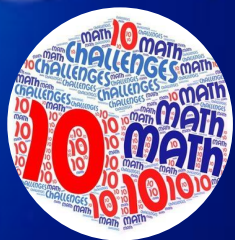




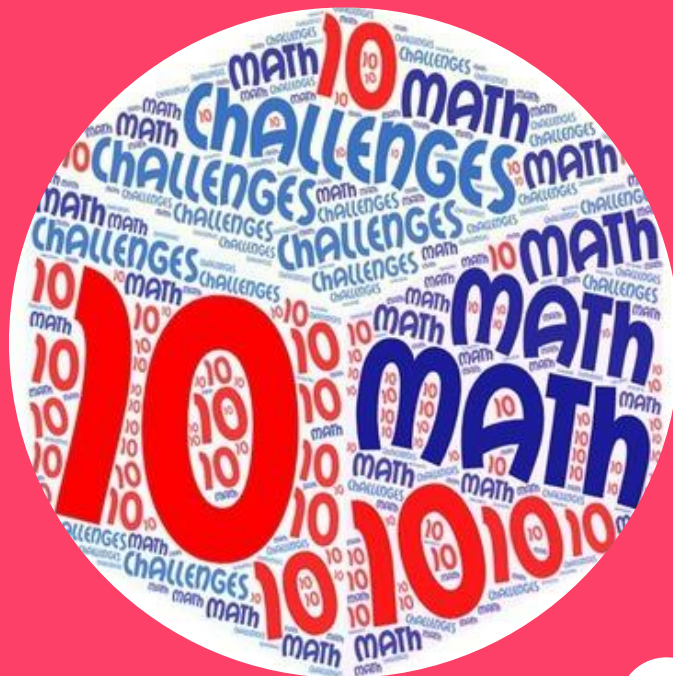
# 10 matematických výzev

10 math challenges  
eTwinning project  
2020/2021



$$P(X=k) = \binom{n}{k} p^k (1-p)^{n-k}$$

# Šíření výsledků projektu





## Registrácia projektu eTwinning

Týmto sa potvrdzuje, že

**MONIKA POLANSKÁ**

Obchodná akadémia Jarmočná 132, Stará Ľubovňa, Slovensko

založil/a projekt

**10 MATH CHALLENGES**

06.07.2020

Počet učiteľov v krajine zapojených do projektu:

**BOSNA A HERCEGOVINA (3), PORTUGALSKO (2),  
POLSKO (2), SLOVENSKO (1),  
SRBSKO (1), TURECKO (9),  
ČESKÁ REPUBLIKA (1)**

**Katarína Hrbáčová**  
Národná podporná služba  
Slovensko

**Ph.D. Paweł Poszytek**  
Národná podporná služba  
Poľsko



## Registrace eTwinningového projektu

Toto potvrzuje, že se

**GABRIELA SVOBODOVA**

Střední odborná škola logistických služeb, Česká republika

připojil/a k projektu

**10 MATH CHALLENGES**

10.07.2020

Počet učitelů zapojených do projektu v jednotlivých zemích

**BOSNA A HERCEGOVINA (3), POLSKO (2),  
PORTUGALSKO (2), SLOVENSKO (1),  
SRBSKO (1), TURECKO (9),  
ČESKÁ REPUBLIKA (1)**

**Pavla Šabatková**  
Národní podporné středisko  
Česká republika

## Proč právě matematický projekt?

### **Jazyk**

Matematika je univerzální jazyk

### **Použití**

Matematiku využíváme v každodenním životě

### **Předmět**

Matematika může být zajímavá a zábavná



# Naším hlavním projektovým cílem bylo „skamarádit“ studenty s matematikou.

Chtěli jsme studentům ukázat, že matematika není jen nudná věda plná čísel a záhadných znaků, jak si často myslí, ale že je také zábavná a neseťkáváme se s ní jen ve škole ale v našem každodenním životě.

# Cíle projektu

1. Popularizovat matematiku jako důležitou oblast vědy.
2. Zvýšit zájem studentů ve věku 15–19 let o matematiku.
3. Bourat předsudky o matematické.
4. Začlenit využívání IKT do studia a samostudia studentů.
5. Rozvíjet kreativitu a matematické myšlení.
6. Propagovat využívání IKT smysluplným způsobem.
7. Zlepšit komunikační dovednosti v cizím jazyce.
8. Podpořit spolupráci ve skupinách.
9. Rozšířit dovednosti studentů pomocí nástrojů Web 2.0
10. Zaměřit pozornost studentů při práci s internetem a zdroji na bezpečnost a autorská práva.

Na  
začátku  
bylo

**10 zemí**

Bosna a Hercegovina

Chorvatsko

Česká republika

Řecko

Polsko

Portugalsko

Rumunsko

Srbsko

Slovenská republika

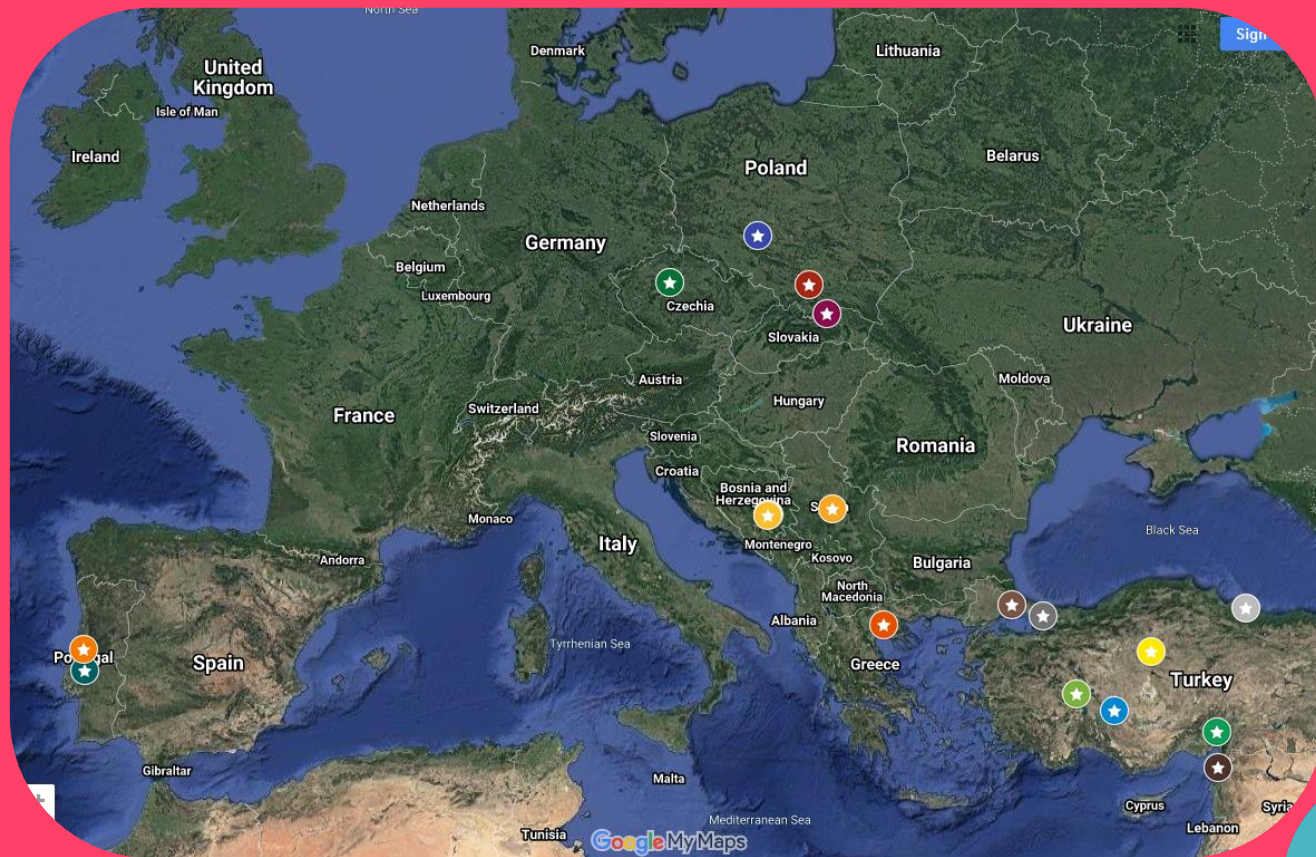
Turecko

23 škol

23 učitelů

141 studentů

Odkud  
byli  
projektoví  
partneři



# Naše první kroky

## ICEBREAKER

- ☁ Input word cloud
- 📊 Project PRE-TEST

## PARTNERS

- 🌍 Location of Partners
- 🏫 About schools
- 👩 About teachers
- 👤 About students

## ABOUT PROJECT

- 📄 Logo
- 👉 Introduction
- 📅 Schedule
- © Netiquette, copyright, e-security

## PROJECT PLAN

- 📅 September task
- 🍁 October tasks
- 🍂 November tasks
- 🎄 December tasks
- ❄️ February tasks
- 🌸 March tasks
- 🌿 April tasks
- 🌻 May tasks
- [DRAFT] 📄 Tasks to complete the project

### About schools

About schools

Dear partners,  
please, write some information about your school and your students.  
We would like to know school logo and how many students will be involved in this project.

Schools participating in the project:

### About students

Partners in the project - students:

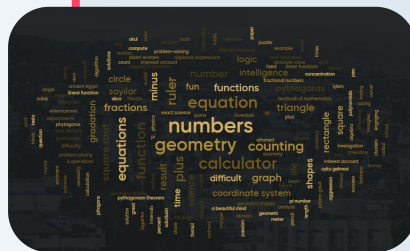
Add item

Alžběta  
Hi, my name is Alžběta and I'm 10 years old. I'm studying at the business academy in the second class. This

Kamil Polard  
Hi, my name is Kamil. I'm going to Cracow. I'm 15 years old. I'm interested in Computer games and

Julia, Slovakia  
Hello my name is Julia and I'm from Slovakia. I live in small town Štrba (Slovakia) and I love

### About teachers



### Schedule

PROPOSAL#2

Week	September	October	November	December	January	February	March	April	May
Week 1									
Week 2									
Week 3									
Week 4									
Week 5									
Week 6									
Week 7									
Week 8									
Week 9									
Week 10									
Week 11									
Week 12									
Week 13									
Week 14									
Week 15									
Week 16									
Week 17									
Week 18									
Week 19									
Week 20									
Week 21									
Week 22									
Week 23									
Week 24									
Week 25									
Week 26									
Week 27									
Week 28									
Week 29									
Week 30									
Week 31									
Week 32									
Week 33									
Week 34									
Week 35									
Week 36									
Week 37									
Week 38									
Week 39									
Week 40									
Week 41									
Week 42									
Week 43									
Week 44									
Week 45									
Week 46									
Week 47									
Week 48									
Week 49									
Week 50									
Week 51									
Week 52									
Week 53									
Week 54									
Week 55									
Week 56									
Week 57									
Week 58									
Week 59									
Week 60									
Week 61									
Week 62									
Week 63									
Week 64									
Week 65									
Week 66									
Week 67									
Week 68									
Week 69									
Week 70									
Week 71									
Week 72									
Week 73									
Week 74									
Week 75									
Week 76									
Week 77									
Week 78									
Week 79									
Week 80									
Week 81									
Week 82									
Week 83									
Week 84									
Week 85									
Week 86									
Week 87									
Week 88									
Week 89									
Week 90									
Week 91									
Week 92									
Week 93									
Week 94									
Week 95									
Week 96									
Week 97									
Week 98									
Week 99									
Week 100									

## Netiquette, copyright, e-security

### 10 math challenges Netiquette, copyright and e-security

1. Be kind and polite
2. Keep in touch
3. Protect personal data
4. Respect copyright
5. Be creative
6. Help others
7. Share your knowledge
8. Use the proper language
9. Don't pretend to be other people
10. ...

Netiquette, e-security and copyright are a key part of the project 10 math challenges.

### PROTECT YOUR PERSONAL INFORMATION

In eTwinning Projects

#### LOGIN DETAILS

Protect your login details!  
Ask the teacher for a strong password



Začali jsme  
řešit matematické výzvy

září 2020

TWINNING

10 MATH CHALLENGES

20

DESIGN WORKS HAVE STARTED



# Matematik, ktorý zmenil svet

## Challenge 1

### Úlohy

Študenti **vyhľadávali informácie** o matematikovi, ktorého meno začína rovnakou iniciálkou ako meno študenta. Pomocou posterov si získané **zdieľali jednu dôležitú alebo zaujímavú informáciu** o vybranom matematikovi.

### Formy práce

Študenti pracovali **individuálne**

### Web 2.0 nástroje

Študenti pracovali s online aplikáciami **Canva / PosterMyWall**. Pripravené postery nahrali do spoločnej online zbierky **Wakelet**.



the foundations of the  
theory of elasticity.



sk.Sima

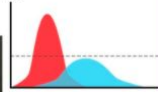
sk.Sima · Oct 20, 2020

## CARL FRIEDRICH GAUSS

Was a German mathematician  
and physicist.



Foto: Public domain,  
wikimedia Commons



When he was seven  
years old, he confidently  
solved an arithmetic  
series problem.

$$S_n = \frac{n(n+1)}{2}$$

Amina Dzihanic, Srednja e... · Oct 22, 2020

### ARCHIMEDES

He determined the value of  
the constant  $\pi$  using the  
quadrature of the circle.

$$3 + \frac{1}{7} < \pi < 3 + \frac{10}{71}$$


sk Rene

**PYTHAGORAS  
GREEK**

### Emmy Noetherová

Albert Einstein called  
her the most important  
woman in the history of  
mathematics.

FOTO: WIKIPEDIA COMMONS

sk.Nina · Oct 16, 2020

**Ondrej**

### Alan Turing

was British  
mathematician, logician,  
cryptographer and war  
hero

sk Timea

sk Timea · Oct 16, 2020

### LEV BUKOVSKÝ

is a Slovak mathematician who  
deals mainly with set the...

$$A = \{2, 3, 4, 5, 6, 7\}$$

$$B = \{2, 4, 6, 8, 10, 12\}$$

$$A \cap B = \{2, 4, 6\}$$

$$A \cup B = \{2, 3, 4, 5, 6, 7, 8, 10, 12\}$$

$$A - B = \{3, 5, 7\}$$

$$B - A = \{8, 10, 12\}$$

# HEURÉKA!

## Challenge 2

### Úlohy

Študenti **riešili 6 logických problémov**. Svoje riešenia **zdieľali s ostatnými študentami** a **diskutovali** o nich medzi sebou.

### Formy práce

Študenti pracovali **individuálne**.

### Web 2.0 nástroje

Študenti pracovali s online aplikáciou **Padlet**. Zo všetkých študentských príspevkov vytvoril učiteľ - autor výzvy- spoločnú **e-knihu**.

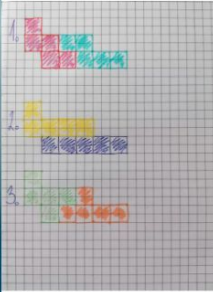
özlem kahraman + 50 · 11 dníami

**Eureka!**  
Intelligence Questions

### Six Pieces

Pridať komentár

sk.sima & sk.emanuella  
we think that will be the case



♥ 5


2 comments

Monika Pofanska 3 mesiacmi  
Great, girls 🎉

özlem kahraman 3 mesiacmi  
Congratulations

Pridať komentár

### Two Three



♥ 4

Pridať komentár

### Rabia/TURKEY

Two=2,Three=3 and (2+3)!=120

♥ 7

Počet komentárov 1

mehmeturam38 1 mesiacom  
nice

Pridať komentár

### skVanesa

My example -  $360 : 3 = 120$

♥ 5

### Pawns

Počet komentárov 1

özlem kahraman 3 mesiacmi  
Congratulations!

Pridať komentár

sk.sima & sk.emanella

we reached the finish line in 7 steps and there was no pawn left on the table

♥ 3


Pridať komentár

### sk.marianka

- At my first step I take two black pawns and I will put white pawn.
- Next I will take one white and one black pawn and I will put two black pawns on the table.
- In the third step I take from the table two white pawns and I will not put any pawns.
- If I take two black pawns I will put white pawn on the table.
- In next step I take one black and one white pawn again and I will put on the table two black pawns.

### Homecoming

hour and continues with his car to the rest of the road. One day, Mr. X arrives at the station 1 hour early and starts walking because his driver has not arrived yet. When he meets his driver on the way, he gets into the car, and reaches home 10 minutes earlier than usual. So how many minutes did Mr X walk?



♥ 6

4 comments

Anonymný 4 mesiacmi  
Gül Turkey The car does not travel the road from the meeting points to the station. That's why he gets home 10 minutes early - this road is 5 minutes by car and 55 minutes for X. So X may have walked for 55 minutes.

Anonymný 3 mesiacmi  
Beren C./TURKEY I agree with you Gül

özlem kahraman 3 mesiacmi

### Subway

Počet komentárov 1

halikayalar38 1 mesiacom  
good

Pridať komentár

### cz.Jakub

Since the start and end moments include the number of encountered trains goes down to 20. Then we just simply divide the amount of minutes by the number of trains.

$$120 : 20 = x$$

$$x = 6$$

So trains go by the stations every 6 minutes.

♥ 4

Počet komentárov 1

halikayalar38 3 mesiacmi  
nice


Pridať komentár

sk.daniela, sk.slavka, sk.helenka

$$120:20=6 \text{ minutes}$$

### Community

How would you divide a community of 10 people into two subgroups of at least one person each?



♥ 4

2 comments

Patrik Havik 3 mesiacmi  
I would divide them according to their age. Kids with kids and adults with adults.

evrimyelda 1 mesiacom  
I thought that

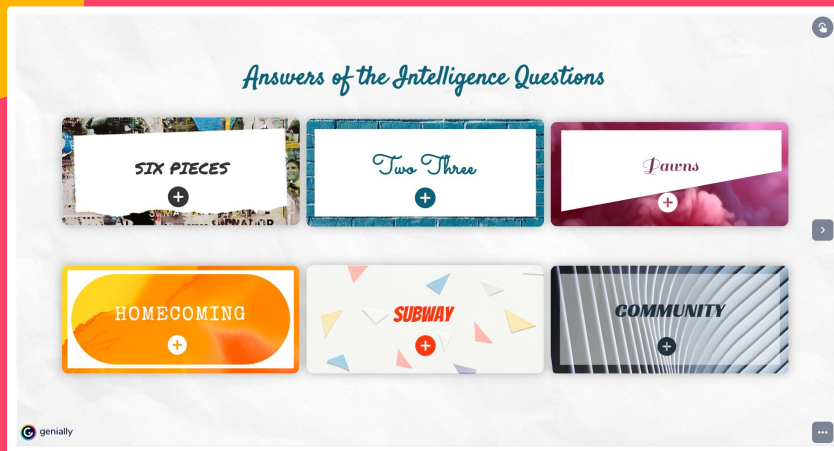
Pridať komentár

### skMaruska

I would divide them - according to the mood (who is in a good mood and who is in a bad mood)

♥ 5

Pridať komentár



riešenie úloh



e-kniha

Odkazy: riešenie úloh, e-kniha



# Geometria v mojom meste

16

## Challenge 3

### Úlohy

Študenti **hľadali geometrické útvary v svojom meste a na fotografiách miest** svojich partnerov. Oboznámili sa s **geometrickými prvkami hlavne v architektúre** a ich vplyvom na vnímanie miest v rôznych krajinách.

### Formy práce

Študenti pracovali v

**15-tich medzinárodných skupinách**


### Web 2.0 nástroje


Študenti komunikovali v **TwinSpace Forum**.


Fotografie svojho okolia vytvárali pomocou mobilnej aplikácie. Zo všetkých editovaných fotografií vytvorili spoločnú zbierku v **Padlet-e**.





accfrancisco76 + 61 · 4 mesiaci  
**Geometry in my city**  
 Put the photo from your task here.


**Anonymný** 5 mesiaci  
**MRGSUDENUR**  
 MEVLEVİ TOMB  



**Melisa Nur Yozlu** 5 mesiaci  
 Geometrics  



**Anonymný** 5 mesiaci  
 sk.Nina  
 Mevlana Museum in Konya, Turkey  
 halil kayalar  



**Anonymný** 5 mesiaci  
 MRGESMANUR  
 UNYE MUSEUM  



**Anonymný** 5 mesiaci  
 MRGFATMAGÜL  
 TAŞBAŞI CHURCH /ORDU  



**Anonymný** 5 mesiaci  
 sk.Nina  
 Municipal house , Prague , Czech Republic  
 cz Kristyna  



**Anonymný** 5 mesiaci  
 sk.Emanuella  



**Anonymný** 5 mesiaci  
 mrgzerrin  
 YASON CHURCH  
 PERŞEMBE /ORDU  


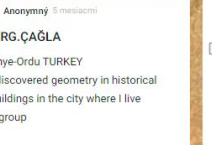
**Anonymný** 4 mesiaci  
 sk. Daniela  


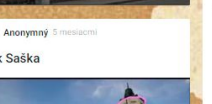
**Anonymný** 5 mesiaci  
 sk.Emanuella  



**Anonymný** 5 mesiaci  
 mrgçağla  
 I wanted to add a second city from my country. ISTANBUL (Galata Tower)  
 TURKEY  
 Çağla  



**Anonymný** 5 mesiaci  
 sk. Emanuella  


**Namik Brkanic** 5 mesiaci  
**Festina lente - most ljubavi**  
 Sarajevo, Bosna i Hercegovina  
 LOCATION:  
 -Sarajevo, Bosnia and Herzegovina  
 NAME:  
 -Festina lente  
 MONUMENT:  
 -The bridge of love  
 180°  
 LOCATION -Sarajevo, Bosna and Herzego...  
 PDF document  
 padlet drive  


**Anonymný** 5 mesiaci  
 MRG.ÇAĞLA  
 Ünye-Ordu TURKEY  
 I discovered geometry in historical buildings in the city where I live  
 3.group  


**Anonymný** 5 mesiaci  
 sk. Saška  


**Amina Džhanic** 5 mesiaci  
 amina.dz  
 Scared Heart Cathedral, Sarajevo,  
 Bosnia and Herzegovina.  


**Anonymný** 5 mesiaci  
 sk.Nina  
 Fants building of the main railway station, Prague, czech Republic  
 cz Imelda  


# Nájdí svoju cestu

## Challenge 4

### Úlohy

Študenti **vytvorili e-knihu s bludiskami.** V každom bludisku ukryli **zakódovaný výrok** známeho matematika.

### Formy práce

Študenti pracovali v **19-tich národných tímoch**

### Web 2.0 nástroje

Študenti komunikovali v **TwinSpace Forum** alebo inej aplikácii. Každý tím vytvoril bludisko v online aplikácii **Google Slides**. Učiteľ - autor výzvy - vytvoril zo všetkých bludísk spoločnú e-knihu v **StoryJumper**.





**Team #2**  
akSamuel

**Team #2**  
ak.emanuela

BEGINNING

END

Odkaz: Velká kniha bludísk

# Prvočísla - základné kamene matematiky

## Challenge 5

### Úlohy

Tímy **pripravili prezentácie o prvočíslach** a ich význame v každodennom živote. Všetky prezentácie vytvárajú **spoločnú Wakelet zbierku**. **Zaujímavosti** o prvočíslach, s ktorými sa študenti stretli pri skúmaní témy, si zdieľali v **spoločnom Padlet-e**.

### Formy práce

Študenti pracovali v **19-tich národných tímoch**

### Web 2.0 nástroje

Študenti pracovali v online aplikácii **Google Slides/Prezi/Canva**, zo svojich príspevkov vytvorili spoločnú **Wakelet a Padlet zbierku**.



## Prime numbers – building blocks of mathematics

16 items · 820 views

Challenge no. 5 in eTwinning project 10 math challenges, 2020/2021



### Challenge 5 - team 3

Google Docs

Prime numbers Team 3 Roman, Kačka, Michal, Grigorij, Michaela

Added by:  
Roman Zaviel · Dec 18, 2020



### Challenge 5 - team 4

Google Docs

Prime numbers Team 4 - Slovakia Members: skNina, sk.Renatka, sk.Sima, sk.Marianka, sk.Filip

Added by:  
sk.marianka · Jan 24, 2021



### TEAMS/PRIME NUMBERS ÜNYE SCIENCE HIGH SCHOOL /TURKEY

Google Docs

Added by:  
TEAMS · Jan 4, 2021



### Challenge 5 - team 6

Google Docs

Prime numbers TEAM 6 sk.Helenka, sk.Saška, sk.Ivka, sk.Bianka, sk.Daniela

Gabriela Svobodová + 52 · 12 minutami

## Remarkable prime numbers (curiosities)

Challenge no. 5 in eWinning project 10 math challenges, 2020/2021

SLOVAKIA  
(Monika)

+

calculate this number. It took his computer a record 6 days.

$$2^7 \cdot 5^{11} \cdot 17^{23}$$

❤ 3

Přidat komentář

Anonymný 2 mesiace

skMaruska

We use a **tree diagram** or **factor tree** to find the prime factors



❤ 7

Přidat komentář

CZECHIA  
(Gabi)

+

Jakub Letović 2 mesiace

Jakub/CZ

The only even prime number is number 2.

❤ 6

Přidat komentář

Patrik Havik 3 mesiace

Patrik/CZ

No prime number greater than 5 ends in a 5. Any number greater than 5 that ends in a 5 can be divided by 5.

❤ 3

Přidat komentář

Anonymný 2 mesiace

Misa/CZ

A prime number is a natural number. They are

POLAND  
(Agnieszka)

+

Agnieszka 2 mesiace

proste číslo

In Polish, in English, we name prime numbers as if they were at the beginning. This can be confusing for students who are constantly trying to make one into a prime. In Russian, we call prime numbers простое число, which means straight numbers, which perhaps better reflects the essence of these numbers. How is it in your languages? What do you think about it?



❤ 5

3 comments

Gabriela Svobodová 2 mesiace  
In Czech it is the same like in Polish or in English. I think it is very interesting idea.

Monika Pofarska 2 mesiace  
In Slovak it is the same.)

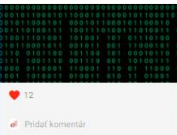
TURKEY  
(Nevin)

+

Anonymný 2 mesiace

Beren C./TURKEY

Especially banking transactions and internet shopping etc. In the fields, **prime numbers** are used so that passwords cannot be cracked. **Because** it is very difficult to factor the product of **two very large prime numbers** into their prime factors, which makes it difficult to crack passwords.



❤ 12

Přidat komentář

Anonymný 2 mesiace

Gu A / TURKEY  
It found at 2018 by Patrik Laroche who is the member of GIMPS (Great internet Mersenne Prime Search) /Volunter Parich Parich found the Largest prime number in less than four using GIMPS software and earned \$3,000

TURKEY  
(Berna)

+

Anonymný 2 mesiace

PRIME NUMBERS

**Prime Numbers'**  
A number which only has two factors - itself and 1.

The first ten prime numbers are:  
2 3 5 7 11 13 17 19 23 29

❤ 3

Přidat komentář

Anonymný 2 mesiace

Primo: 2 3 5 7 11 13 17 19 23 29  
Composto: 4 6 8 9

❤ 3

Přidat komentář

Přidat komentář 1

abidmorbelderbert 1 mesiacom  
interesting

Přidat komentář

Anonymný 2 mesiace

Mehmet Refik Güven Ünye  
Science High School / Çağla.p

Prime numbers are just natural numbers with two positive integer divisors.

TURKEY  
(Evrim)

+

Anonymný 1 mesiacom

Prime Number

2	3	4	5	6	7	8	9	10	
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

❤ 0

Přidat komentář

Melisa Nur Yozlu 1 mesiacom

HERE ARE THE PRIME NUMBERS

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

❤ 0

Přidat komentář

Çağla Arslan 1 mesiacom

TURKEY  
(Ugur)

+

mustafabalciberbert 1 mesiacom

5a + 4 ile 4b - 1 aralarında asal ve

3a + 4 = 2

4b + 3 = 5

olduğuna göre, 5a + 4b toplamı kaçtır?

A) 6 B) 5 C) 4 D) 3 E) 2

❤ 4

4 comments

mustafabalciberbert 2 mesiace  
Prime numbers between 5a + 4 and 4b - 1

mehmeturam38 1 mesiacom  
hard :(

halikayalar38 1 mesiacom  
so much fun

evrimyelda 1 mesiacom  
i solved

Přidat komentář

mustafabalciberbert 2 mesiace

x ve y asal sayılardır.

x + y = 69 olduğuna göre x + y kaçtır ?

A) 9 B) 10 C) 14 D) 20 E) 26

❤ 4

3 comments

mustafabalciberbert 2 mesiace  
x and y prime numbers

tugbacamderederbert 1 mesiacom  
233

BOSNIA AND  
HERZEGOVINA (Lejla)

+

Amina Dzhanic 3 mesiace

Amina/ Bosnia and Herzegovina

The largest known prime number (as of November 2020) is  $2^{52,580,953} - 1$ , a number which has 24,862,048 digits when written in base 10. It was found via a computer volunteered by Patrick Laroche of the Great Internet Mersenne Prime Search (GIMPS) in 2018.



❤ 7

3 comments

eWinning Project 2 mesiace  
May be)

tugbacamderederbert 1 mesiacom  
good

mehmeturam38 1 mesiacom  
thank you

Přidat komentář

# Žena matematicka - existuje vůbec?<sup>23</sup>

## Challenge 6

### Úlohy

Studenti **vyhledali a prozkoumali zajímavé informace** o životě a práci slavných matematicek. Připravili **životopisnou kartu** o jedné zajímavé osobnosti – matematicce.

### Formy práce

Studenti pracovali **individuálně**.

### Web 2.0 nástroje

Studenti připravili pomocí šablony biography cards v **Google Dokumentech** nebo v aplikaci **Microsoft Word**. Společná kolekce byla realizována v **Padletu**. E-book byl vytvořen v aplikaci **FlipHTML5**.



Lejla Hujdur + 78 + 11 dñami  
**eTw project: "10 math challenges"**  
 Task 6: Female mathematician - is there any?

E-BOOK  
 OF BIOGRAPHY CARDS



FEMALE  
 MATHEMATICIAN

- IS THERE ANY?

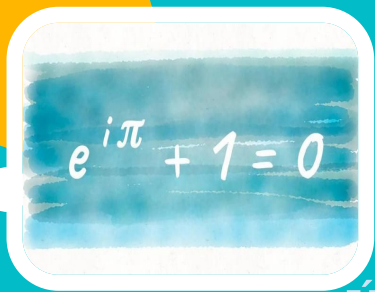


CHALLENGE 6  
 OF 10 MATH CHALLENGES  
 PROJECT  
 2020/2021

e-book

# Podivná čísla

## Challenge 7



### Úlohy

Studenti **tvořili kolekci fotografií a audio nahrávek** o konstantách

$\pi$ ,  $e$ ,  $i$ ,  $\varphi$ , **0** a **1**.

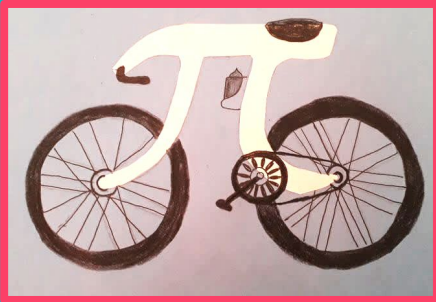
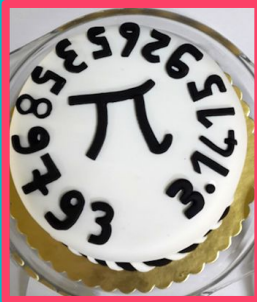
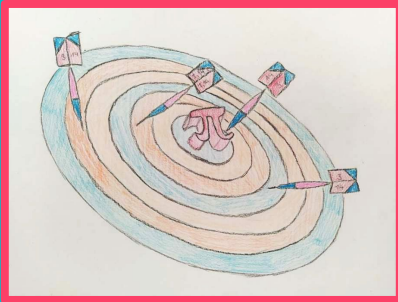
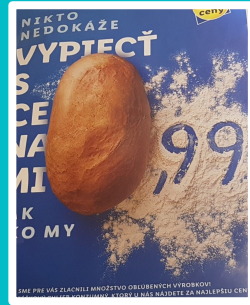
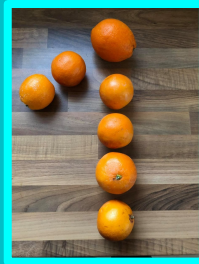
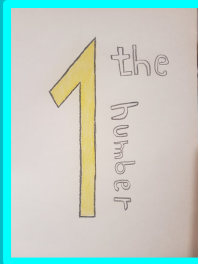
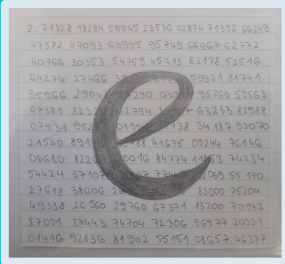
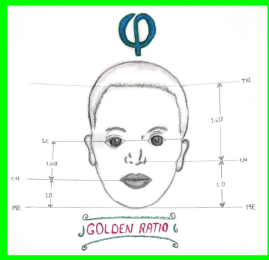
### Formy práce

Studenti pracovali v **15 mezinárodních týmech**.

### Web 2.0 nástroje

Studenti komunikovali na **fóru TwinSpace**. Vytvořili fotografie pomocí mobilní aplikace, zvukový příspěvek o zvolené konstantě byl zaznamenán pomocí **Vocaroo**. Každý student načetl své fotografie a zvukové soubory do sbírky **Wakelet**





# Magie jednoduchých čísel

## Challenge 8

### Úlohy

Studenti **hledali číselná fakta o zemi** vybraného partnera, **zformulovali a nahráli 8 samostatných video otázek**, na které měl druhý tým odpovědět. Studenti **nahráli video odpovědi** jako komentář k videu s dotazem od partnerského týmu.

### Formy práce

**10 národních týmů** vytvořilo **mezinárodní dvojice**

### Web 2.0 nástroje

Studenti nahráli video otázky a video odpovědi v online aplikaci **Flipgrid**. Studenti zveřejnili číselná fakta o své zemi na **Padlet**.



Agnieszka + 32 • 5 hodinami

## Number 8 in my country

project eTwinning 10 math challenges

KLONOVA

### Czech Republic, Gabriela Svobodova

Gabriela Svobodová 2 mesiace

In our country, women celebrate International Women's Day (MDŽ) on March 8, as in other countries. But it is an important day for me, because I have a name day ☺.



♥ 2

Pridaf komentárov 1

Pofanská 2 mesiace

### Poland, Agnieszka Samborek

Agnieszka 3 mesiace

Page from Callendar

Good News Day is celebrated in Poland on September 8. On this day we also celebrate the Dreamer Day.



♥ 3

Pridaf komentárov

Agnieszka 3 mesiace

School in Poland

In Poland, pupils finish 8 years in

### Portugal, Ana Francisco

Anonymný 2 mesiace

Immaculate Conception

In Portugal the day of the Immaculate Conception is celebrated on December 8, every year. That day is a holiday and for everyone it is a very big party.



♥ 6

Pridaf komentárov

### Slovakia, Monika Pofanská

Monika Pofanská 2 mesiace

Faulting eights in the history of Czechoslovakia

1918 - Slovakia as a part of Czechoslovakia  
1938 - Slovakia as an autonomous part of Czechoslovakia  
1948 - Revolution - Slovakia as a communist country  
1968 - Beginning of Soviet occupation  
1989 - Velvet Revolution - Czechoslovakia is a democratic state



♥ 3

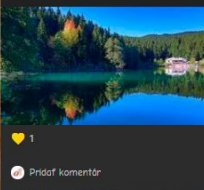
Pridaf komentárov

### Turkey, Berna Arslan

bernaarslan 1 mesiacom

Our city with 8 traffic plates in our country

A city in the Black Sea region in our country where every shade of fascinating green is found.



♥ 1

Pridaf komentárov

bernaarslan 1 mesiacom

In our country, 8 March is celebrated as women's day.

♥ 1

Pridaf komentárov

### Turkey, Evrim Yelda Dolek

Anonymný 9 dňami

Berk A.

Eight Developing Countries (D-8)  
The first step towards the establishment of D-8 was the "Development Cooperation Conference" held in Istanbul on 22 October 1996 with the participation of Iran, Pakistan, Bangladesh, Malaysia, Indonesia, Egypt and Nigeria upon the invitation of Turkey. D-8 was officially established with the Summit of Heads of State / Government held in Istanbul on 15 June 1997, following the preparatory work of three Commissions and two Councils of Foreign Ministers held after this conference.

♥ 0

### Turkey, Nevin Bilgili

etwinning Project 2 mesiace



NEIGHBOR of Turkey

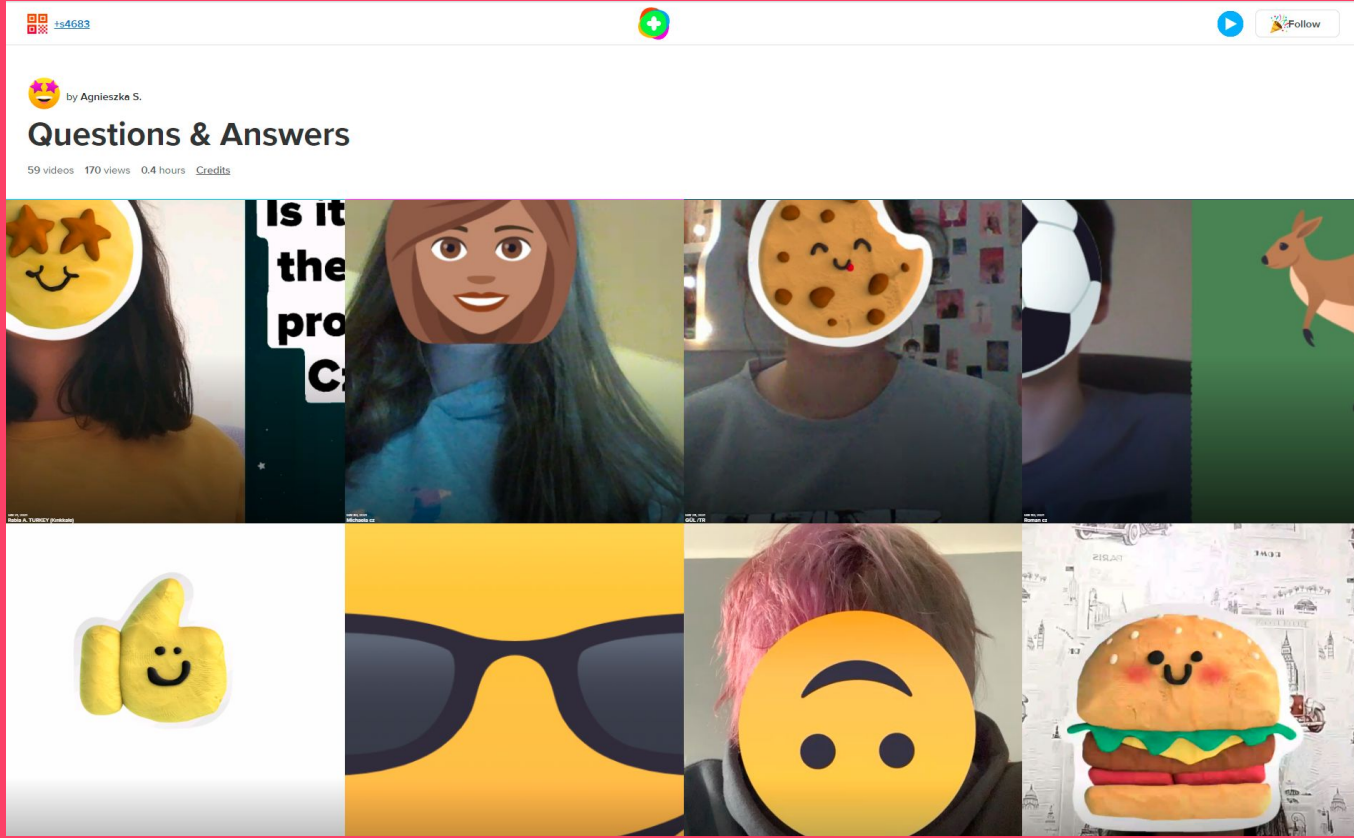
♥ 4

Pridaf komentárov

etwinning Project 2 mesiace

TURKEY RANKS 8th IN THE WORLD IN THESE AREAS

- \*Number of foreign tourists
- \*8th important production base
- \*Steel production
- \*Poultry production
- \*Onion export
- \*8 universities in the first hundred
- \*8th in purchasing power in Europe





# Záhadný matematický příběh

30

## Challenge 9

### Úlohy

Studenti **hráli únikovou hru**.  
**Zveřejnili některá zajímavá fakta**  
o šifrování.

### Forma práce

Studenti pracovali **individuálně**.




### Web 2.0 nástroje

Studenti řešili únikovou hru prostřednictvím online aplikace **Google Formuláře**, zveřejnili fakta o šifrování v aplikaci **Padlet**.





You are special student  
 Because you know Math and Encryption  
 You will work Linda's hotel  
 You will follow Linda  
 If you can help police to solve the murder,  
 you will win the special award!

OBLN AB GWN LWAKNANA ZD B  
 HZ6V OBLN ZO WZD HRJ06AV

## Challenge 9 continues

imecz	JAKUB CZ	Bartek J PL	mrg.esmanur.c _ TUR
sk.viktoria Slo	ROMAN CZ	Kačka cz	Andrii CZ
GÜL/TURKEY	mrgsudenuR/TURKE	cz Vojta	GRIGORIY CZ
TerkaCZ	Bartek K Poland	TEST	Pátik cz
MICHAL CZ	MICHAELA CZ	TANA CZ	David/cz
Kristyna/CZ		oland	Vanesa/Slovakia
		irkey	JULCA CZ
		ILA-TURKEY	SZYMON POLAND
		lovakia	Alex, CZ





# Matematika v našich životech <sup>32</sup>

## Challenge 10

### Úlohy

Studenti **připravili prezentace** týkající se tématu výzvy.

**Nahráli video** s prezentací naživo nebo vytvořili dvojici s jiným týmem a prezentovali své práce na **online setkání** se záznamem.

### Formy práce

Studenti pracovali v **národních skupinách** a v **mezinárodních dvojicích** (týmů)

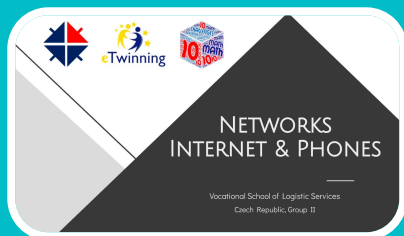
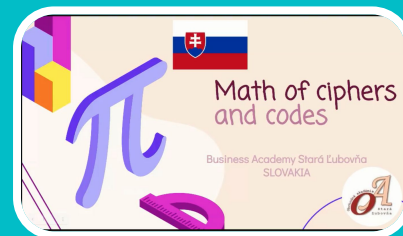
### Web 2.0 nástroje

Aplikace pro přípravu **prezentace**, aplikace pro **živou prezentaci**, **nahrávání**, **Wakelet** pro vytváření společných sbírek pro všechny video soubory.



Matematika  
uvnitř

Rozpoznávání  
řeči



Matematika  
a hudba



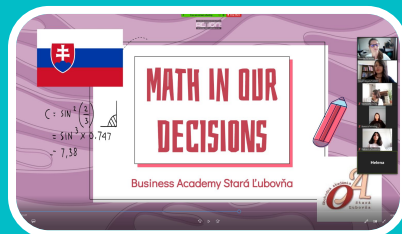
Mathematics in our daily life  
(kitchen, medicine, construction,  
clothing, sports and computers)



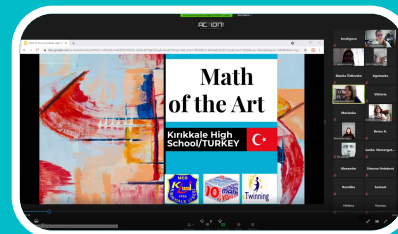
Matematika  
v přírodě



Math in Baking and  
cooking  
Czech Republic Team 3



Matematika  
budování  
mostů





# Dobrovoľné úlohy

Študenti pripravili **pravidlá** - netiketu, e-bezpečnosť, autorské právo. Svoje príspevky zdieľali v **Padlet-e**.

Agneszka + 13 · 23 dňami

### 10 math challenges

Netiquette, e-security and copyright are a key part of the project 10 math challenges.

Bosnia and Herzegovina, Lejla Hujdur


Bosnia and Herzegovina, Mirela Avdibegović

Bosnia and Herzegovina, Nada Sokolovic

Czech Republic, Gabriela Svobodova

Lejla Hujdur 5 mesiacmi

My students post their opinions on netiquette, eSafety and copyright on this linoit table:



Netiquette, eSafety copyrights lino is an online web sticky note service...


Anonymný 4 mesiacmi

Hatay Anatolian High School, Evrim Yelda Dölek

Mirela Avdibegovic 4 mesiacmi

Netiquette

Students made a poster about netiquette




**Before you post THINK**

- T - is it True?
- H - is it Helpful?
- I - is it Inspiring?


Nada Nastavnica1 3 mesiacmi

ÖŞ"Osman Nakaš", Sarajevo



Nada Nastavnica1 3 mesiacmi


Linoit table



Gabriela Svobodová 4 mesiacmi

Our students were thinking about rules of netiquette and eSafety and created linoit canvas with rules on the stickers and word clouds.

canvas1, canvas2



Gabriela Svobodová 4 mesiacmi

Our permission document (for pupils parents)

## PROTECT YOUR PERSONAL INFORMATION

In eTwinning Projects

### LOGIN DETAILS

**Protect your login details!**  
Ask the teacher for a **strong password**. Keep your login details secret! Do not disclose them or give them to anyone.



### AVATAR

**Don't use photos with your own face**  
Create an icon, an avatar that will represent you. Your avatar will appear next to your posts. Project partners will remember you faster.



### PROJECT NAME

**Don't use your own name**  
Mark all your contributions that you publish in the project with his project name. Do not use your own name in the project.



### PROTECT YOUR PC

**Use antivirus application**  
Many people from different countries work on the project. **We work online.** By using an antivirus program, you protect your computer as well as your partner's computers from system crashes.



### UPDATE REGULARLY

**Only the current system is secure**  
New types of computer viruses are constantly being added. Antivirus programs are adapting to them. Regularly. Therefore, it is **NECESSARY** to update them regularly.



Odkaz: Padlet


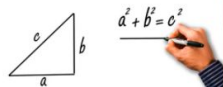




$$a^2 + b^2 = c^2,$$

$$16^2 + 12^2 = 20^2$$

$$256 + 144 = 400$$

- Študenti pripravili pohľadnice s **VIANOČNÝMI a NOVOROČNÝMI** želaniami pre svojich projektových partnerov. 16. decembra sme oslavovali **Deň Pytagorovej vety**, študenti pripravili k tejto príležitosti plagáty. Všetky príspevky sme zdieľali v **Padlet-e**.

Monika Pofanská + 15 · 22 dňami  
**We celebrate in December 2020**  
 Pythagorean Theorem Day, Christmas, New year

Bosnia and Herzegovina (Lejla)	Czech Republic (Gabi)	Poland (Agnieszka)	Slovakia (Monika)	Turkey (Nevin)	Turkey (Uğur)
<p>Lejla Hujdur 2 mesiacmi</p> <p>May 2021. be the year of health, joy and happiness for all of us!</p>  <p>Happy New Year - 10 math challenges by Lejla Hujdur vimeo</p> <p>7 likes, 3 comments</p> <p>NBilgiçli 2 mesiacmi: Thanks Lejla, I agree with your good wishes.</p> <p>ugur cesur 2 mesiacmi: ANDERFULL</p>	<p>Romar 2 mesiacmi</p> <p><b>Pythagorean Theorem Day</b></p> <p>I wish you a Merry Christmas, happy holidays and Happy New Year. A lot of health, happiness and accomplishments!</p>  <p>4 likes, 2 comments</p> <p>mehmeturam38 1 mesiacom: very nice</p> <p>abidinmorbelderbent 1 mesiacom: nice</p>	<p>Agnieszka 2 mesiacmi</p> <p><b>Pythagorean Theorem Day</b></p>  <p>Pythagorean Theorem Day by sagatrable YouTube</p> <p>5 likes, 1 comment</p> <p>halilkayalar38 1 mesiacom: so much fun</p>	<p>Anonymný 2 mesiacmi</p> <p>skMaruska</p>  <p>8 likes, 4 comments</p> <p>NBilgiçli 2 mesiacmi: Çok güzel. Müte...</p>	<p>Anonymný 1 mesiacom</p> <p>Rabia A./TURKEY</p>  <p>5 likes, 1 comment</p> <p>tugbacamderederbent 1 mesiacom: nice</p>	<p>ugur cesur 2 mesiacmi</p> <p><b>Pythagoras message</b></p>  <p>Pythagoras Message by Ugur CESUR YouTube</p> <p>8 likes, 5 comments</p> <p>Monika Pofanská 2 mesiacmi: wow :)</p> <p>NBilgiçli 2 mesiacmi: Nice.)</p> <p>tugbacamderederbent 1 mesiacom: good teacher</p> <p>mehmeturam38 1 mesiacom: nice</p>

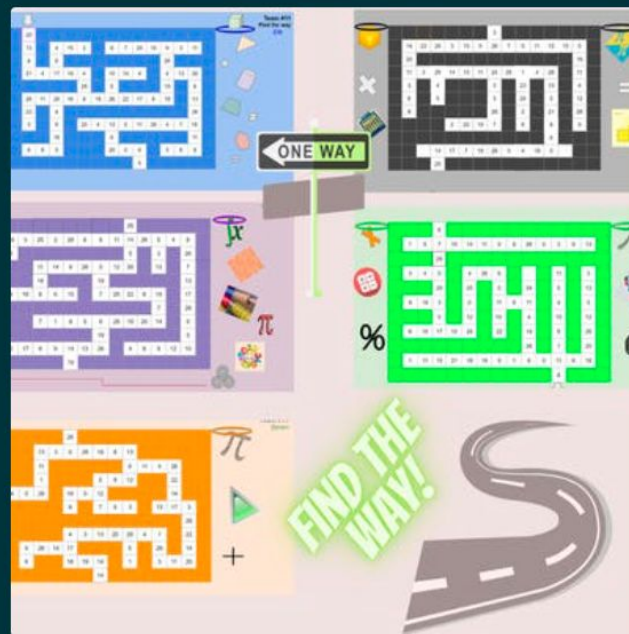
Odkaz: Padlet

# Mentimeter

37

Počas vianočnej prestávky niektorí študenti **lúštili bludiská z Veľkej e-knihy bludísk,** ktorú sme pripravili vo výzve 4.

Svoje **riešenia zdieľali** prostredníctvom aplikácie Mentimeter.



Write team number and maze result you solved. (in parentheses you enter your

Odkaz: Mentimeter



## Prime numbers – the best presentation

Which presentation do you like most (you should choose from all published presentations)?



- Team 1 POLAND – Mateusz PL, Franek PL, Piotr G PL, Kamil PL, Mateus PL



- Team 2 SLOVAKIA – sk.Alex, sk.Samuel, sk.Viktoria, sk.Emanuela, sk.Vanesa



Po dokončení všetkých prezentácií vo výzve 5

sme vybrali najlepšiu prezentáciu o prvočíslach.

Hlasovali študenti aj učitelia.

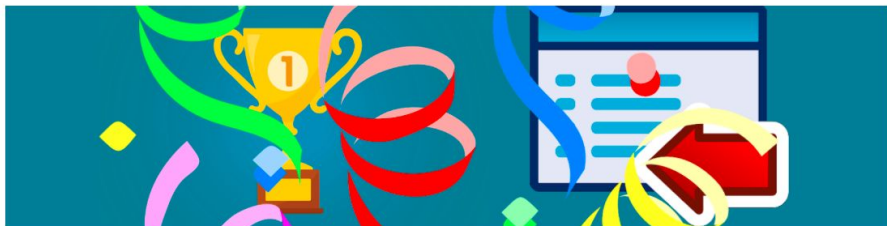


## Vítaz študentského hlasovania

Challenge 5

Prime numbers - building blocks of mathematics

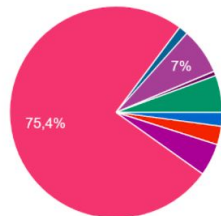
WINNING PRESENTATION IN STUDENT VOTING



**WINNER:** Team 7 TURKEY – Melisa N., Çağla A.,

Hüseyin A., Feyza T., Berk A.

**CONGRATULATIONS!**



Odkaz: Víťazná prezentácia - team 7

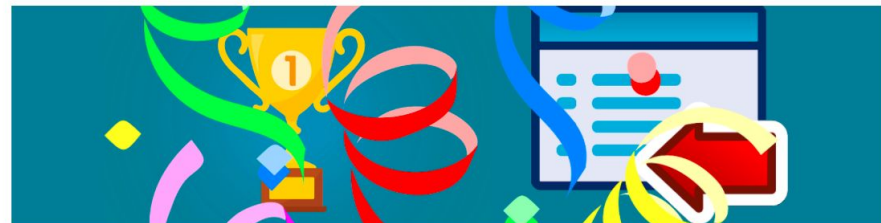
## Vítaz učiteľského hlasovania

39

Challenge 5

Prime numbers - building blocks of mathematics

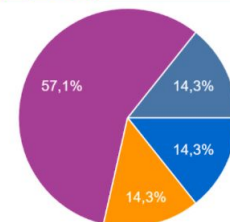
WINNING PRESENTATION IN TEACHERS VOTING



**WINNER:** Team 11 TURKEY – Beren, Efe, Gül,

Kerem, Rabia

**CONGRATULATIONS!**

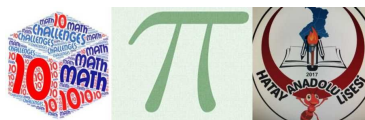


Odkaz: Víťazná prezentácia - team 11

## 14. marca sme oslavovali $\pi$ day

40

Plagát  
(návrh)



3.14159  
265358979  
3271951613  
83270503884197  
16939979515870974  
94459230781640628620899  
86280348253421170679821480865  
1328230664709384460955058223172535940  
812848111745028410270193852110555964462294895493  
1432819828810736343024719879376487417981793160371010184348

Pi Day is considered a special commemoration of the famous mathematical constant pi and is celebrated annually on 14 March. ... The reason for this is that this day is 3/14 in the American date format, and this is reminiscent of the most common use of the number pi.

Tričko  
(návrh)



$\Pi$  poem  
(v Pilish art)

3.141 592 653 589 793 238 462 643 383 279

*Its a team,*

*A group,*

*eTwinning in hearts.*

*Tasks are funny,*

*Advanced adventure,*

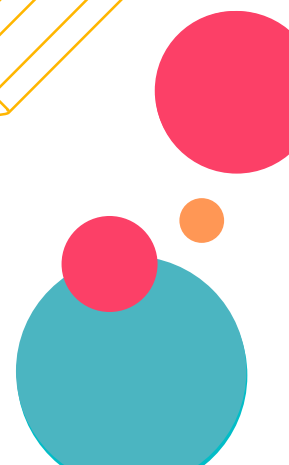
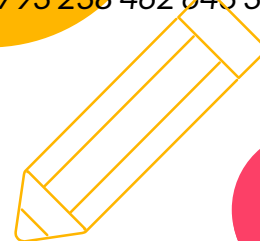
*Someday-yesterday-now.*

*To all students*

*With effort or desire.*

*Hope for all teachers*

*May be perfect groupwork.*





## Kvíz o ČUDNÝCH ČÍSLACH z výzvy 7



41

Úspešnosť **90 % - 100%** dosiahlo 15 študentov (27 %)



**Turecko**

mrgsudenur  
mrgfatmagül  
mrgcağla



**Slovensko**

sk.Ivka	sk.Matej
sk.Helenka	sk.Laura
sk. Emanuella	sk.Nina
sk.Viktoria	sk.Slavka
sk.Julia	sk.Nika



**Portugalsko**

Mariana  
Francisco

Po dokončení výzvy 7

**56 študentov vyplnilo vedomostný kvíz konštantách..**

**71.4 % študentov dosiahlo vyššiu úspešnosť ako 60 %**

## Úniková hra z výzvy 9 v teréne bez počítača



Odkaz: [escape game - video](#)

Vo výzve 9 sme študentom pripravili aj **tlačenú formu únikovej hry**, ktorú si mohli vytlačiť

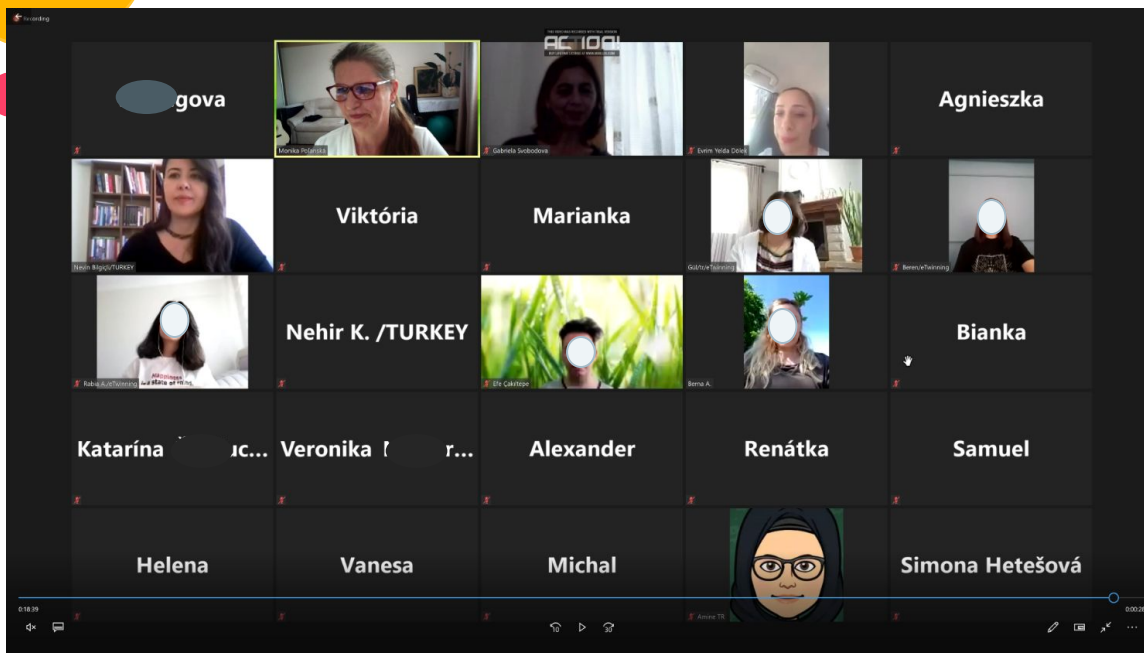
a zahrať si ju so svojimi **súrodencami alebo kamarátmi**.

Ako odmenu pre správneho riešiteľa **ukryli poklad**

napr. v záhrade.

# Online stretnutia vo výzve 10

43



Odkaz: Wakelet video collection



Ze zákulisí  
projektu



Web 2.0 Tool	Challenge									
	1	2	3	4	5	6	7	8	9	10
Animoto									x	
Applications for real-time meeting							*	*		*
Canva	x				x		x			
Communication tools			x	x				x		x
Flipgrid								x		
FlipHTML5						*				
Google Docs or MS Word						x		x		
Google Forms					x		x		x	*
Google Slides				x	x					x
Joomag		*								
Kahoot								*		
Mentimeter				x						
Mobile application (camera)							x		x	
Padlet		x	x		x	x		x	x	
Pdf merge, pdf creator				*		*				
PosterMyWall	x						x			
Preparing poster tools	x						x			
Presentation tools					x					x
Prezi					x					x
StoryJumper				*						
TwinSpace Forum			x	x	x		x			
Vocaroo							x			
Wakelet	x				x		x			x















Challenge	Form		
	individually	teamwork	
		national team	international team
Challenge 1	X		
Challenge 2	X		
Challenge 3			X
Challenge 4		X	
Challenge 5		X	
Challenge 6	X		
Challenge 7	X		X
Challenge 8	X	X	X
Challenge 9	X		
Challenge 10		X	X

Communication tool	Students	Teachers
Twinspace Mail		X
Twinspace Forum	X	X
Google Forms Surveys	X	X
WhatsApp		X
Online Meetings	X	X
Teachers bulletin		X
E-mail		X
FB messenger	X	
Instagram	X	
Microsoft Teams		X

# EVALUACE

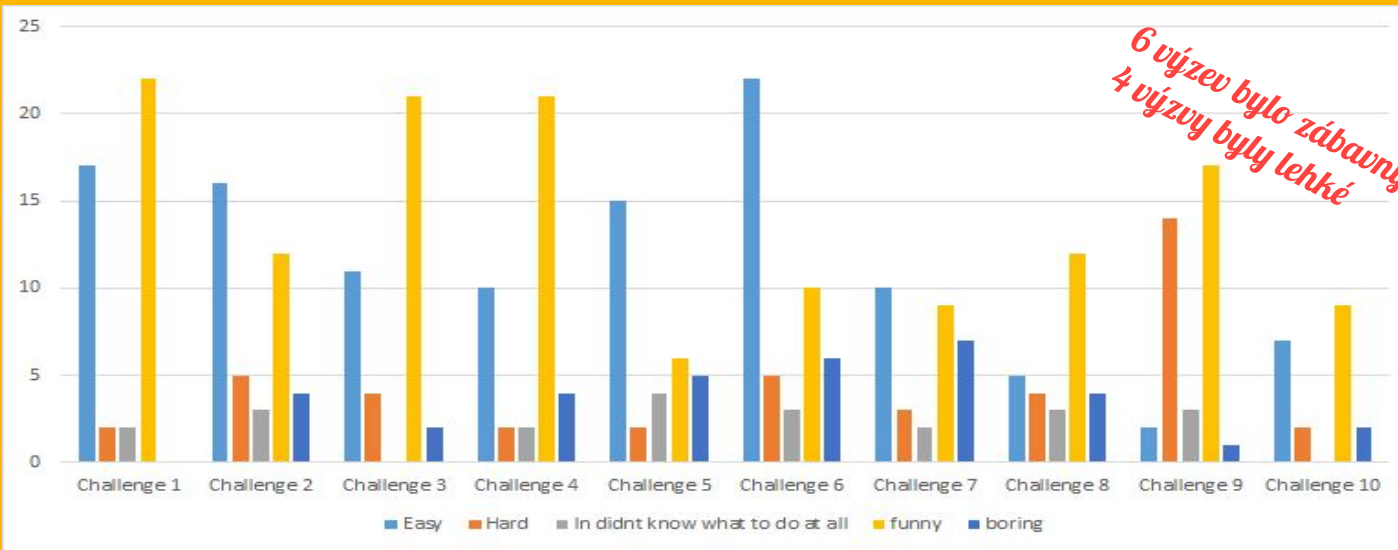
statistiky a  
průzkumy

## EVALUATIONS

-  Pre-test
-  Evaluation: July - October 2020
-  Evaluation of challenges 1 - 5 by teachers
-  Evaluation of challenges 1 - 5 by students
-  Evaluation report, part 1
-  Strange numbers - quiz
-  Teacher`s survey to the challenge 8
-  Student`s survey to the challenge 10
-  Kahoot test, challenge 10
-  Evaluation of challenges
-  Final evaluation of project by students
- [DRAFT]  Final evaluation of project by project partners/teachers
-  Final evaluation of project by parents
-  Final evaluation of project by school managers and colleagues



## Studenti a matematické výzvy



## EVALUACE

dokončených  
výzev

Každý učitel průběžně vyhodnocoval práci svých studentů a plnění úkolů zaznamenával v tabulce dokončených výzev.

## Table of finished challenges

### Vocational School of Logistic Services, Prague, Czech Republic

Student	Challenge										Certificate of attendance	Parents permission
	1	2	3	4	5	6	7	8	9	10		
cz Alex	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	yes	yes
cz Terka	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	yes	yes
cz David	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Petr	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Kacka	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Kristyna	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Patrik	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Imelda	✓	✗	✓	✓	✓	✓	✓	✗	✓	✗	yes	yes
cz Stepanka	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Klaudivie	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	yes	yes
cz Vojta	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	yes	yes
cz Andrii	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	yes	yes
cz Jakub	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	yes	yes



### Certificate of participation

This certifies that

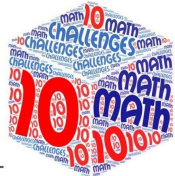
**NAME SURNAME**

School  
Country

successfully completed eTwinning project

**10 MATH CHALLENGES**

Slovakia | Czech Republic | Poland | Turkey  
Portugal | Bosnia and Herzegovina



Monika Poľanská  
Project administrator

Agnieszka Samborek  
Project administrator

Teacher's name surname  
Advisor teacher

2020/2021



*Osvědčení o účasti*









*Náš projekt se chýlí ke konci.  
Svým rozsahem byl velmi náročný a složitá  
byla i situace spojená s pandemií COVID-19,  
která zasáhla každou partnerskou zemi a  
způsobila, že tento projekt dokončilo  
**pouze 9 z 23 zapojených škol.***

## Děkujeme za pozornost

*10 Math Challenges  
eTwinning projekt,  
2020/2021*

**Mgr. Gabriela Svobodová**  
SOŠ logistických služeb  
Praha, ČR

**RNDr. Monika Poľanská**  
Obchodná akadémia  
Stará Ľubovňa, SR

