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**FOURTH GRADE PROJECT “SOFIA – CAPITAL OF BULGARIA”**

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**Abstract:** The emphasis of the educational reform currently underway in Bulgaria is on the formation of key competencies of the pupils. Mathematical competence is one of them. The mastering of basic mathematical knowledge in primary grades remains a priority. At the same time, specific mathematics curricula are explicitly laid out such as solving practical tasks, forming teamwork skills, search of information from different sources by the students themselves, project work, etc. In my research work over the past few years, I have tried experimentally with my own ideas for project work with primary school pupils. In this publication, I will present my concept of work on the project “Sofia – Capital of Bulgaria” for students of the fourth grade. It will integrate mathematical knowledge and skills with knowledge of *Man and Society* and a number of components of civic education. Mathematical knowledge and skills will include: adding and subtracting numbers over 1000 without passing, finding an unknown subtrahend, solving numerical expressions with parenthesis and without parenthesis, units of measure (meters, grams, kilometer, centimeter). From the knowledge and skills of *Man and Society* (*Man and Society* curriculum for the fourth grade at <https://mon.bg/bg/2190>), the topic: “Sofia – Contemporary Capital” is taken and the related competencies (tell about the location of the capital of Bulgaria with the help of a map; recognize on image the famous cultural monuments and natural assets of the Bulgarian capital; connect important sights of the capital with the historical ages to which they belong; understand the importance of the capital as a modern administrative centre of the country). Working on this project, pupils in the fourth grade will also acquire the following competencies: digital competence (using information in electronic form to produce short presentations on geographic, historical, cultural themes; using electronic presentations as a source of information about events and individuals); learning skills (working with maps and reference books – guides, children's encyclopaedias, extracting information about the past and the present from illustrative material, searching for information on a particular problem from written documents in the textbook); social and civic competencies (solving of problematic situations requiring hearing, exposing the personal point of view and maintaining one's own opinion; collecting curious facts about popular personalities or events from Bulgarian history; making albums with personal photos from visiting cultural, historical and natural sites; drawing up tables for the holidays of different communities – religious and ethnic; creating projects on a studied historical or geographic theme; visiting the municipality, the mayoralty, the National Assembly etc.; cultural competence and skills to express through creativity (making of albums with drawings from exhibits of visited museums, observation of natural and historical sites, elaboration of group presentations for selected natural sites). One of the distinctive aspects of the project activity with primary school pupils is the integrative nature of the project activities. The project “Sofia – Capital of Bulgaria” presented in this article is suitable for the first school term of the fourth grade. This is a medium term project that lasts for a month or two. It finishes with an open lesson in mathematics (one or two study hours), during which pupils resolve mathematical and application-practical tasks and present the results of their preliminary project work (preliminary project activities). Tasks in the project are three types: individual, group and class. Each pupil receives from all three categories of tasks. The task of the teacher is the preparation and distribution of the individual, group and class-related tasks, the determination of the deadlines for the implementation of the commitments undertaken by the pupils, as well as the ongoing control over the tasks.

**Keywords:** mathematics, fourth grade, project, Sofia – Capital of Bulgaria

## 1. INTRODUCTION

With the implementation of the new educational reform in Bulgaria since 2015<sup>68</sup>, some significant changes were made in the educational objectives and in the curriculum for the initial grades. Thus, the goal of forming key competencies as well as some skills applicable in diverse activities and in human life, such as solving practical problems, working with numerical data presented in tables and diagrams, self-collecting information from different sources, working with a map, making presentations and more. Most of these new competencies are successfully achieved through the project work method. By 2015, project work in initial grades was a matter of personal initiative and enthusiasm for individual primary teachers, while with the new regulatory framework project work was regulated for primary school pupils. There has been a need for methodological developments on the subject to

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<sup>68</sup>Pre-school and School Education Act (2015) at <https://www.mon.bg/bg/57>

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facilitate the pedagogues in organizing project activity. This article is an attempt to contribute to the methodical provision of project-based learning.

## 2. IMPORTANCE OF PROJECT WORK

Project work helps to implement an integrative approach to learning. Conditions are created for conducting training, oriented towards the student's overall personality. Project work helps to develop many aspects of the personality of primary school pupils. In the first place, the interest in the school work and motivation of children at the age of 7 – 11 is increased. The pupils' interests, knowledge and skills are also expanded and enriched (through the study and gathering of information on the subject). Teamwork skills (through group assignments) are formed, and also skills for arguing to defend their own position, and for accepting the arguments of others from the team. Skills are created to take responsibility and meet deadlines. Presentation skills are formed. The specific use of multimedia involves developing and practicing various technological and other basic skills, solving of problems and problem situations, understanding abstract mathematical and scientific concepts, various simulations in science and mathematics, data manipulation, remote access work, and more.<sup>69</sup> The creativity of the pupils develops (when creating different artefacts and products in the project activity).

## 3. TYPES OF PROJECTS

According to their duration, the projects can be several types. Short-term – themed lesson or one-week project. Medium-term – projects with a duration of one or two months. These are projects that are most often linked to the curriculum on a subject from the mathematics curriculum. Long-term – projects with a duration of over two months. There may be projects with a school term duration or even completion throughout the school year.

## 4. PROJECT PROCEDURES

When organizing the class for project work, the following steps are taken. First, the teacher makes a detailed study of the classroom documentation for the grade (curricula for all subjects for the grade)<sup>70</sup>. This is done in order to draw out possible integrative links between the curriculum of mathematics and other subjects. Such integrative links can also be realized only between mathematics and one of the other subjects for the grade (e.g. Bulgarian language, or reading, or man and nature). The more integrative links are realized through the project activity, the more effective the project is. The second step is to determine the topic of the project. This can be done in two ways: the teacher proposes the subject of the project (it is suitable for pupils with less experience like those in the first and second grades) or allows the pupils to choose the project theme (suitable for students from third and especially from the fourth grade). Before the teacher offers a project topic, it is a good idea to study the current interests of the students in the class with a brief poll or oral class discussion. The third step after defining the project theme is to draw up a list of project tasks (content of activities), reflecting for each task or activity whether they are individual, whether they are for group or all-class performance. The next step is the allocation of tasks and activities. This can be done in two ways: the teacher allocates and assigns the tasks (first and second grade appropriate), students choose which individual or group tasks to take (suitable for third and especially for fourth grade). With regard to the formation of groups (teams) with small pupils, it is possible to apply the names of the children to be written on sheets and to randomly withdraw the participants in each team. Allowing pupils to group themselves into teams is likely to have one or some of the children go into isolation. Another important step is to set deadlines for tasks. The way of finalizing the work on the project – a lesson, an open lesson, a celebration, a concert, an exhibition, etc. – should be planned in advance. It is necessary for the teacher to exercise systematic on-going control over the implementation of the project activities.

## 5. PROJECT “SOFIA - CAPITAL OF BULGARIA” FOR THE FOURTH GRADE

The project “Sofia – Capital of Bulgaria” has an integrative character. It combines learning content on the subjects *Mathematics* and *Man and Society*<sup>71</sup>. The project is medium-term with duration of one or two months. It is suitable for taking place during the first term of the fourth grade. The *Addition and Subtraction of Numbers above 1000* section is the mathematical basis. The topics include finding an unknown subtrahend, measuring units, composing

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<sup>69</sup> Alexieva, L. (2014). Multimedia learning in elementary school – theory, practice, challenges. Yearbook of St. Kliment Ohridski University of Sofia, Faculty of Primary and Pre-school Pedagogy. University Publishing “St. Kl. Ohridski”, Sofia, pp. 83-108

<sup>70</sup> Curriculum for Mathematics for the fourth grade at <https://mon.bg/bg/2190>

<sup>71</sup> Man and Society curriculum for the fourth grade at <https://mon.bg/bg/2190>

text tasks. The finalization of the project takes the form of a lesson (one or two lessons) in which all pupils work with printed materials containing individual mathematical tasks and in the second part of the lesson the presentation of the students' products (presentations, drawings, boards, albums, books, etc.) takes place.

Individual tasks in the project lesson:

1. Solving numerical expressions by adding and subtracting numbers over 1000 without passing. Against each answer there is a letter. Answers are given in tables where to transfer their respective letters. Condition: Transfer the letters to the tables. What does this inscription mean? Where is it recorded? (The result is the slogan of the city of Sofia "Grows, but does not age".)

$$5200 + 400 = \dots - E \quad 4320 + 40 = \dots - T \quad 6800 - 6300 = \dots - A \quad 1905 - 1005 = \dots - C$$

$$2400 + 30 = \dots - O \quad 2720 - 2700 = \dots - P \quad 9590 - 5040 = \dots - H$$

20	500	900	4360	5600	4550	2430	4550	5600

900	4360	500	20	5600	5600

2. Solving tasks for finding an unknown subtrahend. Against each example there is one letter. In the tables of the answers to the examples, the corresponding letters are transferred. The consecutive names of our capital: Serdika, Sredets, Sofia are resulting.

3. Solve the tasks to find out in what colour to paint each field. You will get the coat of arms of the city of Sofia.

$3578 - 3322 =$	red	$1700 - 1200 =$	yellow
$5350 - 5230 =$	purple	$4590 - 4320 =$	dark blue
$8590 - 8410 =$	light blue	$9600 - 9499 =$	green



4. Win the right to be a guide as you resolve the tasks most quickly and accurately: (composite numerical expressions of the four arithmetic actions with the numbers above 1000). A map of Sofia depicting the most important sites from the Sofia centre. Pupils sequentially go out and record the names of the sites.

5. With the help of a road map of Bulgaria, make and solve text problems for the distances between the big Bulgarian cities Plovdiv, Burgas, Varna, Rousse, Blagoevgrad, Stara Zagora,

6. Numerical expressions from the addition and subtraction of the numbers over 1000 with a passage, as against each answer there is a letter (see Task 1). Below them there are tables with numbers and answers and a place for the corresponding letters. When working properly it results in the names of three mountains that are located nearby Sofia: Vitosha, Lyulin and Plana.

7. Solve two complex numerical expressions with 4 calculations. Against each there is a circle for the answer. The answer to the first expression shows the day, and the answer to the second expression shows the month when the Sofia feast is celebrated (17<sup>th</sup> of September).

8. According to the Christian calendar, four martyrs are celebrated on the day of the Sofia feast. Solve the tasks, transfer the letters to the tables and learn their names. Composite numerical expressions with parentheses and without parentheses are solved. The answers are: Faith, Hope, Love and Sofia.
9. There are temples of different religions in Sofia. Are there such temples also in your city (in your village)? Connect the religion with its respective temple (Christianity – church, Islam – mosque, Judaism – synagogue).
10. Write a short text: “What it is necessary for Sofia to be a nice and pleasant place to live? What would I do about it?”

Tasks for group performance: Make a study on the patron and the history of 35 secondary language school “Dobri Voynikov”; Make a study related to the name of the street where you live (Hristo Smirnenski Blvd., Midzhur Street, Yanko Sofiiski Voyvoda Street, Tsanko Tserkovski Street, Sveta Gora Street); in groups of two elaboration of a presentation on the topic “The rulers of Bulgaria at the time when Sofia was the capital”; make a study of the following curious facts: Why does the church of St. Sophia have not a bell?; Where does the name of the Women’s Market come from? What does the Eagles Bridge symbolize?; all-class activities – making one-day excursion to the National Museum of History and the Botanical Garden in Sofia; group activity (4 students) draw up a dashboard with the images of four sights of Sofia with short texts for each site; the class is divided into two teams, each team having the task of visiting the Sofia Zoo and filming 5 animals by choice, then making a board (presentation, book) with pictures and texts for the captured animals; the class is divided into 4 groups, each group collecting and presenting to the class information about the following sites from the city of Sofia: the house of Adolf Funk, the Roman Wall, the Chalyovska house and the Banya Bashi Mosque; the class is divided into 4 groups for 4 cultural and historical metropolitan sites – Sofia University, St. Alexander Nevski Cathedral, Ivan Vazov National Theater, the Presidency and the activity includes research of facts about the site and photos (Students should study and find information about the task and prepare a brief presentation. Each group shares the study with the rest of the students. The presentation can be in the form of a dashboard, a booklet or a multimedia presentation, depending on the preferences of its creators); all-class activity – a game on the map of Sofia to find sites or their own school or home address (Each of the students goes to the board where a map of Sofia is located and finds different site.) Sites can be sights from the studied sights to date or a site of the capital that is favourite of the child); the class is divided into 4 groups that receive different research tasks – study and write brief information on the following issues: what are the natural attractions near Sofia, which are the theatres of Sofia, what kind of transport there are in Sofia, which are the museums of Sofia; an all-class task – the students to learn the Sofia anthem and perform it in the final lesson of the project; the students of the class make a pedestrian tour with the following route: St. Georgi Rotunda – The Presidency – The National Assembly – Alexander Nevski Cathedral – Sofia University St. Kliment Ohridski – The National Library “St. St. Cyril and Methodius”(at the Rotunda students take photos, listen to a guided tour and then have to make a presentation about the Rotunda with photos and additional information);

## 6. CONCLUSION

The idea to work on a project named “Sofia – Capital of Bulgaria” is only one option. It can serve as a basis for developing such author projects. With this publication I hope to contribute to enriching primary teachers with ideas for organizing project activities in the fourth grade. My long-standing observations of practice in a number of Bulgarian schools show that the greatest success in project work is achieved by those teachers who are enthusiastic and imaginative and have the energy and desire to diversify their learning activities with their students. It has been shown that the age of the students is not an obstacle to organizing and successfully conducting even long-term projects (lasting one school year). Students engaged in project activity gain a sense of greater significance of their efforts and achievements. This brings them satisfaction and motivates them even more for successful realization in school.

## LITERATURE

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