The background of the slide features a dense field of 3D-rendered numbers (0-9) in white and light blue, each standing on a corresponding colored cylindrical pillar. The numbers are scattered across the frame, creating a sense of depth and movement. A dark blue rectangular box is positioned on the right side of the image, containing the text.

Playing with maths

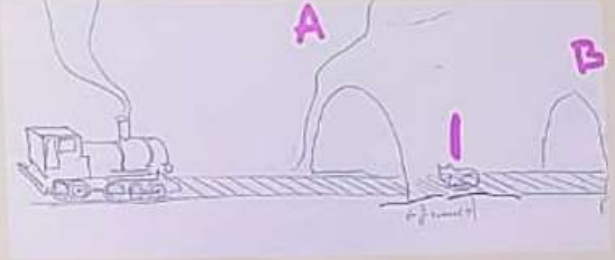
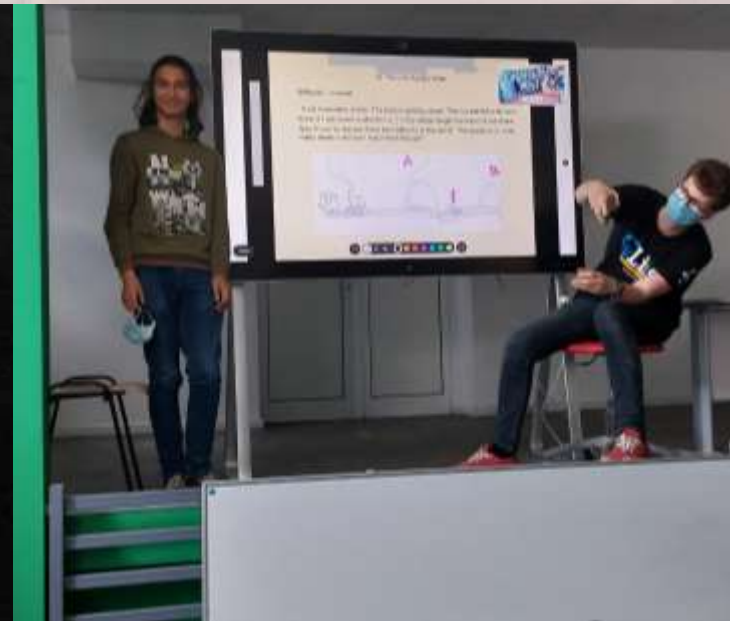
The international pupil
maths workshops

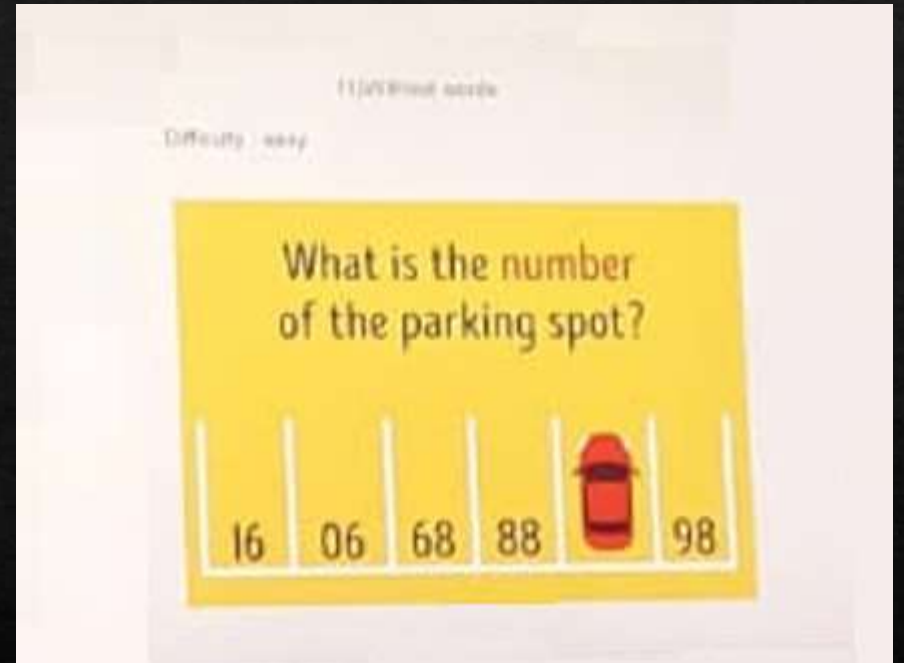


9) The unfortunate kitten

Difficulty: normal

A cat is inside a tunnel. The train is getting closer. The cat see the train and think: If I run to exit A which is at $\frac{3}{10}$ of the whole length the train kill me there. Also if I run to the exit B the train kills me at the exit B. The question is: how many times is the train faster from the cat?

A hand-drawn diagram of a tunnel. On the left, a steam train is moving towards the right. In the center of the tunnel, a small cat is sitting. To the right of the cat, there are two exits labeled 'A' and 'B'. Exit 'A' is closer to the cat than exit 'B'.





“I found this problem to be really challenging, but fun!” – Andrei, the problem solver

10) The happy father

Difficulty : normal

In class A1 they wrote math test yesterday. John wrote very well, he took grade 20 at the test. His father was very proud of it so he went to school to sprinkle 230 candies to the students of A1. A1 has 25 students. Everyone took candies as many as he wanted. (this mean that someone can take only one candy but someone else, if he want, can take 20 candies). All the pupils take candies. Prove that at least two pupils number of candies.



225-25=



◆ Our collective loves working together to solve these types of problems.



8) The water lilies

Difficulty : easy

A water lily began to grow in a lake.
Each day covers twice the area of the previous one.
In 30 days it covered the whole lake .
In how many days he had covered half of the lake?



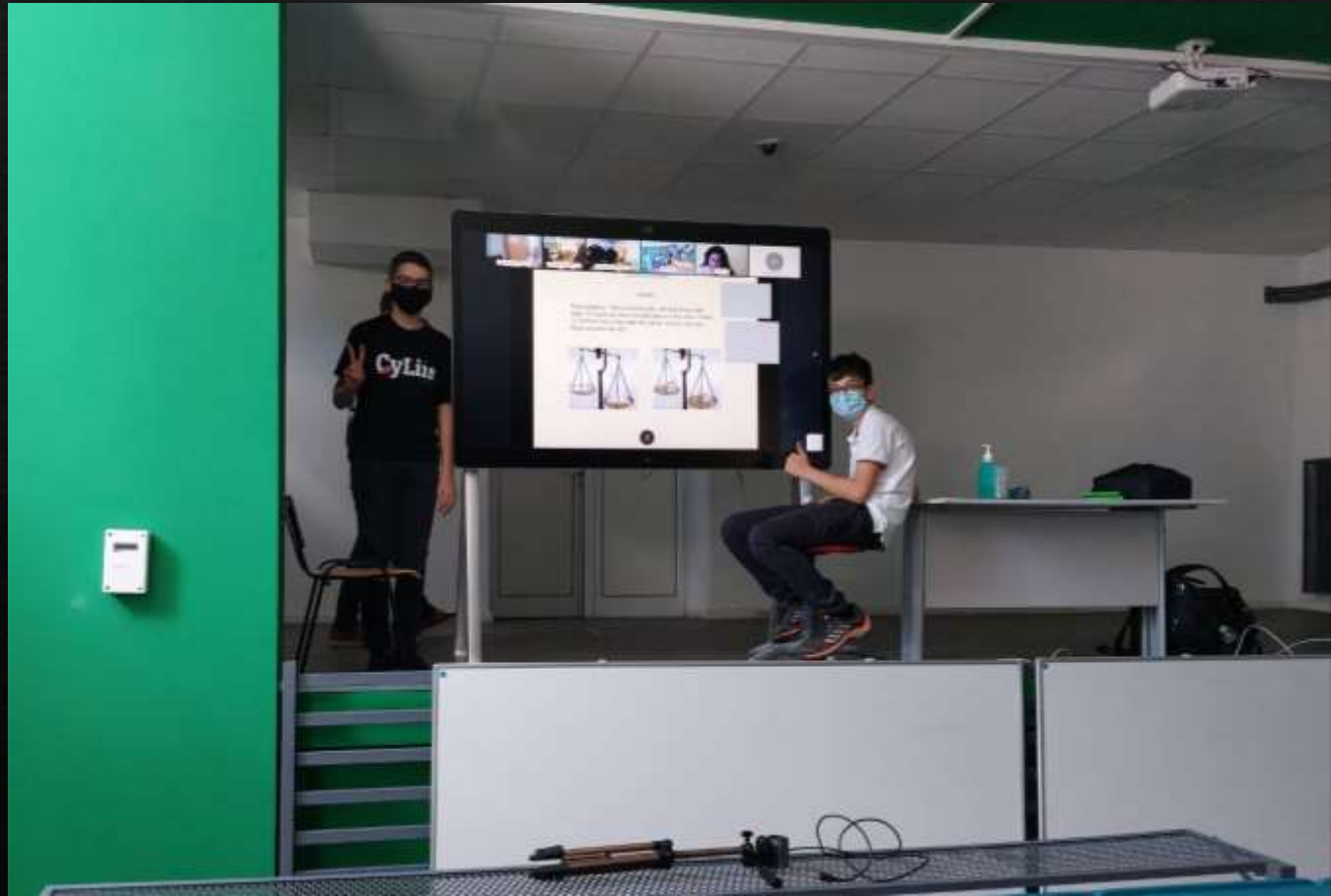
7) Cats and mice

Difficulty: easy

5 cats can catch 5 mice in 5 minutes.

How many cats does it take to catch 100 mice in 100 minutes?





Scales

First weighing: We put three balls left and three balls right. If it balances then the light ball is in the other 3 balls. To test from the three balls the lighter we put one ball Right and one ball left.



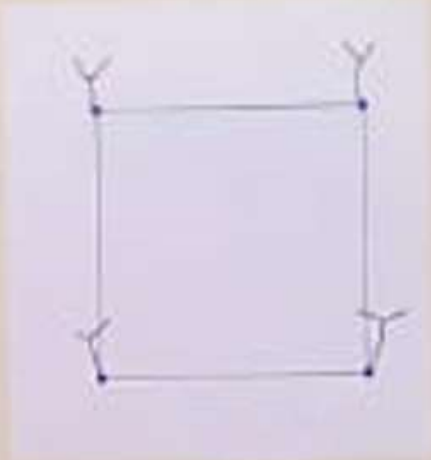
We really enjoyed working as a team!



5) Doubling the pool

Difficulty : normal

The owner of a square pool wants to double its surface. He wants the shape to remain square and not cut the 4 trees. Can you help him?






4) The escape of the prisoner

Difficulty : easy

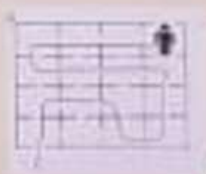
There is a small prison with only 16 cells. There is only one prisoner in any cell. The prisoner we see in the picture has the keys and a hole and he will try to escape. To succeed he must:

- a) He must walk through all the cells.
- b) When he enters in a cell he kills the prisoner who lives in it.
- c) He can't enter again in the cell where he is dead. He will faint (he is very sensitive).

Can you help him to find the right path for the freedom?



Example:



a path it can take is like in the figure but it is not the right one because it does not go through a cell. Can you find the right one?

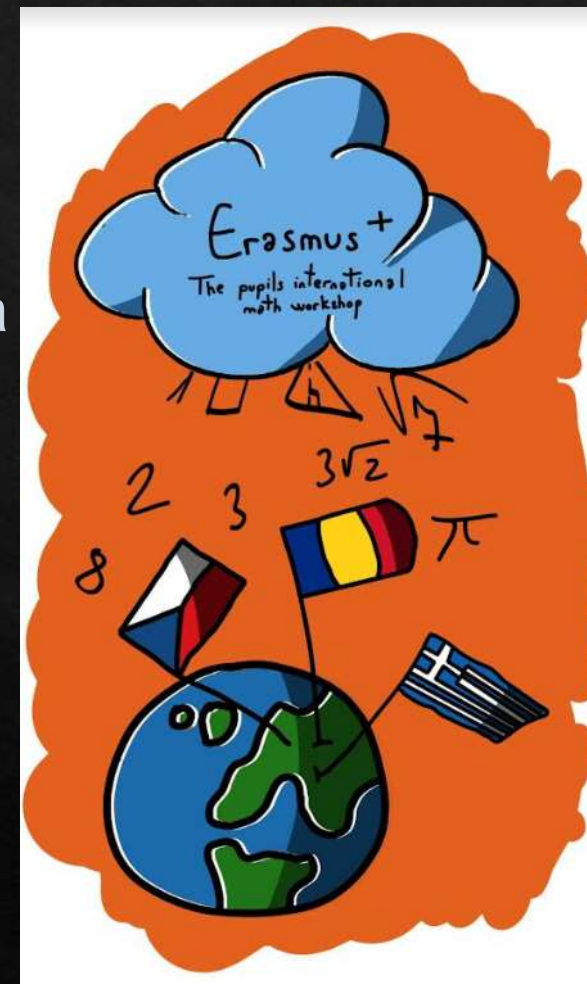
“This problem was by far our favourite!” – The 3 pupils that solved the problem

Romanian participants

- ◆ Pupils:
- ◆ Students from classes 9D and 9F from The Computer Science Highschool “Grigore Moisil” Iași, Romania.



- ◆ Teachers:
- ◆ Popa Lăcrămioara
- ◆ Timofte Cristina
- ◆ Andrei Anamaria
- ◆ Leontieș Rodica
- ◆ Crețu Ines



Project made by: Hulub Bianca, Dumitru Laura and Țvetcu Dan Stefanos from class 9F