. In my previous large-scale study of the interests and values of pupils of primary school age it was found that there are some constant elements from the circle of interests and preferences of modern Bulgarian children at the age of 7-11 and part of them are the preferences for the world famous and unforgettable tales, novels and movies for children. In connection with these research results, yet in the 1990s, we published the handbooks “Mathematics from the Fairy World” for the first and second grade and “Mathematics in the world around us” for the third grade. This article presents experimental work with students from the second grade in the school year 2017/2018 under the project “Mathematics from the Wonderful Disney World”. It was of interest to us how modern 8-year-old children would accept the combination of learning tasks with the stories and characters of Walt Disney films. The project work started by exploring the interests of the students themselves. A poll of data on favourite films of second grade students was collected. After processing the poll results, a list of 16 titles of classic and newer films by Walt Disney was obtained. The students were given the task of watching those movies from the list of favourite titles they had not yet seen (*Zootopia*, *Princess and the Frog*) or they had already forgotten, *Alice in the Wonderland* (created in 1923). Another element of preparation is the study of a class-preferred song from the movie *The Beauty and the Beast*, Gaston's song. For the purpose of the training, 14 problems were compiled, including content in Mathematics (basic), Reading, Bulgarian language, English language, Fine Arts and Home and Appliances. The problems were richly illustrated and the scrolls for students were copied in colour. The 3-hour thematic class of *Mathematics from Wonderful Disney World* with second grade students passed with great success, in great interest, positive emotions and high activity by the students. At the end of the project, each student completed a self-assessment card in which he/she reflected his/her opinion on the problems and his/her presentation in the lesson, as well as their desire for further such thematic lessons.

Keywords: mathematics, work on project, second grade.

1. INTRODUCTION

The ongoing educational reform in Bulgaria places an emphasis on educational goals on the formation in students, at an early age, of the key competencies needed for their successful education in the next stages of education and life¹⁰⁸. Various specific methodological approaches are used to achieve this goal. One of them is work on projects. When developing new training kits, including textbooks, schoolbooks, and a teacher's book, some ideas for project development by the students are also provided in the teacher's book.

2. WORK ON A PROJECT AS A LEARNING ACTIVITY

Work on a project is a didactic form of learning activity. It goes through several major stages of realization.

Determining the main didactic goal/objectives of the project. It is the teacher who determines what the main didactic goal or objectives of the project are. It is appropriate for projects to be bound by the summary lessons after studying a specific section of the curriculum or at the end of the school year. Thus, in the project activities and tasks, the important components of the mathematics content of the section or the school year can be included, and to be bound by components of the curriculum for other subjects. In general work on a project aims to summarize and systematize students' knowledge, as well as to develop certain skills and abilities in the students.

Defining the topic of the project. Two approaches are possible here. In the first approach, the teacher sets and presents to the students the subject of the upcoming project (suitable for first and second grade). In the second

¹⁰⁸ Curriculum for Mathematics for Second Grade at: <http://www.mon.bg/?go=page&pageId=1&subpageId=28>, visited on 12.04.2018

approach, through a talk or a poll, the interests of the pupils in the class are explored, and after the analysis of the proposals, the topic of the project (suitable for third and fourth grades) is reached.

Identifying the integrative links that will be realized in the project. A study is made (by students) or the teacher decides how to combine specific mathematical content with the content or learning skills of various other disciplines studied by students: native language, foreign language, natural and social sciences, music, fine arts, technology and sport.

Determining the duration of the project. The project may be short-term (one week, two weeks), medium-term (from two weeks to one month) or long-term (more than one month).

Drawing up the project activities and tasks. Again, it is possible to proceed in two ways – the teacher to consider, compile and announce to the pupils the type and character of the tasks and activities of the project that is forthcoming (appropriate for the younger students) or to consult through a dialogue with the class to get the ideas and suggestions for the activities and tasks to be carried out during the project (suitable for third and especially for the fourth grade). The project activities can be: a) individual; b) group and c) class. It is good to include in one project all three types of activities. Most often the projects combine individual and group activities and tasks.

Allocation of tasks and activities among students in the class. One of the following tools can be used to allocate tasks and activities to the project: a) the teacher assigns the tasks and activities of particular students/groups of students in the class – this approach is most undemocratic but suitable for first grade and second grade students; b) the teacher draws up a list of tasks and activities and communicates them to his/her students, each student, on his/her own desire, assumes a separate task or is involved in team work – suitable approach for third grade students; c) the students themselves design and offer the tasks and activities they will take on their own desire – the most creative approach suitable for fourth grade students.

Finalizing the project. The finalization of the project is in the form of a product, production or an open lesson (thematic lesson). It is important to plan in detail the way in which the students' project work will be completed.

Parental involvement. It is very important and with a good educational effect to attract the students' parents into joint activities and especially in the final presentation of the project activity.

3. PROJECT “MATHEMATICS FROM THE WONDERFUL DISNEY WORLD” IN SECOND GRADE

In my previous study of the interests and values of students of primary school age it was found that favourite and preferred books and films for young students in Bulgaria are the everlasting classical tales and novels for children as well as the animated films of the company Walt Disney.¹⁰⁹ This gave me grounds to develop teaching aids for the first and second grades of “Mathematics from the Fairy-tale World” and on this basis to carry out project work with first and second grade students.¹¹⁰ Together with university students from “Primary School Pedagogy and Foreign Language” specialty, we conducted a highly successful experimental thematic lesson on the story-line of Harry Potter novels.¹¹¹

At the end of the school year 2017/2018 with the students from the second grade of 19 Secondary School “Elin Pelin” in Sofia with the class leader Mrs. Jana Kurteva, work on the project “Mathematics from the wonderful Disney world” took place. The theme of the project was chosen after studying the interests of the students in the class. A poll was conducted with the only question “What is your favourite film?” and a list of 14 Walt Disney movie titles was produced. The project was planned as short-term – it was prepared within two weeks and was realized in the form of a thematic lesson (with a duration of 2 school lessons) in which the students worked with specially printed rolls of tasks. Tasks were for both individual work and teamwork. In the exercises for the thematic lesson, mathematical tasks were combined with elements of the curriculum content of Bulgarian language, reading, fine arts, music, technologies and English. All the tasks in the lesson were bound with the story-line or featured by

¹⁰⁹ Kirova, G. Research on the interests, preferences and values of Bulgarian children in early school ages in relation to the subject of text problems in the textbooks in mathematics. In: Electronic Journal of Science, Culture and Education, FNSP, 1, 2014. <http://www.fnpp.uni-sofia.bg/magazine.html>

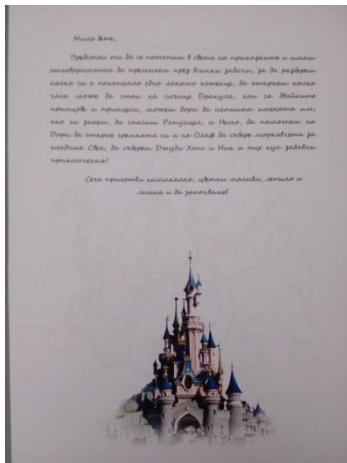
¹¹⁰ Kirova, G., T. Valcheva and R. Lazarova. Technological model for work on the project “Mathematics from the fairy-tale world” in first and second grade. In col. Education, Balkans, Europe (IV Balkan congress of pedagogy), volume 2, ed. Thracian University, St. Zagora, 2007.

¹¹¹ Kirova, G. et al. Thematic Lessons in Mathematics in IV grade. In col. Student Scientific Forum, S., Avangard Prima, 2012.

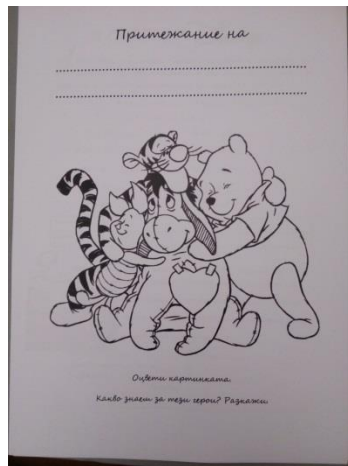
the characters of Walt Disney's 14 movies, specified through the poll.

Preliminary preparation for the project included the class learning the favourite song from the music movie “Beauty and the Beast” (Gaston's song). Making a class board (large format) with colour picture of Walt Disney, names of the students' favourite movies written with different colours. After compiling and arranging the tasks, they were layout in colour scrolls – individual learning material for each of the 24 students in the class. For one of the tasks in the project, 8 red triangles of different types: equilateral, scalene and isosceles and one green rectangle with sides 1 cm by 10 cm was prepared. From these geometrical figures the students (on individual work) made an application on a white sheet of cardboard (A4 format) – the rose from the movie “The Beauty and the Beast”. The necessary materials and tools for each child for the lesson were: pen, black pencil, drawing triangle or line, coloured pencils and dry glue. Pupils' parents provided the means for the colour printing and bought a Mickey Mouse-like cake as a surprise prize for children at the end of the thematic lesson. The lesson was attended by student-interns, school leadership, pupils' parents and the media. The thematic lesson was led by me and the teacher of the class Mrs. Jana Kurteva.

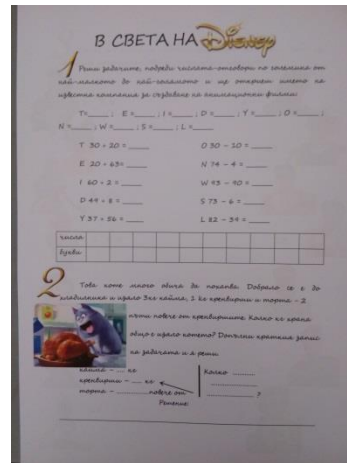
The lesson began with the multimedia projection of excerpts of 6 Disney movies as a quiz with the students who will first guess the name of the movie. After the introductory words of the project's author, the students performed in chorus the Gaston's song, which they had previously learned. Then the work on the task sheets followed (see pictures 1, 2, 3, 4, 5, 6, 7, 8 and 9). In the first part of the lesson, the students performed the tasks and activities from 1 to 11 and the rest in the second part of the lesson. Between the two parts, students had a 15-minute break.



Picture 1



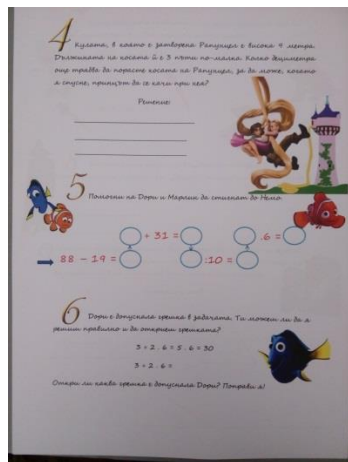
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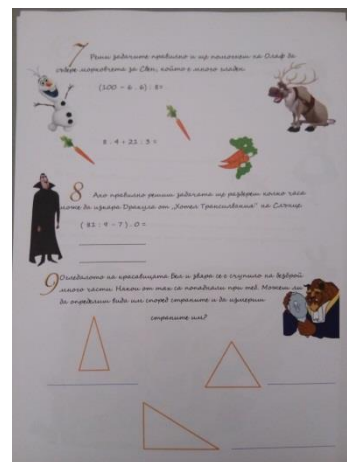
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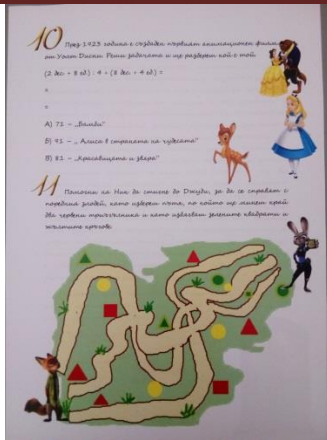
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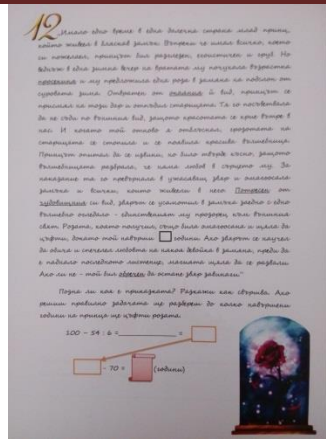
Picture 5



Picture 6



Picture 7



Picture 8



Picture 9

After performing the task 12, students were given white sheets and coloured triangles of cardboard and assigned the task of defining the type of triangles according to the sides (equilateral, scalene and isosceles) and composing and creating an application of a rose on the white sheet. Students realized that with the darker red triangles they could depict the wilted, dropped rose petals. It is worth noting the great diligence and creativity of the small second-graders who have created their own unique roses. (See pictures 10, 11, 12)



Picture 10



Picture 11



Picture 12

On the first page of the scroll there is an address to the student (picture 1). The necessary tools for the lesson are also specified. In this way, the technical training of students for the lesson is also made and the theme of Disney movies introduced. On the second sheet the students record their names and class as well as the school. The assignment is related to the heroes of the movie Winnie the Pooh (picture 2). Pupils must tell the names of the characters, describe them briefly and colour them. This task was enjoyed very much by the students who like to colour. A positive emotional background was created for the lesson. On the third page of the roll there are two tasks (picture 3). The first is related to an exercise on addition and subtraction with the numbers up to 100, and also on comparing the numbers to 100. The pupils worked in teams of two. They split the two columns of tasks as desired. The pupils had little difficulty in arranging the numbers-answers in size. Finally, the answer is Walt Disney (in English), which the teacher recorded on the board. The second task is a text problem with two calculations. There is also a shortened record to the task. The students had to solve this task alone, which is related to a hero of the movie “The Secret Life of the Pets” – the greedy kitty Chloe. On the fourth sheet of the scroll, the task is for the students to solve the examples of multiplication and divisions recorded at the princesses, and then connect with the prince with whom the number-answer is written (picture 4). The children had to form pairs of princes and princesses. This task gave the pupils a great pleasure. They were curious to learn the names of some of the characters (princes) who did not know

or forgot. On the fifth sheet there were three tasks (picture 5). The first one is a text problem – after the story “Rapunzel and the robber”, the second is a task-chain with the characters from the movie “Finding Nemo”, and the last task is to find out the error committed by Dory (not respecting the order of the action) from the movie “Finding Dory”. The next page also has three tasks (picture 6). The first is based on the plot of the film “The Frozen Kingdom” – numerical expressions have to be solved to help the snowman Olaf gather carrots for the Sven deer. The next task is for Count Dracula, the hero of the movie “Transylvania Hotel”. Many of the students realized that the answer to the task was zero, because in the numerical expression at the end they had to multiply by zero. They did not count because they know that any number multiplied by zero gives zero. The last task on the page is about the Broken Mirror of the Beast, which has burst into many pieces. Three of them are on the sheet and the children must determine the shape of the figures and then measure their sides. Interesting in this task was that the sides of the figures were not in exact centimeters, but were of the type 3 cm 8 mm. In this way with propaedeutic character the smaller measure of the centimeter was introduced, the small 10 divisions of the drawing line, which are located between every two centimeters – the millimetre. For students, it was a very comprehensible and at the same time pleasant challenge to learn something from math for a third grade. On the next sheet of the roll there are two tasks (picture 7). One is to solve a problem with the composition of the numbers up to 100 (the numbers as a sum of tens and units), the answer of which will be the first film created by Walt Disney in 1923. This is the movie “Alice in the Wonderland” and it was very interesting for the students to learn it. The other task of this sheet is an entertaining task – a labyrinth that develops spatial thinking, power of observation, and spatial orientation of students. The characters in the assignment are Nick and Judy from the movie Zootopia. This task was exciting for students, but also difficult for some.

After the break, the students moved to a reading-related task with Bulgarian language as well as technologies. The teacher first read the text from the beginning of the movie “The Beauty and the Beast”. Then the students read the same text in parts. They solved the problem and answered the question (picture 8). Then the teacher gave them some tasks: explain to them the unfamiliar words in the text (prickly, miserable, doomed, monstrous, shaken); students had to give examples of the text for different parts of the speech – noun, adjective, verb; then give an example of the word combination (noun with adjective); to give examples of antonyms of the words with which the prince is described. Finally, students had to determine what the key sentence in this text was, and most importantly, they did well. The following is an applied task for composing a rose of triangles (Figures 10, 11 and 12). Pupils showed great imagination and created great models. On the next sheet there are two columns of tasks, and the students had to divide into teams of two and share tasks to help free the castle from the curse (picture 9). The last task in the thematic lesson was each student to indicate who his most favourite hero of Disney is; to describe it with three sentences and draw it. We used this task for additional individual work for faster-working students. In order not to be bored and idle while waiting for everyone to finish working on the next task, we offered to some students who are quicker to open the last page of the scroll and start working on the last 14th task.

4. CONCLUSION

In conclusion, the experimental work on the thematic lesson “Mathematics from the Wonderful Disney World” has been very successful. The main didactic aim of the lesson was achieved – to summarize and systematize the knowledge and skills of mathematics of the second-graders, as well as to integrate with other subjects. The students completed self-assessment cards in which they answered several questions. They identified the second task as the most difficult task, but most students answered this question with “none”. The most desirable task of these was the last 14th task, along with task 13 and the task of the rose application. Students strongly argue that the tasks were not much (which is their subjective sensation, as they actually solved many mathematical problems within the two hours). To the question, “Was it easy to resolve the problems?” 20 out of 24 students answered positively. All students studied gave categorically positive reply on the last two questions: “Did you like the lesson with Disney characters?” and “Do you want to have such lessons again?” Once again our idea of thematic mathematics lessons has been confirmed with the realization of broad interdisciplinary links and on the stories of world famous and everlasting movies, fairy tales or novels for children. The project is suitable for implementation during the annual review at the end of the school year in the lessons of summarizing and systematizing knowledge. A variant of the proposed thematic lesson can be realized with the inclusion of more teamwork.

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