



Pi Day (Happy Birthday Pi)

**2<sup>nd</sup> Junior High School of Artemida**

**Teacher: Irene Thomas, Mathematician M.Ed.**

## Ευρωπαϊκή Δράση eTwinning 2023-24 με τίτλο: “Pi day (Happy Birthday Pi)”

**Founder:** Mariami Kapanadze, LEPL Kutaisi public school 35 (Georgia)

**Co-founder:** Irene Thomas, 2<sup>nd</sup> Junior High School of Artemida (Greece)

### Partner schools:

- LEPL Kutaisi public school 35 (Georgia)
- 2<sup>nd</sup> Junior High School of Artemida (Greece)
- LEPL Terjola public school N1 (Georgia)
- LEPL Tskaltubo Niko Lortkipanidze public school (Georgia)
- ICS "Maria Montessori" Terracina (Italy)

**Περιεχόμενα TwinSpace** (η συνολική συνεργατική δουλειά είναι ορατή, στους παρακάτω διαδικτυακούς συνδέσμους, από τα μέλη της ευρωπαϊκής πλατφόρμας ESEP). Παρατίθεται δείγμα της εργασίας των μελών της ομάδας του 2<sup>ου</sup> Γυμνασίου Αρτέμιδος, μόνο σε δημόσια πεδία της δράσης.

### Teacher bulletin

#### About copyright and related / Irene Thomas / 2nd Junior High School of Artemida / Greece

Students participating in the eTwinning action learned to respect the copyright of other creators, about Creative Commons, GDPR, and the eTwinning code of conduct from the following websites:

##### Πνευματικά Δικαιώματα & Προστασία

Πνευματικά δικαιώματα  
<https://www.copyrightschool.gr/index.php/teachers/faa-teachers>

Creative Commons άδειες  
[https://creativecommons.org/licenses/?lang=el&fbclid=IwAR2i90b01FV8HkPb\\_5xC\\_MLD9WosNFu5H6\\_6GaCBTU1mM9n5K1uS8WAbkU](https://creativecommons.org/licenses/?lang=el&fbclid=IwAR2i90b01FV8HkPb_5xC_MLD9WosNFu5H6_6GaCBTU1mM9n5K1uS8WAbkU)

Netiquette - Κώδικας Δεοντολογίας eTwinning  
[https://school-education.ec.europa.eu/en/etwinning\\_code\\_of\\_conduct](https://school-education.ec.europa.eu/en/etwinning_code_of_conduct)

Οδηγίες για τη δημοσίευση φωτογραφιών και videos των μαθητών  
<http://www.etwinning.gr/index.php/2016-07-29-11-14-03/e/139-photo-video>

Συνοπτικές οδηγίες για τον Γενικό Κανονισμό Προστασίας Προσωπικών Δεδομένων (GDPR) για σχολεία και εκπαιδευτικούς  
<https://www.schooleducationgateway.eu/el/pub/resources/tutorials/brief-gdpr-guide-for-schools.htm>

Θάμπωμα προτύπων στο Youtube Studio  
<https://www.youtube.com/watch?v=BUQC3skYayA>

#### Internet safety / Irene Thomas / 2nd Junior High School of Artemida / Greece

The 2nd Junior High School of Artemida is a supporter of the World Safe Internet Day



##### ΒΕΒΑΙΩΣΗ

Βεβαιώνεται ότι ο φορέας 2ο Γυμνάσιο Αρτέμιδος με υπεύθυνο/η τον/την **Ειρήνη Θωμά** ήταν υποστηρικτής της **Ημέρας Ασφαλούς Διαδικτύου 2024** που διεξήχθη στις 6 Φεβρουαρίου 2024.



Ίδρυμα Τεχνολογίας & Έρευνας  
Ινστιτούτο Πληροφορικής

Π. Φραγκοσαΐτου

ΠΑΡΑΣΧΕΥΗ ΦΡΑΓΚΟΠΟΥΛΟΥ  
ΥΠΕΥΘΥΝΗ ΕΛΛΗΝΙΚΟΥ ΚΕΝΤΡΟΥ  
ΑΣΦΑΛΟΥΣ ΔΙΑΔΙΚΤΥΟΥ



## 1. Teachers' CORNER

### 1.1 Teachers conferences/meetings

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/teachers-conferencesmeetings>

### 1.2 Planning

- <https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/planning>
- <https://docs.google.com/document/d/1CHmrR5jil6gjiBINItZMTU/K3Xf1flhDS/edit?pli=1>

### 1.3 Parents' permission

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/parents-permission>

**Irene Thomas (2nd Junior High School of Artemida - Greece)**

Scan the QR code to see the parental consent form signed by both parents of each child participating in the eTwinning Happy Birthday Pi action. The parents accepted their child's participation by giving Ms. Irene Thomas, as Mathematical and Data Protection Officer, the right to post their child's personal data as well as sensitive personal data (audio and image) on the ESEP platform.

**Note:** The document with the signatures of the parents is not posted, as it is their personal data!



## 2. Participants

### 2.1 Teachers' introduction

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/teachers-introduction>

### 2.2 Students' introduction

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/students-introduction>

### 3. Pi in Cinematography

#### 3.1 Watching film - "Pi"

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/watching-film-pi>

**2nd Junior High School of Artemida - Greece (Video 1)**

This video was created by a group of students of the 2nd Gymnasium of Artemis for the needs of the eTwinning action "Pi Day (Happy birthday Pi)". After watching Darren Aronofsky's movie "Pi", they discussed Pi at the cinema.

<https://www.youtube.com/watch?v=8Ho9qYj3f8w>

**2nd Junior High School of Artemida - Greece (Video 2)**

<https://www.youtube.com/watch?v=r0SJCMROY0Y>

Teacher: Irene Thomas

### 4. The history of Pi

#### 4.1 Students' works-PRESENTATIONS

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/students-works-presentations>

2nd Junior High School of Artemida.

**"The History of  $\pi$ " - 6 Presentations**

<https://padlet.com/irenethcy/the-history-of-3wx63mcunf8lqt33>



## 4.2 Resources

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/resources>

## 5. Logo Competition

### 5.1 Logo AUTHORS

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/logo-authors>

**2nd Junior High School of Artemida - Greece**

### Logo creators

<https://padlet.com/irenethcy/logo-creators-k46cywz5fjl4s7xr>

Teacher: Irene Thomas

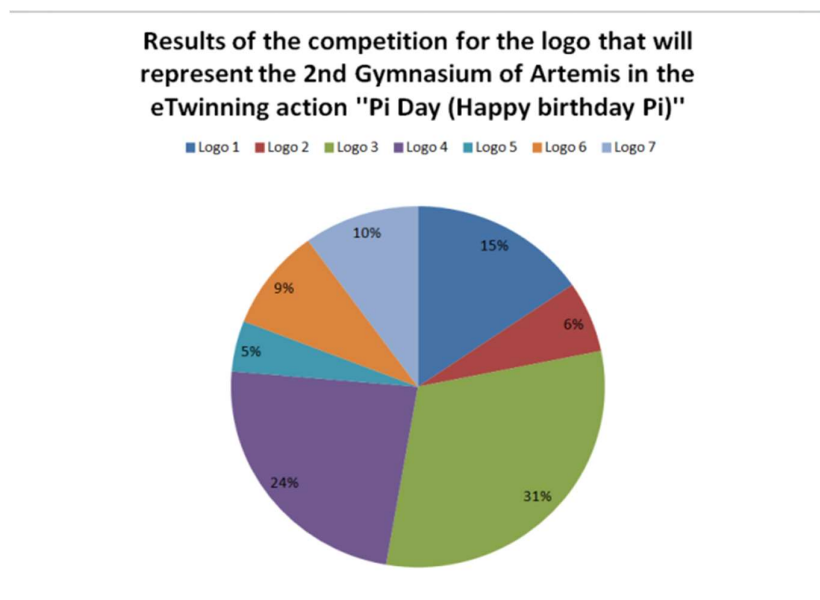
### 5.2 Logo Election by countries (Georgia, Greece, Italy)

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/logo-election-countries-georgiagreecitaly>

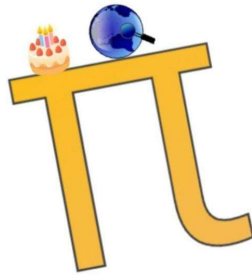
**2nd Junior High School of Artemida - Greece / Teacher: Irene Thomas**

We held a competition to select a logo that will represent the 2nd Gymnasium of Artemis in the eTwinning action "Pi Day (Happy birthday Pi)" with the following logos:

<https://padlet.com/irenethcy/logo-2-etwinning-pi-day-happy-birthday-pi-pughkjjvztuyn8q>



Congratulations to all the children who participated in the competition!  
The most preferred logo is:

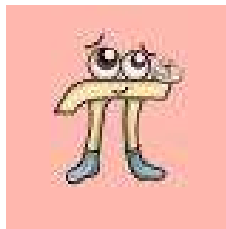
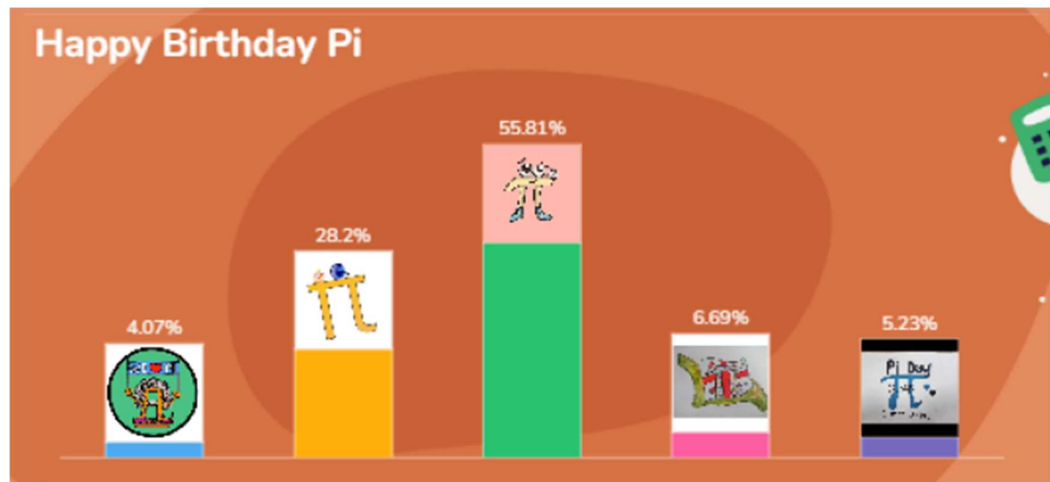


### 5.3 Final Logo ELECTION

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/final-logo-election>

### 5.4 Logo ELECTION results

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/logo-election-results>



## 6. Pi and ART

### 6.1 Pi and Culinary

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/pi-and-culinary>

The creations of our students can be found here:

<http://linoit.com/users/irenethcy/canvases/Pi%20and%20culinary>

Teacher: Irene Thomas

## 6.2 Pi and environmental protection

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/pi-and-environmental-protection>

**2nd Junior High School of Artemida**

The creations of our students can be found here:

<http://linoit.com/users/irenethcy/canvases/Pi%20and%20environmental%20protection>

Teacher: Irene Thomas

## 7. Video Conference/Students' meeting

<https://www.youtube.com/watch?v=Jjpw1jHRI>

## 8. Pi and MUSIC

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/pi-and-music>

**2nd Junior High School of Artemida / Teacher: Irene Thomas, Mathematician**

What melody does the number 'Pi' make?

We listen to the melody of Pi on the piano by the students *Eleni Zervaki* and *Agapi Niakari*, members of the eTwinning action "Happy Birthday Pi" in a composition by our school's music teacher *Ms. Argyro Stamatia Cavallierou*. Each decimal digit of the number Pi was assigned to a musical note. This results in a harmonious and beautiful melody.

<https://www.youtube.com/watch?v=Chv3baTGTzY>

## 9. Pi in everyday life

### 9.1 Practical work

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/practical-work>

**2nd Junior High School of Artemida / Teacher: Irene Thomas**

## March 14, 2024 - The birthday of the number Pi

The students of sections B4 and B5, in the context of the Mathematics lesson taught by Ms. Irene Thomas, celebrated the World Day of the number Pi by carrying out hands-on group work. At the same time, school teachers of all specialties were trained in differentiated teaching and had fun with the children.

They were enchanted by the number  $\pi$  after approaching it by calculating the quotient of the perimeter to the diameter of circular objects brought from home. They drew their conclusions and learned the first 23 decimal digits of  $\pi$  with the well-known mnemonic rule that each digit corresponds to the number of letters in each word, e.g. "Άει=3", "ὄ=1", "Θεός=4", etc.

*«Αἰὶ ὁ Θεός ὁ Μέγας γεωμετρεῖ, τὸ κύκλον μῆκος ἵνα ὀρίση διαμέτρω, παρήγαγεν ἀριθμὸν ἀπέραντον, καὶ ὄν, φεῦ, οὐδέποτε ὄλον θνητοὶ θὰ εὔρωσι»*

"Oh God the Great geometer, the length of the circle to determine the diameter, produced an infinite number, which, let's face it, will never be found by all mortals."

$$\pi=3.1415926535897932384626$$

They learned in a fun way the history of the number, its usefulness and properties, and also why it is celebrated on March 14 every year.

Χειραπτικές δραστηριότητες για την προσέγγιση του αριθμού  $\pi$

2<sup>ο</sup> Γυμνάσιο Αρτέμιδος







Worksheet for hands-on activities



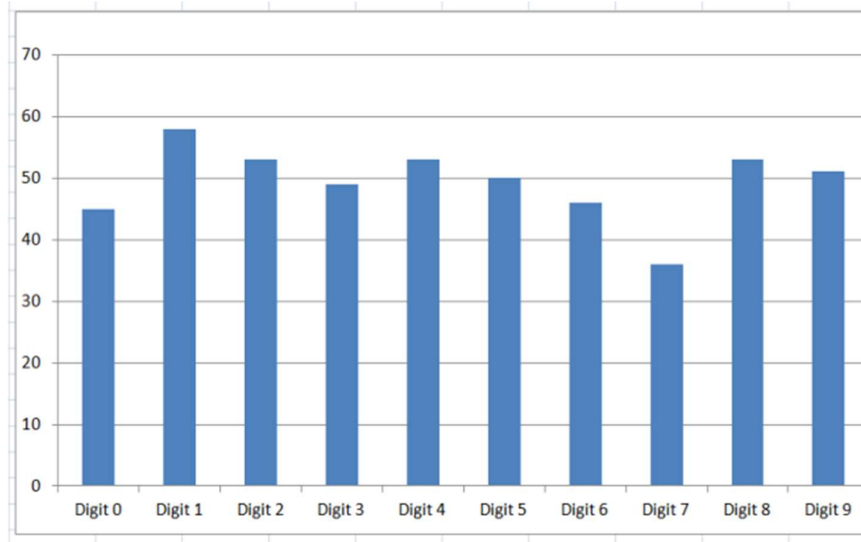
## 9.2 Statistics

<https://school-education.ec.europa.eu/el/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/statistics>

### 2nd Junior High School of Artemida

#### Collaborative activity / Teacher: Irene Thomas

We counted the first 500 decimal digits of Pi and noticed that the number 1 appears most often as opposed to 7 which appears the fewest times.



Scan the QR code to see the worksheet we worked on

[Worksheet - "Number of decimal digits of Pi"](#)



## 10. School event (Pi celebration party)

<https://school-education.ec.europa.eu/en/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/school-event-pi-celebration-party>

### 2nd Junior High School of Artemida/ Teacher: Irene Thomas

We made pencil cases with our names on them. Inside we put a bowl of sweets called "Submarine" and geometric instruments with stickers in the shape of the logo of our action.

The school gave students certificates of participation in the eTwinning action.

We also ate pies in the shape of a circle to celebrate Pi Day.

<http://linoit.com/users/irenethcy/canvases/Pi%20celebration%20party>

## 11. Final products

### 11.1 School newspaper

<https://school-education.ec.europa.eu/en/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/school-newspaper>

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#### Pi ( $\pi$ ) Day

*“Probably no symbol in mathematics has evoked as much mystery, romanticism, misconception and human interest as the number pi”*

*~William L. Schaaf, Nature and History of Pi*

Pi (often represented by the lower-case Greek letter  $\pi$ ), one of the most well-known mathematical constants, is the ratio of a circle's circumference to its diameter. For any circle, the distance around the edge is a little more than three times the distance across.

The definition of pi gives us a way to calculate **circumference**. The circumference of a circle is the distance around a circle. If  $\pi = C/d$ , then  $C = \pi d$ . You can also calculate the circumference of a circle with  $C = 2\pi r$ .

Archimedes, a Greek mathematician, was the first to use an algorithmic approach to calculate pi. He drew a polygon inside a circle and drew a second polygon outside of the circle. Then he continuously added more and more sides of both polygons, getting closer and closer to the shape of the circle. Having reached 96-sided polygons, he proved that  $22371 < \pi < 227$ .

Typing  $\pi$  into a calculator and pressing ENTER will yield the result 3.141592654, not because this value is exact, but because a calculator's display is often limited to 10 digits. Pi is actually an irrational number (a decimal with no end and no repeating pattern) that is most often approximated with the decimal 3.14 or the fraction 22/7.

### 11.2 Exhibition

<https://school-education.ec.europa.eu/en/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/exhibition>

**2nd Junior High School of Artemida**

**Teacher: Irene Thomas**

We presented to all departments and teachers all our work in the eTwinning action entitled: Pi Day (Happy birthday Pi).

Click the link to view the file.

<https://heyzine.com/flip-book/3f7cddd16b.html>

Some photos from our trip to the vast world of Pi



Conference -Etwenning project-Student meeting



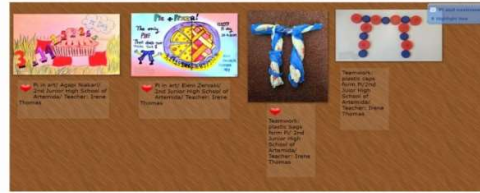
Video Conference -Etwenning project-Student meeting




Video Conference -Etwenning project-Student meeting




Pi Day (Happy birthday Pi)







😊 Pi Pancakes/  
Yiannis Kourinis/2nd Junior High school of Artemida/Teacher: Irene Thomas



😊 Chocolate Mousse Pi pie/  
Ilias Apostolidis & Alexandros Kotsarian/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas



😊 Pi decorates a wonderful traditional Revani/ Giorgos Psarianos/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas



😊 Teamwork: The meatballs form Pi/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas

Revani, also known as rivani, is a traditional Middle Eastern sweet. It is prepared from semolina, eggs and yogurt and after being baked in the oven, it is poured with syrup. Not to be confused with samali. The revani of Veria is a traditional sweet has a special reputation throughout Greece.



melody of P



Pi Day (Happy birthday Pi)

**The history of  $\pi$**   
2nd Junior High School of Artemida

**$\pi$  in the world**

PDF

Pi in the world  
Giannis Kourinis/2nd Junior High school of Artemida/ Teacher: Irene Thomas

21

**of the circle**

PPTX

Giorgos Psarianos/2nd Junior High school of Artemida/ Teacher: Irene Thomas

22

**THE NUMBER  $\pi$**

PPTX

THE NUMBER  $\pi$  PRESENTATION  
Agapi Nakari/2nd Junior High school of Artemida/ Teacher: Irene Thomas

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**Welcome**

PPTX

Hello, I'm Ilias Apostolidis and I'm going to tell you about the chronology of  $\pi$  (3.14).  
2nd Junior High School of Artemida  
Teacher: Irene Thomas

Pi Ilias Apostolidis  
Ilias Apostolidis/2nd Junior High school of Artemida/ Teacher: Irene Thomas

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**PI AND FRACTALS SETS**

PPTX

PI AND FRACTALS SETS  
Eleni Zervaki/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas

Pi Ilias Apostolidis  
Eleni Zervaki/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas

20

**The**

PPTX

Kotsarian  
Alexandros Kotsarian/ 2nd Junior High school of Artemida/ Teacher: Irene Thomas

20



### 11.3 FACT FILE about Pi (interesting facts)

<https://school-education.ec.europa.eu/en/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/fun-facts-about-pi-interesting-facts>

2nd Junior High School of Artemida – Greece/Teacher: Irene Thomas

<http://linoit.com/users/irenethcy/canvases/FACT%20FILE%20about%20Pi>



### 11.4 Animation

2nd Junior High School of Artemida

**Animation about Pi**

Teacher: Irene Thomas

<https://school-education.ec.europa.eu/en/etwinning/projects/pi-day-happy-birthday-pi/twinspace/pages/animation>

<https://youtu.be/wfOvGYw7ghg?si=ZY65STsd4r3Qw1NV>

## 12. Technologies used while working on the project

While working on the project, we use different web 2.0 instruments. These are:

Clideo.com, Flipaclip, Youtube, Power points, Capcut, Qr-code monkey, Canva, One-drive-PPP, Padlet, Infinite painter, Zoom, Me-qr.com, Linoit.com, Excel, One charts, Visme, Video cutter.com, Book creator and etc.

# Student Attendance Certificate



## Βεβαίωση

Βεβαιώνεται ότι ο μαθητής ..... του τμήματος ....., συμμετείχε στο ευρωπαϊκό συνεργατικό έργο eTwinning με τίτλο:

### **«Happy Birthday Pi»**

το οποίο συν-διοργανώθηκε το σχολικό έτος 2023-24 από το LEPL Kutaisi Public School 35 της Γεωργίας και το 2<sup>ο</sup> Γυμνάσιο Αρτέμιδος της Ελλάδας, με συντονίστρια καθηγήτρια την Μαθηματικό κα Ειρήνη Θωμά.

Συμμετείχαν εκπαιδευτικοί και μαθητές/-ριες από τα σχολεία: LEPL Terjola Public School N1 της Γεωργίας, LEPL Tskaltubo Niko Lortkipanidze Public School της Γεωργίας και ICS "Maria Montessori" Terracina της Ιταλίας.

Η εκπαιδευτικός

Ειρήνη Π. Θωμά  
Μαθηματικός, Μ.Εδ.