**INNOVATION PROJECT**

**School name**: Primary School No 1 of Władysław Szafer in Brzozów

**Author**: Edyta Boroń-Czekańska

**Topic**: MATHEMATICS – using elements of the CLIL method in mathematics lessons.

**Subject**: mathematics

**Type of innovation**: methodical

**Duration**: September 2019 - June 2020

**Scope of innovation**: The innovation activity will be applied to all pupils of VIe grade of primary school.

**PROJECT DESCRIPTION**

**1. Justification of the need to introduce pedagogical innovation**

The 21st century places many demands on young people. One of them is the need to use a foreign language fluently. Internationally, the English language has achieved an extremely high status. It is almost a necessity today to be fluent in this language. Both students and their parents understand that the knowledge of a foreign language often determines the achievement of educational or professional success. The modern world and open borders make societies move by taking up work outside their home country. This is caused, first of all, by the influx of foreigners, and on the other hand, by the return of families after years spent abroad. The effect of these mechanisms is an increasing number of students who experience little or no communication in Polish when undertaking education in Polish schools. This poses a challenge for a modern teacher in the form of transferring knowledge and skills from the subject taught in such a way that it is also understandable for this group of students.

CLIL - Content and Language Integrated Learning concerns integrated subject and language education based on the simultaneous transfer of content in the field of the taught subject and elements of a foreign language. The CLIL method is recommended by the European Commission to promote language learning and linguistic diversity. Mathematical competences and competences regarding multilingualism found their place in the recommendations of the EU Council of May 22, 2019 on key competences for lifelong learning.

Thanks to the Erasmus + programme, it was possible to obtain funds necessary for teachers to undergo methodological and language training, which enables the introduction of the CLIL method into the teaching process at Primary School No. 1 in Brzozów.

This innovation is therefore a response to the requirements of the modern world and contemporary education regarding effective teaching / learning and school development.

**2. Description of innovation**

Students of class VIe will be addressees of the innovation. This class is attended by a student who has completed his education in Ireland, so his mother tongue is English. The innovation programme is designed to be implemented during four teaching hours per week as part of mathematics lessons, in accordance with the framework curriculum. The innovation will last for the 2019/2020 school year. Classes will be held in a room equipped with an interactive touch screen, which will additionally enable the use of modern technologies in education.

This innovation aims to propose new teaching solutions that have not been used in the school so far. Its creation was inspired by the diagnosis of the existing situation and the needs resulting from this diagnosis. During math lessons, English terminology describing the basic concepts related to this subject will be consolidated.

The innovation aims to increase students' math and language competences by correlating the content of these two subjects. The innovation programme aims to effectively master the content of the Core Curriculum through the use of active methods used in CLIL integrated teaching (elements of the CLIL method) and to introduce elements of the second language in the context of mathematical content.

As part of the Erasmus + project "Learning to know and take action – improving teachers’ competence in Primary School No 1 in Brzozów":

* I completed an "Intensive English language course (basic level)" organized by BETAKOM Training Service Office in Rzeszów,
* I participated in a five-day course "English for Educators (Level I)" organized by DOREA Educational Institute WTF (the course took place in Dublin, Ireland),
* I obtained the Key English Certificate (Council of Europe Level A2) "Cambridge English Entry Level Certificate in ESOL International".⎫

The knowledge, skills, experience and competences that I have acquired enable the implementation of the presented assumptions of the innovation programme.

**3. Objectives of the programme**

Main objective:

The main goal of teaching mathematics with the use of elements of the CLIL method is for the students to master the scope of the material in accordance with the Core Curriculum and, at the same time, to learn the elements of the English language related to the content.

Detailed objectives:

* developing students' key competences (mathematical competences and language competences in the field of English - CLIL),
* enabling students to master the curriculum content in mathematics while developing their competences in English,
* developing the subject interests and linguistic abilities of students (providing students with various opportunities to develop their interests and skills),
* creating the possibility of using English in real, everyday life situations,
* inspiring and supporting individual and group activity of students,
* equalizing educational opportunities for children, increasing their educational and social aspirations,
* developing competences in an intercultural context as part of the educational process (preparation for functioning in a multilingual and multicultural society),
* shaping students' faith in their own strength and skills,
* developing the ability to communicate in a foreign language,
* learning respect and tolerance towards other cultures and nationalities,
* developing the skills of conscious self-development and the ability of self-education,
* developing teamwork skills, also in an intercultural group.

**4. Methods and techniques of work**

* communication method (emphasis on the functionality of the foreign language),
* didactic games and activities (e.g. crosswords, rebuses, puzzles, dominoes, etc.),
* active methods used in CLIL teaching,
* demonstration method,
* multimedia techniques,
* self-learning techniques.

**5. Forms of work**

* collective work,
* individual work led by a teacher and independent work,
* group work,
* pair work.

**6. Teaching aids**

* interactive touch monitor,
* textbooks, multi-manuals,
* bilingual dictionaries,
* multimedia presentations,
* educational programmes and films,
* educational games.

**7.Programme content**

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| **Programme section** | **Program issues**  **implemented with elements of the CLIL method** |
| *Natural numbers and fractions.* | Memory calculations with natural numbers and decimals. Written operations with decimals. Powers of numbers. Operations with fractions. Ordinary and decimal fractions. Decimal expansion of common fractions. |
| *Figures on the plane.* | Straight and episodes. Circles and circles. Triangles. Quadrilaterals and other polygons. Angles. Angles in triangles and quadrilaterals. |
| *Numbers every day.* | Calendar and time. Units of length and units of mass. Scale on plans and maps. Rounding numbers. Calculator. Reading information from tables and diagrams. Reading data presented in graphs. |
| *Speed, road, time.* | Road. Speed. Time. |
| *Polygons̕ area.* | Rectangle area. The area of ​​the parallelogram and the rhombus. Area of ​​a triangle. Trapezoid field. |
| *Percentages.* | Percentages and fractions. What percentage is this? Calculations using a calculator. Percentage diagrams. Percentage calculations. Discounts and raises. Calculating a number when its percentage is given. |
| *Positive and negative numbers.* | Comparing numbers. Addition and subtraction. Multiplication and division. |
| *Algebraic expressions and equations.* | Writing algebraic expressions. Calculating values ​​of algebraic expressions. Simplifying the values ​​of algebraic expressions. Writing equations. A number that satisfies the equation. Equation solving. Text tasks. |
| *Spatial figures.* | Recognition of spatial figures. Cuboids and cubes. Simple prisms. The volume of the prism. Pyramids. |

The priority is that each class creates the possibility of the comprehensive development of mathematical skills with the simultaneous development of language skills and building their motivation to learn through an attractive form of work.

**8. Expected effects**

As a result of the innovation, the student will:

* actively participate in the proposed and organized forms of classes thanks to innovative forms of teaching,
* be highly motivated to learn mathematics and English,
* be able to work in a group,
* have an intercultural awareness,
* use the English language according to the situational context,
* be able to use their knowledge in practice in a creative way.

Additionally, the student will:

* increase the scope of the vocabulary in English,
* develop their math and language interests.

**9. Evaluation of innovation**

The elements to be evaluated are the following

* degree of implementation of the innovative programme,
* effectiveness of methods, techniques and forms of work in the classroom,
* attractiveness of the programme for students,
* the usefulness of the programme for its participants.

Tools for conducting the evaluation:

* observation of students' work, their involvement and level of interest,
* conversations with students,
* analysis of progress and achievements,
* an open lesson.

The evaluation will allow to draw significant conclusions regarding the methods, techniques and forms of work used and the purposefulness of carrying out similar projects in the future.

**10. Date of the Pedagogical Council's resolution on the opinion on pedagogical innovation:**

Pedagogical Council of Primary School No 1 in Brzozów expressed a positive opinion on the pedagogical innovation project "Mathematics - using elements of the CLIL method in mathematics lessons" on 10/09/2019.