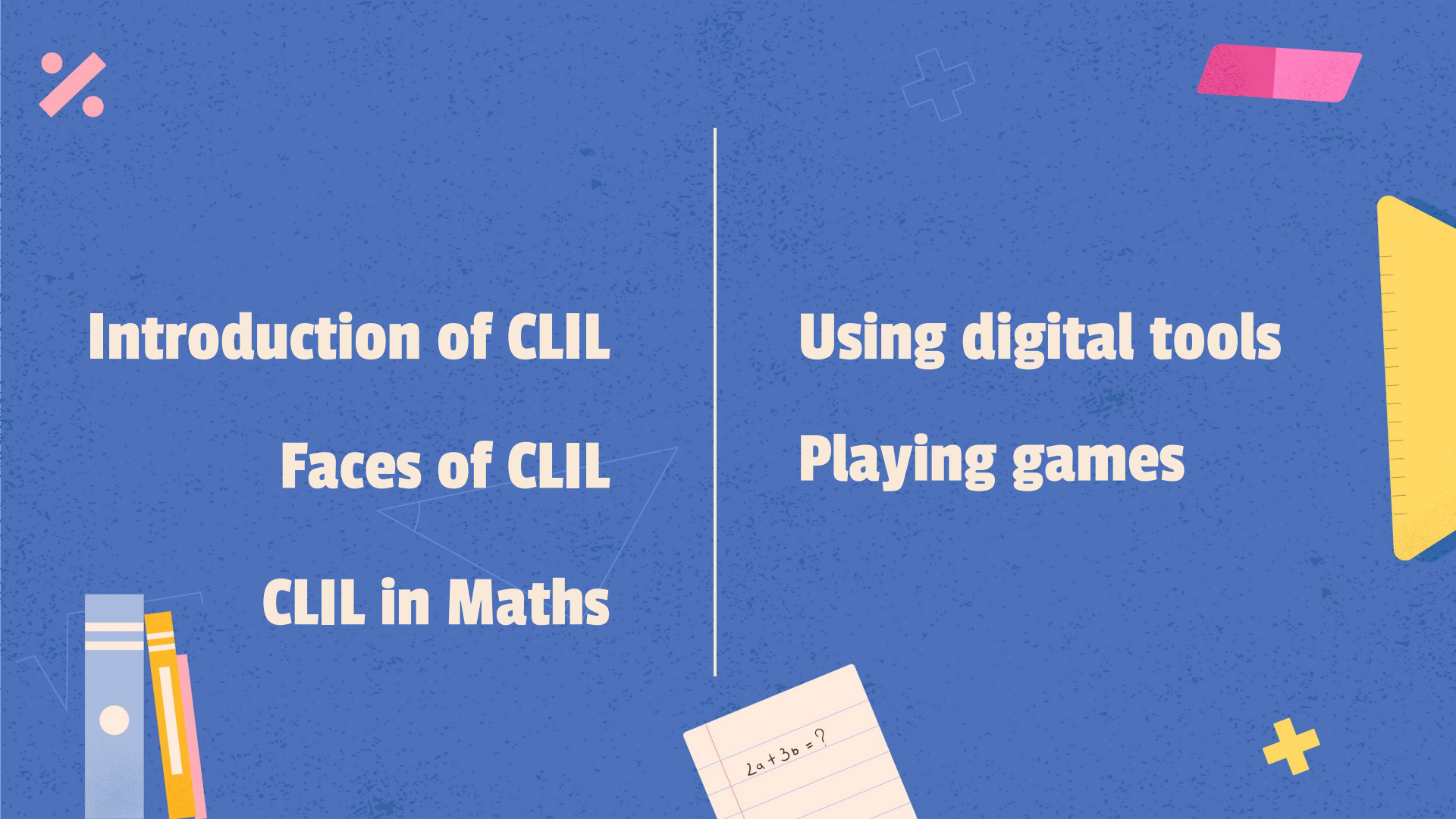


CLIL and teaching Maths through digital technologies

Petra Plíhalová, Czechia





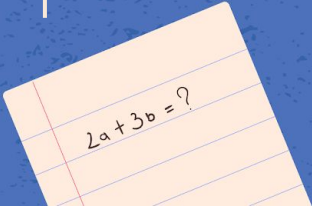
Introduction of CLIL

Faces of CLIL

CLIL in Maths

Using digital tools

Playing games

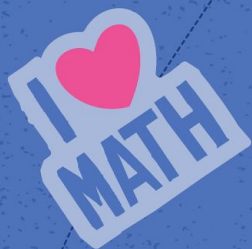

$$2a + 3b = ?$$

WHAT IS CLIL?

CONTENT LANGUAGE INTEGRATED LEARNING

It is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language.

(Marsh, 2008)



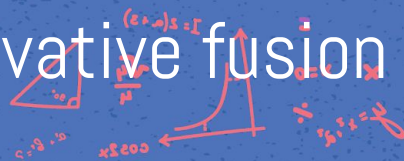
Content and language

$$x^2 + 2ax + a^2$$

SOLUTION

In CLIL there is a focus NOT ONLY on content and NOT ONLY on language. The two are interwoven.

CLIL is not a new form of language education, it is not a new form of subject education. It is an innovative fusion of both.



Many faces of CLIL



Partial immersion

Total immersion



Two-way-immersion

Double immersion



Language showers

CLIL camps

Student exchanges

Local projects

International projects

Family stays

Modules

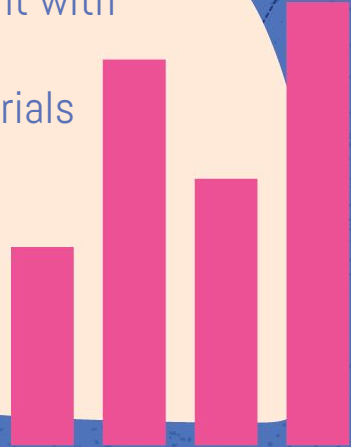
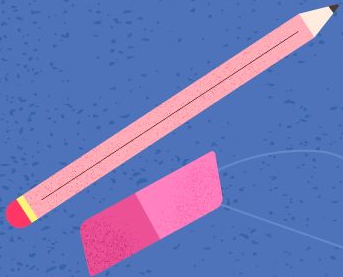
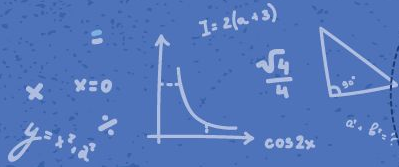
Work-study abroad



One or more subjects

Enriching learning environment

- using routine activities
- displaying language and content through the lesson
- building student's confidence to experiment with language and content
- guiding access to authentic learning materials
- increasing student language awareness



Scaffolding

= helpful, structured interaction between teacher and student to help student achieve a goal

- building on a student's existing knowledge, skills, attitude, interest and experience
- information in user-friendly ways (graphics, role plays ...)
- responding to different learning styles (visual, kinesthetic, verbal ...)
- challenging students to take another step forward and not just to coast in comfort.

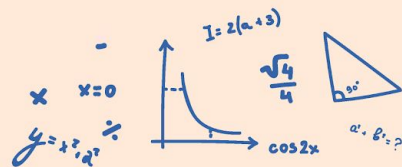


"I hear lots of people talking about the advantages for English that CLIL offers, but I haven't heard anyone saying it's a great way to teach Maths."

—jeremy harmer, 2015

COMMENT

CLIL is also about developing Maths learning through communication in a foreign language.





Benefits of teaching Maths through English

- allow access to subject-specific target language terminology and prepares for future study
- provides opportunity to study content through different perspectives

Example

SQUARE

"čtverec" - geometrical shape
"na druhou" - square power 6^2
"náměstí" - part of the city

- no bond between the Czech words
- students lose the connection

Using digital tool in Maths



motivation for teacher due to the positives outcomes achieved - better performance for the students

technology frees up time for deeper learning - e.g. doing calculations



fostering the development of effective teaching by teachers - encouraged to broaden objectives

teachers can construct of realistic problems that the student might encounter in real life



fostering students understanding (trigonometry)

self-paced studying collaboration to solve problems



increase in interest

collaboration to solve problems



π



How to make Maths Class Fun



Game-Based learning



Video-assisted Learning



Humour and YouTube



Maths websites



Virtual Manipulatives



Maths games

Understanding

boost ability to reason, understand underlying concepts

Repeatable

reuse often and sustain involvement)

Learning

more practice and active involvement

Instructional activities

to understand concepts behind Maths problems

Different ways of learning

cooperative work

Creativity

finding creative solution and accelerating own learning

Diverse learning

Encourage parent

involvement

Easy

to prepare easy to vary

High motivation and immerse

more positive attitude toward Maths

Engagement

total involvement and enjoyment



Successful Games

- games must match the mathematical objectives
- use for specific purposes (not time-fillers)
- allow weaker students to feel their chance of winning
- keep the game reasonably short
- send the game home so the student can practise for homework
- invite students to make their own games



Examples

Goalkeeper	Left defender	Right defender
Stopper	Defender	Right midfielder
Left midfielder	Center midfielder	Left forward
Right forward	Center midfielder	Referee

Meet the soccer player



Hello! My name is Steve. I play soccer for the Blue Dragons. Actually, I am the captain. I wear number 18 and I am a midfielder. My best friend Andy is the goalkeeper. He wears number 7. The basic idea is to try to kick the ball in the other team's goal net. In soccer, you are not allowed to touch the ball with your hands unless you are the goalkeeper. Our team plays a 4-4-2. That means that we use 4 defenders, 4 midfielders, 2 forwards, and a goalkeeper. Did you count? That's 11 players on the field for one team. Anyways, would you like to join our team? We have a game this Saturday against the Super Monkeys and we need 1 more player!



questions:

1. What is the name of the soccer team that Steve plays for?
a. Crazy Cobras b. Blue Dragons c. Super Monkeys
2. Who is the goalkeeper?
a. Steve b. Jerry c. Andy
3. Who can touch the ball with their hands?

2 Write.

How many pupils ...	___ pupils out of ___	
a make their bed in the morning?		
b have cereal for breakfast?		
c go to school by car?		
d go home after school?		
e do their homework in the living room?		
f read in bed?		
How many pupils are there in class today?		

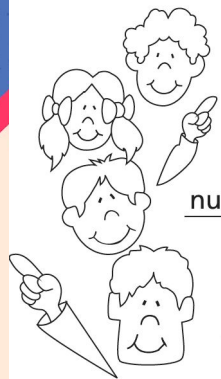
3 Write.

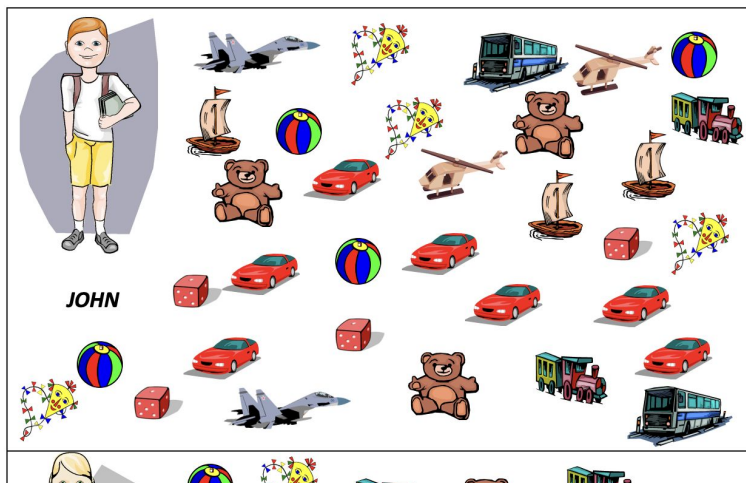
$\frac{\text{number of pupils who make their bed in the morning}}{\text{total number of pupils in class}} \times 100 = \text{ } \times 100 = \text{ } \%$

$\frac{\text{number of pupils who read in bed}}{\text{total number of pupils in class}} \times 100 = \text{ }$

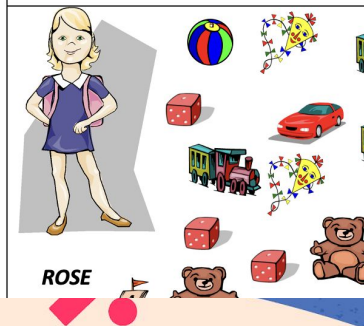
$\frac{\text{number of pupils who have cereal for breakfast}}{\text{total number of pupils in class}} \times 100 = \text{ }$

$\frac{\text{number of pupils who go to school by car}}{\text{total number of pupils in class}} \times 100 = \text{ }$





JOHN



ROSE

c. Aktivita 3

- Žáci pracují ve dvojicích, kdy jeden z dvojice dostane Johna a jeho hračky a druhý Rose a jeho hračky. Nejprve si procvičí otázky podle vzoru: *How many cars has John / Rose got?* Answer: *He/She's got*
- Pokud si žáci osvojili dostatečně otázku, mohou si porovnat množství. Vzor rozhovoru:



Žák 1: *How many cars has John got?*

Žák 2: *He's got 6 cars. How many cars has Rose got?*

Žák 1: *She's got 4 cars.*

Žák 2: *John has got more cars than Rose.*

1. There are 29 children in my class. Each child has 16 books. How many books are there altogether?



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There are _____ books altogether in our class.

Match the English vocabulary with the Czech translation:

3-digit numbers

multiplication

worksheet

word problem

thousand

result

answer

to spend

each

altogether

pracovní list

dohromady, společně

utratit (peněz)

výsledek

každý

násobení

tisíc

odpověď

trojčíferná čísla

slovní úloha

Perimeter and Area

- Perimeter is _____

Area is _____

- Formula for perimeter: _____



Formula for area: _____



Vocabulary:

dlouhý = _____

délka = _____

široký = _____

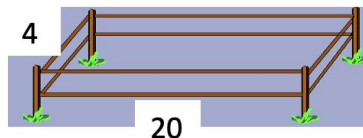
šířka = _____



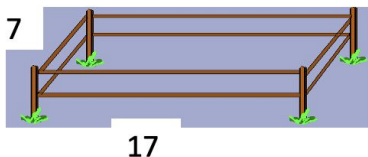
Test: 1 _____, 2 _____, 3 _____, 4 _____, 5 _____, 6 _____, 7 _____, 8 _____

Problem solving

Farmer Brown finds some extra fencing. He builds for his goats a rectangular enclosure like this.....



His daughter, Nita, builds another enclosure with the perimeter of....



1. How much fencing did they use?

CARNIVORES

HERBIVORES

OMNIVORES

... <u>eat plants</u>	... <u>eat other animals</u>	... <u>eat both plants and other animals</u>

Activity 2. Complete the sentences

1. Foxes eat _____. They're _____.
2. Hares eat _____. They're _____.
3. Pigs eat _____. They're _____.



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THANKS!

Let's play!



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