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Reuniunea metodică la matematică

# Inovare și conexiuni internaționale: Transformarea educației prin proiectele eTwinning și abilitățile matematice

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# Scopul proiectului:

Scopul proiectului eTwinning S.T.A.R.T. (Sciences, Technology, Arts, Research, Teamwork) este de a integra învățarea interdisciplinară prin abordări inovative și colaborative, stimulând creativitatea, gândirea critică și competențele digitale ale elevilor prin activități practice și interactive în domeniile științei, tehnologiei, artei și cercetării.



# Obiectivele proiectului

**Implementarea unui set de activități practice care integrează științele, tehnologia, arta și cercetarea, pentru a evidenția legăturile dintre aceste domenii și a stimula interesul elevilor.**

**Promovarea stării de bine a elevilor prin implicarea lor în activități creative.**

**Consolidarea colaborării internaționale și a schimbului de cunoștințe între elevi din diferite țări.**



**Integrarea cunoștințelor STEAM pentru a dezvolta abilități critice și creative ale elevilor.**

**Utilizarea resurselor disponibile, precum GeoGebra, Scratch, Tinkercad și materialele reciclabile, pentru realizarea produselor.**

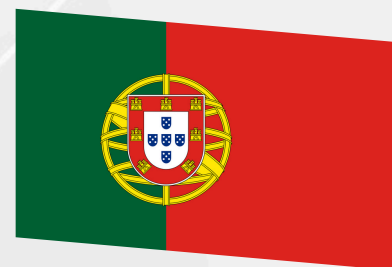
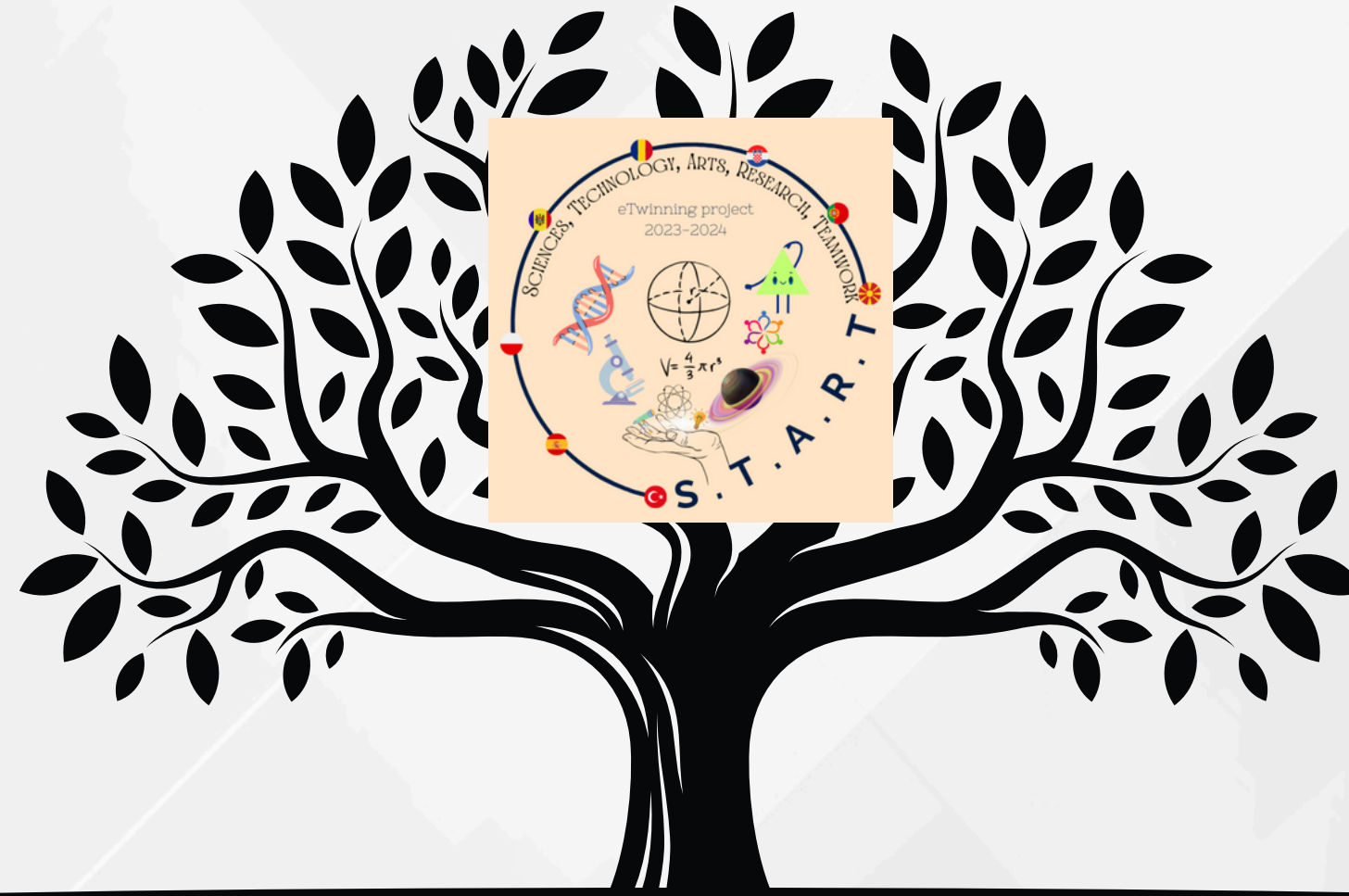
# Echipa internațională

12 profesori

162 elevi

8 țări

12 școli



# Pi Day




Sciences, Technology, Arts, Research, Teamwork

## PI DAY

### ONLINE MEETING



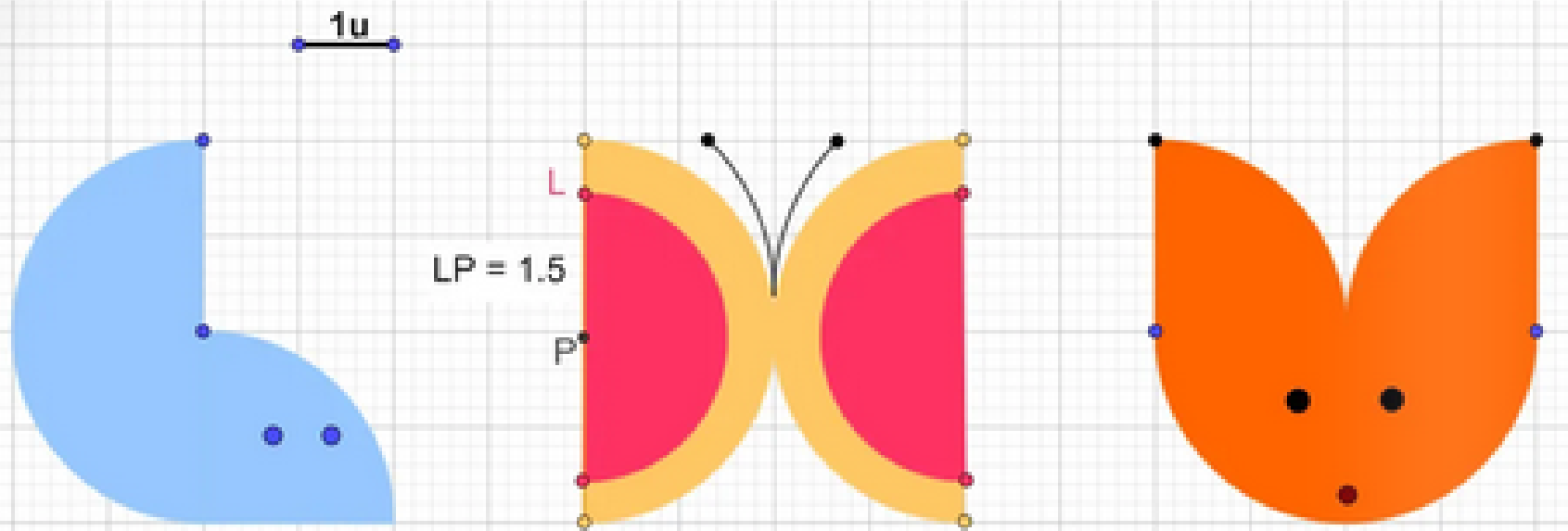
**3.14/2024**

**TIME 19 CET**

- Questionnaire
- Collaborative Presentation
- Pi Day - Game
- Crossword puzzle



## PI DAY



*Blue Area* =  $3 \cdot \frac{\pi R^2}{4}$

$R=2u$

*Blue Area* =  $3\pi \approx 9.42$

*Yellow Area* =  $\pi R^2 - \pi r^2$

$r=1.5u$

*Orange Area* =  $\pi(4-2.25) = 1.75\pi$

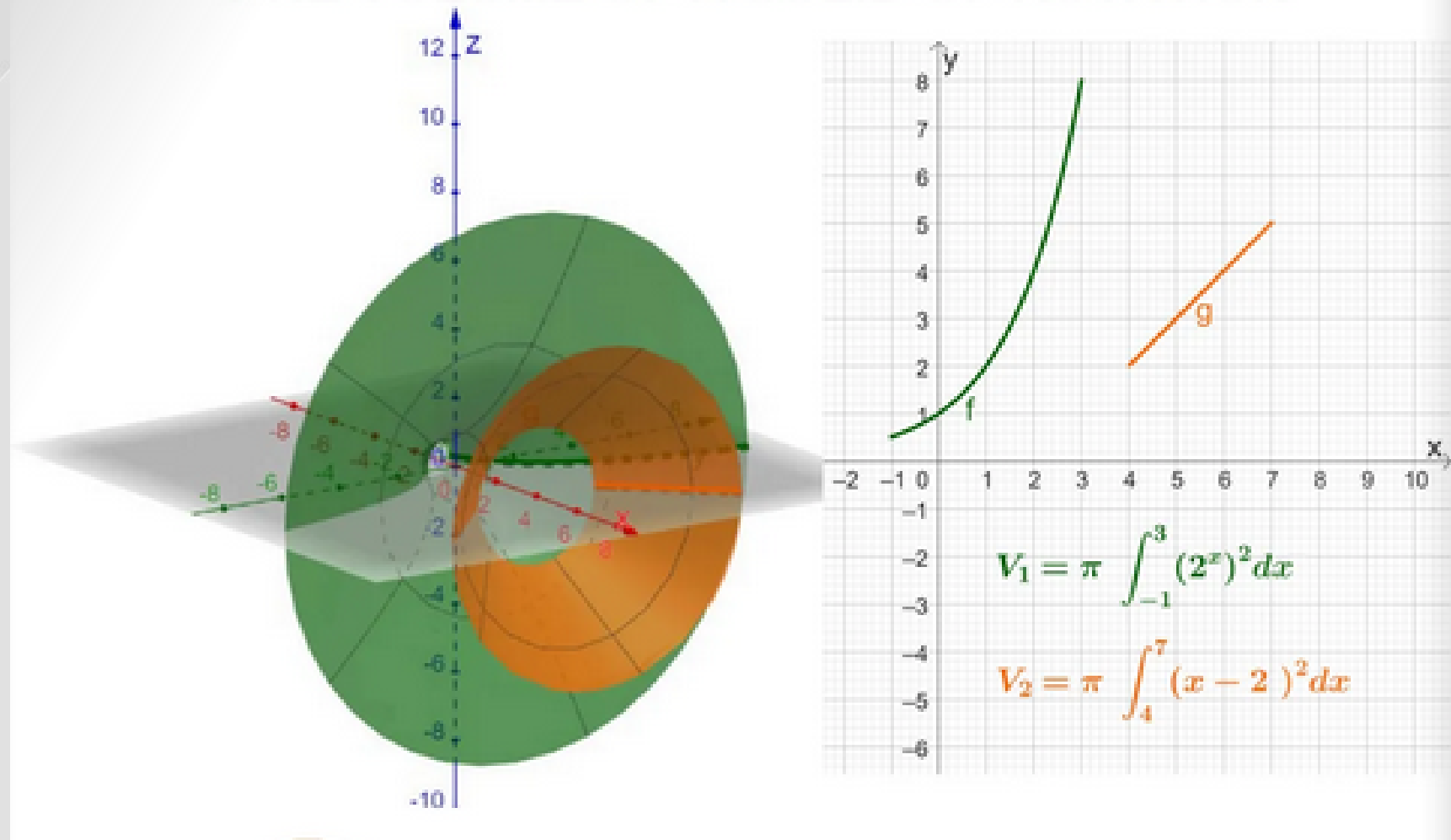
*Orange Area* =  $4 \cdot \frac{\pi R^2}{4}$

*Blue Area* =  $4\pi \approx 12.56$

# Pi Day - collaborative eBook

## PI DAY

### THE VOLUME OF A SOLID OF ROTATION



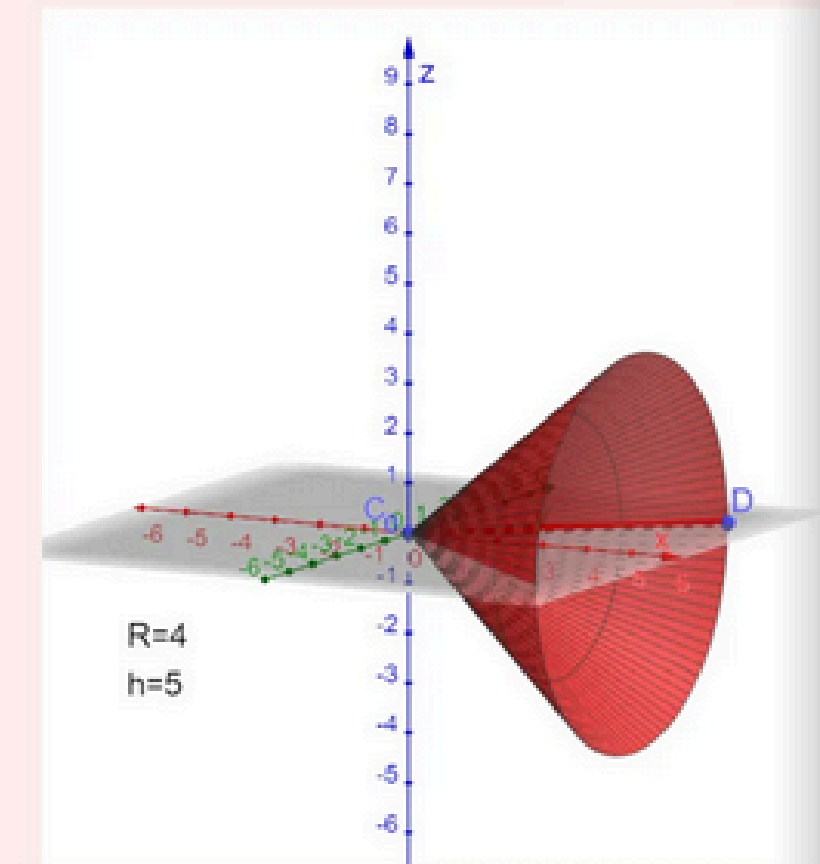
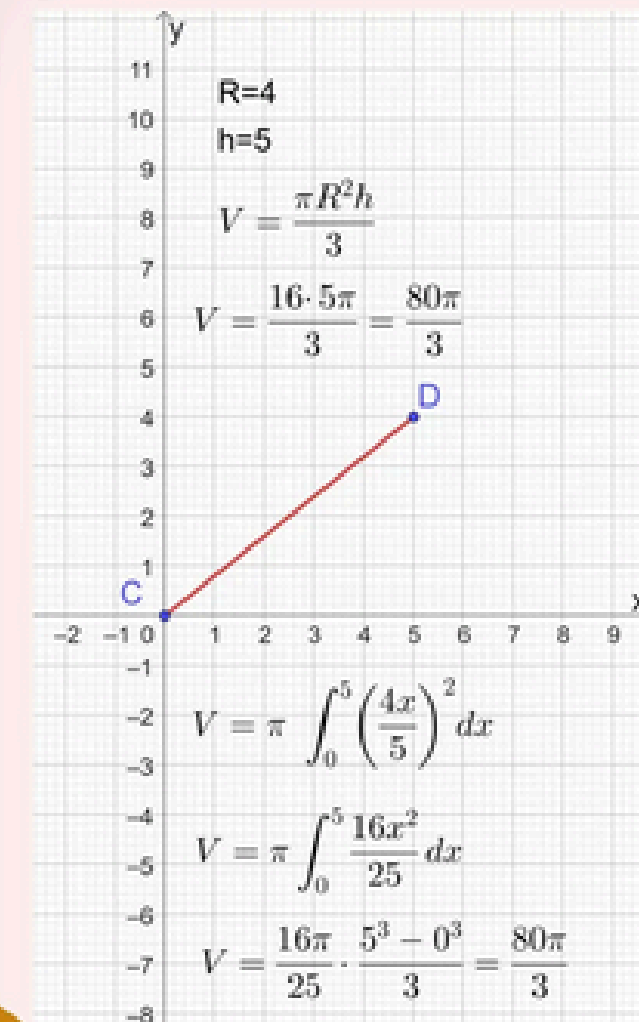
## PI DAY

### VOLUME OF A CONE

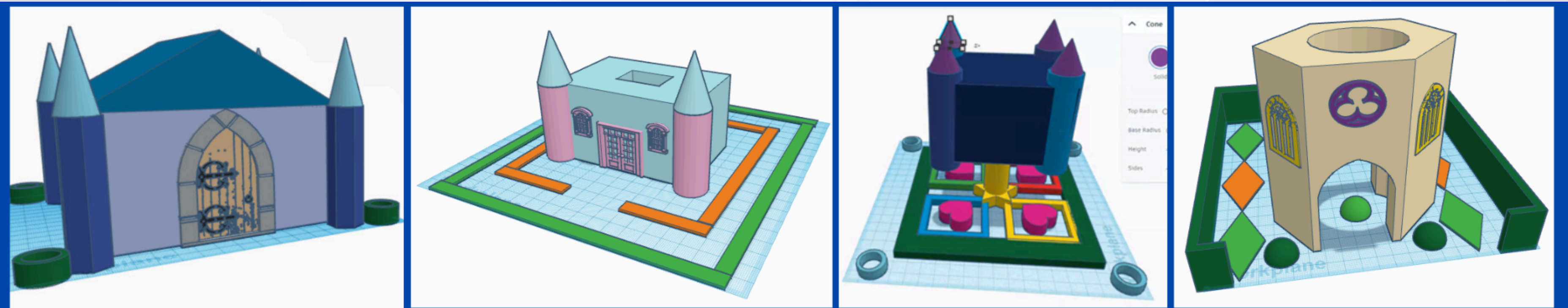
The volume is calculated in two ways:

- with the 8th grade formula
- using the definite integral-12th grade

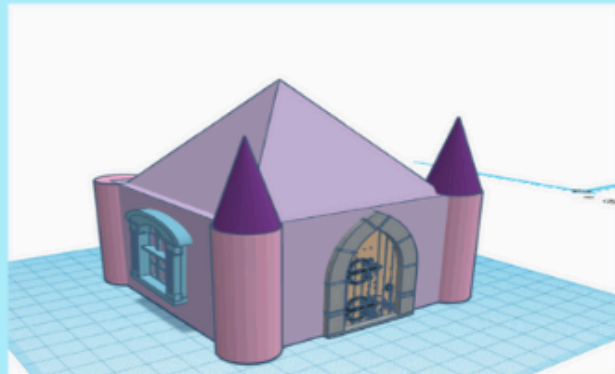
The volume of the body obtained by rotating the CD segment around the Ox axis



# Construcții în Lumea Castelelor



## My castle



The dimensions of the main body of the castle are  $L = 10\text{m}$ ,  $l=10$ ,  $h=8\text{m}$ . The roof has the shape of a regular quadrangular pyramid with a height of  $5\text{m}$ . Find out the lateral area of the castle and the roof area

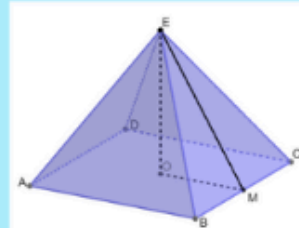
Solution:

$$\text{Lateral area: } A_l = 4Lh = 4 \cdot 10 \cdot 8 = 320$$

$$EO = 5 \Rightarrow EM^2 = 5^2 + 5^2 \Rightarrow EM = 5\sqrt{2}$$

$$A_l = \frac{P_b \cdot a_p}{2} \Rightarrow A_{\text{roof}} = \frac{40 \cdot 5\sqrt{2}}{2} = 100\sqrt{2}$$

$$A_{\text{roof}} \approx 141$$



## My Castle - Problem

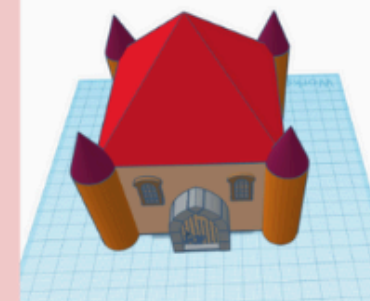
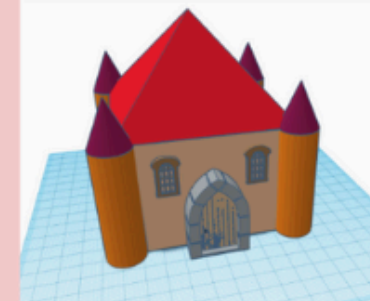
The dimensions given are:  
Roof height:  $51$  tower height:  $60$   
Roof width( $l$ ):  $90$  tower radius:  $20$

What is the volume of one of the towers (the cylinder)?  
But the volume of the roof?

Solution:

$$V \text{ of the tower (cylinder)} = \pi r^2 h = \pi \cdot 20^2 \cdot 60 = 24000 \text{ m}^3$$

$$V \text{ of the roof (pyramid)} = Ph/3 = (90^2 \cdot 51)/3 = 56700 \text{ m}^3$$



Miruna Iscu - Jean Monnet High School

## My Castle - Problem

The castle consists of cubic, hexagonal and conical geometric solids.

If the side of the cube is  $60\text{m}$ . Find out the total area and the lateral area of the cube.

$$\begin{aligned} \text{For cube: } l=h=60\text{m} \\ \text{Total Area} &= 6 \cdot l^2 \\ \text{Lateral Area} &= (l \cdot 4) \cdot h \end{aligned}$$

$$\begin{aligned} \text{For the Lateral area (P) of the cube:} \\ P &= (l \cdot 4) \cdot h = (60 \cdot 4) \cdot 6 = 1440 \text{ cm}^2 \\ \text{For the total area (A) of the cube:} \\ A &= 6 \cdot l^2 = 6 \cdot 60^2 = 21600 \text{ cm}^2 \end{aligned}$$

Ana Rusu, Jean Monnet High School

<https://www.tinkercad.com/>



# S.T.E.A.M discovery campaign

Inovație

Integrare

Colaborare

Tehnologie




IMAGES DURING THE ACTIVITY



VISIT TO HERASTRAU PARK

We visited the Japanese Garden with cherry blossoms. We also admired the lilac, the blooming yellow acacia. Forget-me-not flowers, daisies, tulips, daffodils were also in bloom. We have compiled a guide with the plants discovered during this visit.


### GLICINA/WISTERIA

Glicina, cunoscută științific sub numele de Wisteria, este o plantă agățătoare spectaculoasă, apreciată pentru inflorescențele sale masive și parfumate.

Wisteria is a genus of flowering plants in the legume family, Fabaceae (Leguminosae). The genus includes four species of woody twining vines that are native to China, Japan, Korea, Vietnam, southern Canada, the Eastern United States, and north of Iran.

Wisterias climb by twining their stems around any available support. W. floribunda (Japanese wisteria) twines clockwise when viewed from above, while W. sinensis (Chinese wisteria) twines counterclockwise. This is an aid in identifying the two most common species of wisteria. They can climb as high as 20 m (66 ft) above the ground and spread out 10 m (33 ft) laterally.


Mindu Ecaterina



### Problem 1


Find out the perimeter and area of the pool with the artesian fountain by measuring with the tape measure and then measuring with the step with the phone

$L=30m, l=12m$   
 $P=2(L+l)=2(30+12)=2 \cdot 42=84 \Rightarrow P=84 m$   
 $A=L \cdot l=30 \cdot 12=360 \Rightarrow A=360 m^2$



### Problem 3

How many children with outstretched arms can surround the Modura Fountain, if its diameter is 4.1 meters?



$L = 2\pi R = 2R\pi = d\pi \approx 4.1 \cdot 3.14 = 12.87 (m)$   
 1.6 is the average arm span length of a 12-year-old child  
 $12.87 : 1.6 \approx 8.04$   
 8 students can circle the Modura fountain

### My garden

Red - square -  $4u^2$   
 $Area_{red} = 24u^2$     $Area_{blue} = 24u^2$

10m

9

### Area of ABCD = 50

Area of AEMV = 1



# S.T.E.A.M discovery campaign

Inovație

Integrare

Colaborare

Tehnologie



## Green space at school



### used problem

Having 3 tractors of the same power, a farmer sowed his plot of land in 10 days. Determine in how many days the farmer would have sown his field with 5 tractors of the same type power.

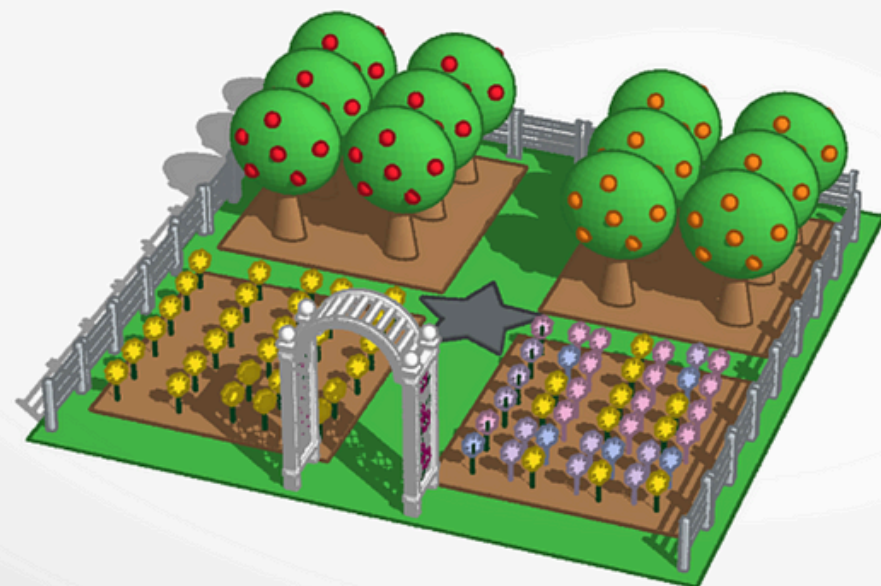
We note:  $x$  – the number of the days

$$5x = 3 \cdot 10$$

$$x = \frac{3 \cdot 10}{5}$$

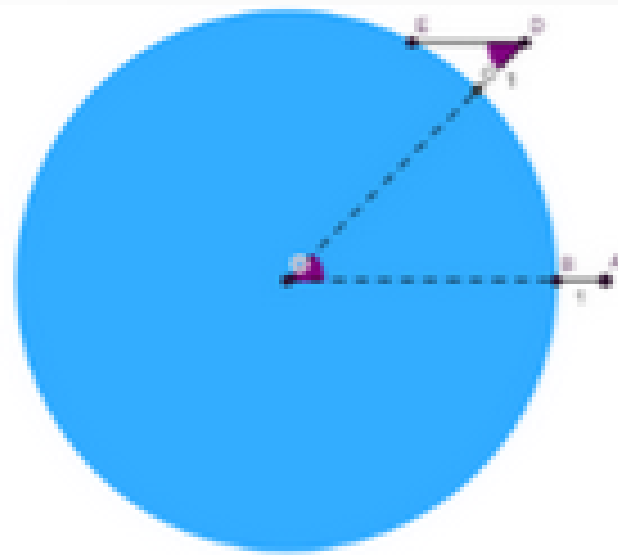
$$x = 6 \text{ (days)}$$

# Gardens Life



Reuniunea metodică la matematică

# Eratosthenes Experiment



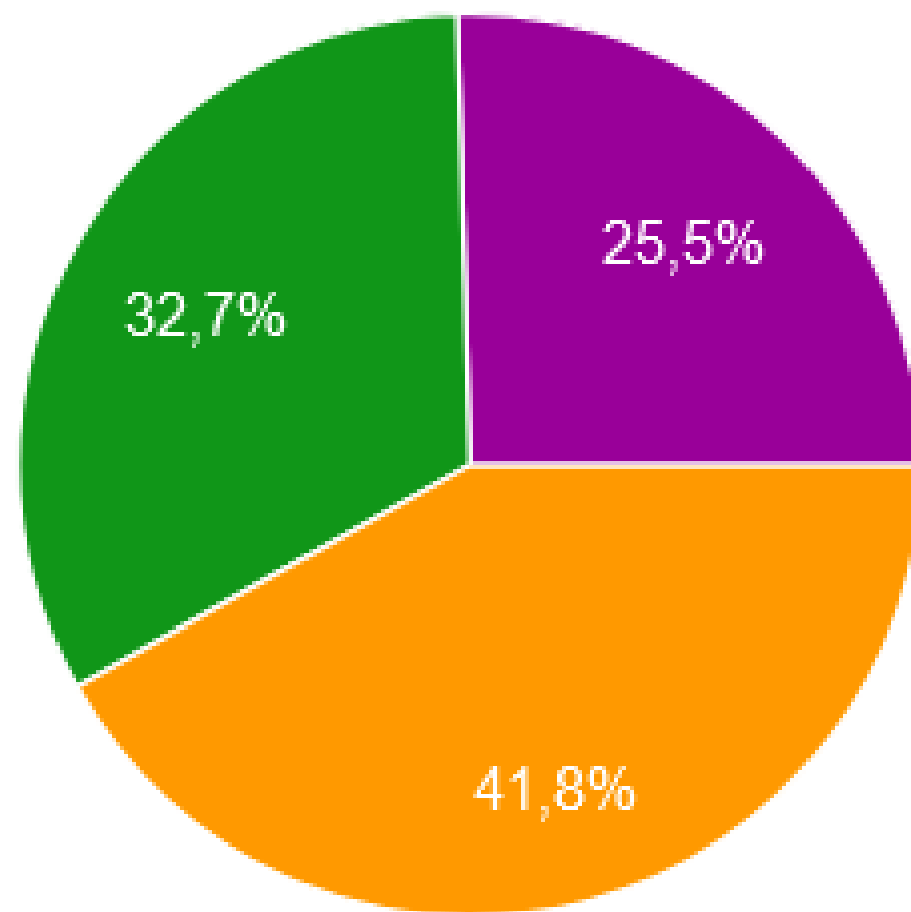
$$\begin{aligned} 46,39^\circ & \dots 5164,29 \text{ km} \\ 360^\circ & \dots X \text{ km} \\ X &= \frac{360^\circ \cdot 5164,29 \text{ km}}{46,39^\circ} = 40076,4 \text{ km} \end{aligned}$$



<b>Eratosthenes Experiment</b> Baruthane Secondary School Team 3, Türkiye	<b>Eratosthenes Experiment</b> Baruthane Secondary School Team 2, Türkiye	<b>Eratosthenes Experiment</b> Baruthane Secondary School Team 1	<b>Jean Monnet High School</b> Cream team
<b>Eratosthenes Experiment</b> Gaudeamus High School Moldova / Team 2	<b>The Eratosthenes Experiment</b> Gaudeamus High-School Moldova / Team 3	<b>Eratosthenes Experiment</b> Jean Monnet High School Red Team	<b>Eratosthenes Experiment</b> Jean Monnet High School - Blue Team-

# Rezultate, impact

Thanks to the project, I became more motivated to study mathematics



- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

## BIANCA BURDUJA GAUDEAMUS HIGH SCHOOL

I am beyond glad and grateful for being able to participate in such a great project. I have learned so much that i never thought I would've and it truly made mathematics all the more interesting and fun for me. I wish to participate in more projects such as this one and experience these great things again.

# ESEP/eTwinning – o platformă de parteneriat și colaborare pedagogică



**Biroul Național de Asistență  
eTwinning Moldova  
Universitatea Tehnică a Moldovei**

# European School Education Platform (ESEP) eTwinning

**Ce oportunități ne oferă platforma?**

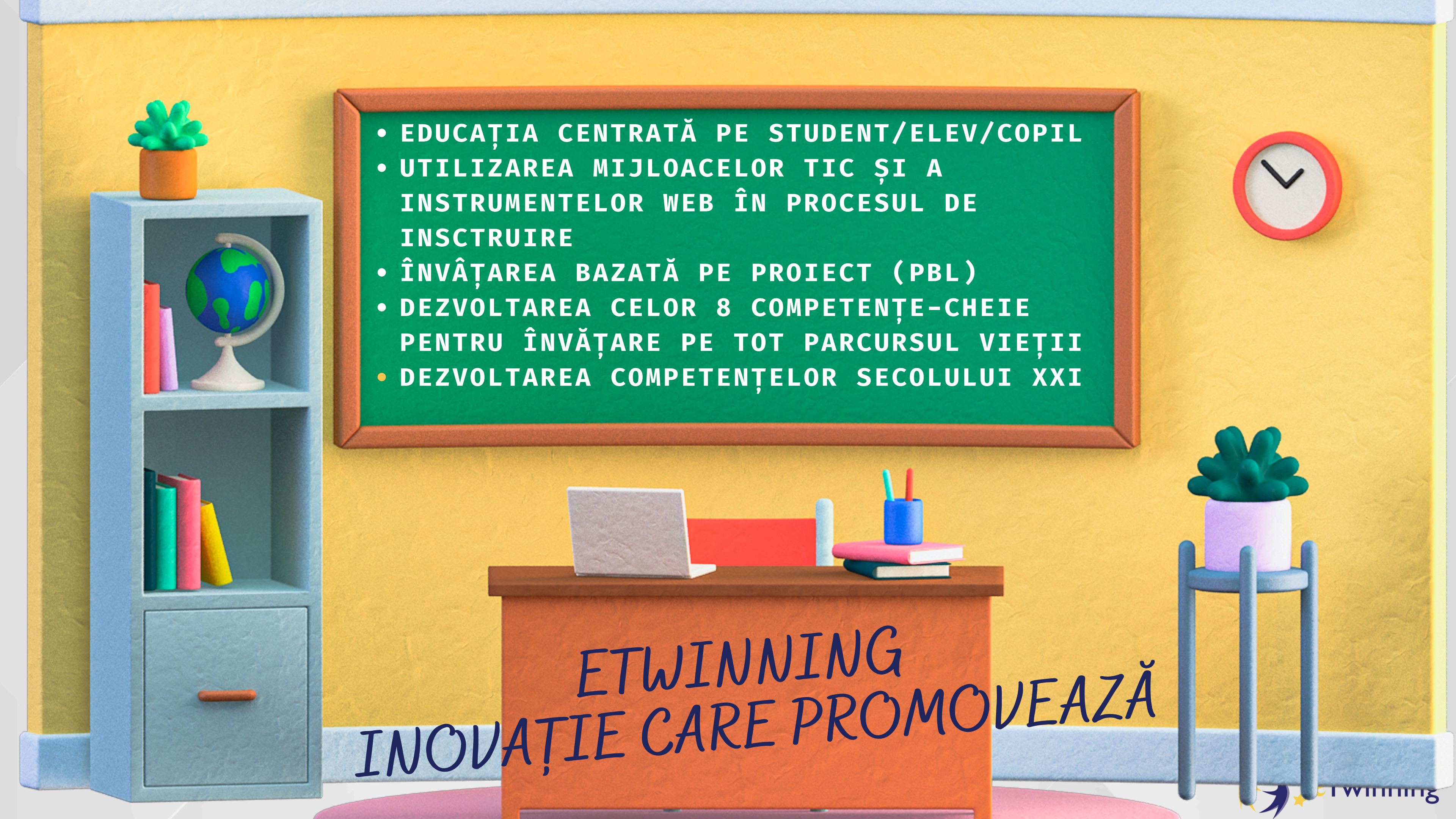
**PLATFORMĂ SECURIZATĂ PENTRU  
COMUNICARE ȘI COLABORARE**

**SCHIMB DE INFORMAȚII ȘI BUNE  
PRACTICI**

**DEZVOLTARE PROFESIONALĂ LA  
NIVEL EUROPEAN/NAȚIONAL**

**SPAȚIU SECURIZAT PENTRU  
IMPLEMENTAREA PROIECTELOR -  
TWinspace**



- 
- EDUCAȚIA CENTRATĂ PE STUDENT/ELEV/COPIIL
  - UTILIZAREA MIJLOACELOR TIC ȘI A INSTRUMENTELOR WEB ÎN PROCESUL DE ÎNSCTRUIRE
  - ÎNVĂȚAREA BAZATĂ PE PROIECT (PBL)
  - DEZVOLTAREA CELOR 8 COMPETENȚE-CHEIE PENTRU ÎNVĂȚARE PE TOT PARCURSUL VIEȚII
  - DEZVOLTAREA COMPETENȚELOR SECOLULUI XXI

ETWINNING  
INOVAȚIE CARE PROMOVEAZĂ



## VALORILE EUROPENE

- EDCAȚIA INCLUZIVĂ
- UNITATEA ȘI DIVERSITATEA
- EDUCAȚIA DE CALITATE
- EDUCAȚIE PENTRU UN MEDIU DURABIL
- PROTECȚIA PARTRIMONIULUI CULTURAL
- EDUCAȚIA PRIN COLABORARE
- PARTICIPAREA LA VIAȚA DEMOCRATICĂ.

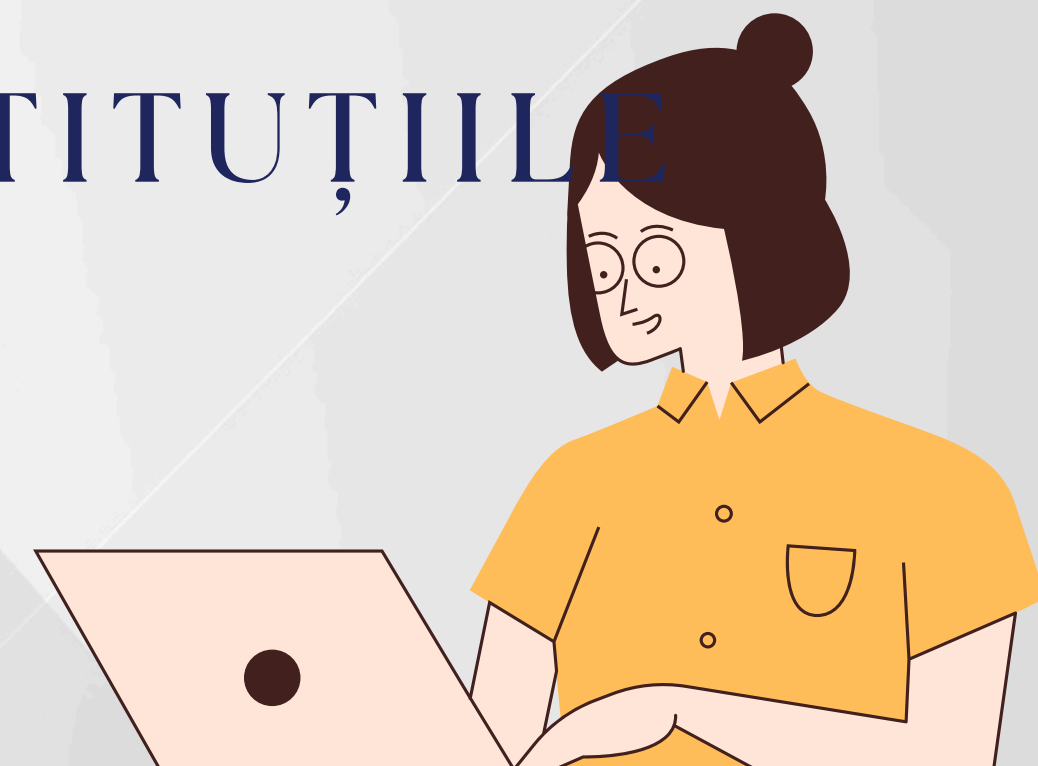
ETWINNING  
INOVAȚIE CARE PROMOVEAZĂ



# Recunoaștere eTwinning



- CERTIFICATUL NAȚIONAL DE CALITATE
- CERTIFICATUL EUROPEAN DE CALITATE
- ȘCOLILE/INSTITUȚIILE ETWINNING



Cum vă puteți înscrie pe platforma ESEP?

**folosind EU Login**

<https://school-education.ec.europa.eu/en>



# Îndrumar privind înscrierea pe platformă ESEP

[https://docs.google.com/presentation/d/1xAEgWEqY-z2wtTPAHYe7hMxcmfCnN\\_01/edit?usp=sharing&ouid=106470531082335460191&rtpof=true&sd=true](https://docs.google.com/presentation/d/1xAEgWEqY-z2wtTPAHYe7hMxcmfCnN_01/edit?usp=sharing&ouid=106470531082335460191&rtpof=true&sd=true)

## Vă mulțimim!

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