

SCHOOL EDUCATION GATEWAY

Co-funded by the  
Erasmus+ Programme  
of the European Union



## **STEAME: Guidelines for Developing and Implementing STEAME Schools”**

Project Number: 2019-1-CY01-KA201-058240

**Prof. Gregoris Makrides,**  
**President, Cyprus Mathematical Society**  
**President, European Association of ERASMUS Coordinators**  
**President, European Association of Career Guidance**

This project has been funded with support from the European Commission.  
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contained herein.

# Intellectual Outputs

- O1. Guidelines for dynamic and adaptive STEAME curricula – **published**
- O2. Guidelines for STEAME Activities in Schools for two age groups - **L&C Plans published**
- O3. Guidelines for STEAME School Organizational Structure – **in progress**



# O1. Guidelines for dynamic and adaptive STEAME curricula

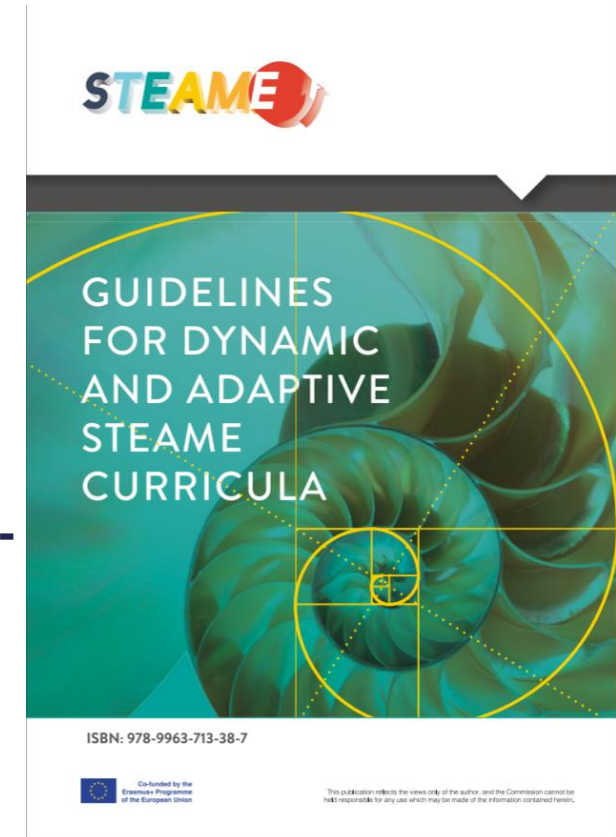
- Chapter 1 Approaches to teaching
  - Chapter 2 Materials for teaching
  - Chapter 3 Entrepreneurship aspects
  - Chapter 4 Organizational suggestions for STEAME-oriented teaching
  - Chapter 5 Propositions and analysis of STEAME-oriented curriculum-Adaptability and dynamics characteristics
- Peer Evaluation of projects and schools

*Open the publication...*



## Reference files mentioned in the publication

[https://drive.google.com/drive/folders/18OJyczG42HVtayfYe5XtH8vM\\_Y2vza8e](https://drive.google.com/drive/folders/18OJyczG42HVtayfYe5XtH8vM_Y2vza8e)



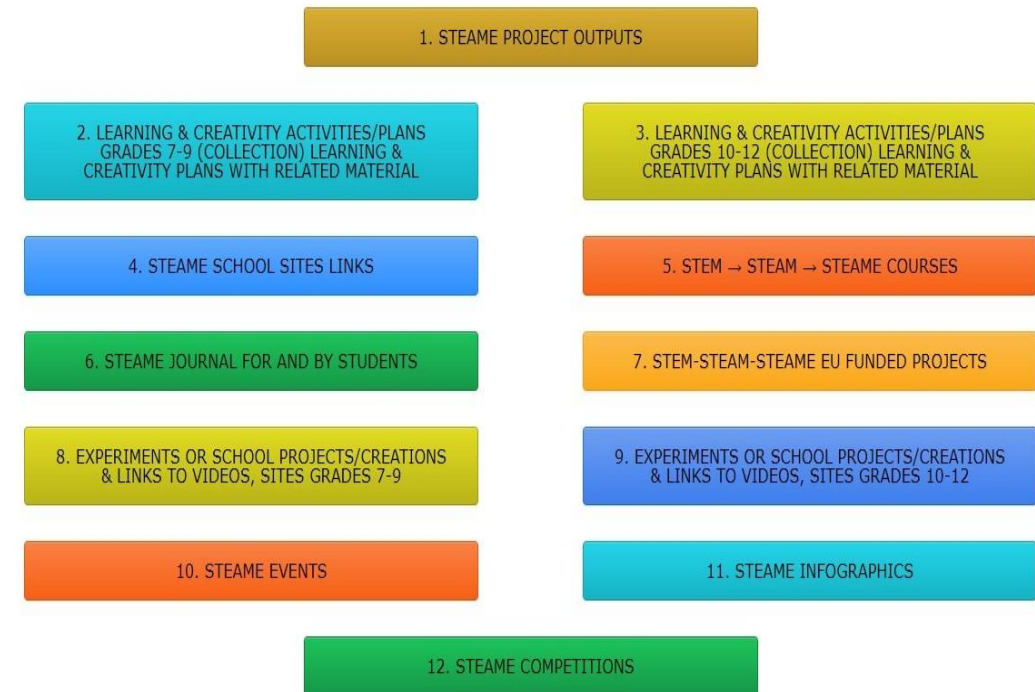
## O2. Guidelines for STEAME Activities in Schools for two age groups

### ➤ STEAME OBSERVATORY - ACTIVE


<https://steame.eu/steame-observatory/>



\*Observatory is a tool mainly for school teachers in order to support a **dynamic and adaptive** STEAME Curriculum in their schools .



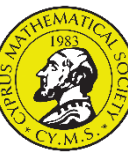
# What is a STEAME Learning and Creativity Plan

- **Developed by the STEAME project to serve the needs of teachers and students. Student centre approach focused on creativity and learning.**
- **Empty template available for use in the Observatory in EN, GR, IT, BG, PL** 
- **Designed for minimum 2 teachers collaboration**
- **It includes the 18 steps prototype teacher cooperation for STEAME project activity**

STAGE	Activities/Steps Teacher 1 (T1) Cooperation with T2 and student guidance	Activities /Steps By Students Age Group: ____	Activities /Steps Teacher 2 (T2) Cooperation with T1 and student guidance
A	Preparation of steps 1,2,3		Cooperation in step 3
B	Guidance in step 9	4,5,6,7,8,9,10	Support guidance in step 9
C	Creative Evaluation	11	Creative Evaluation
D	Guidance	12	Guidance
E	Guidance	13 (9+12)	Guidance
F	Organization (SIL) STEAME in Life	14 Meeting with Business representatives	Organization (SIL) STEAME in Life
G	Preparation of step 15		Cooperation in step 15
H	Guidance	16 (repetition 5-11)	Support Guidance
I	Guidance	17	Support Guidance
K	Creative Evaluation	18	Creative Evaluation



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# STEAME Learning and Creativity Plan

- STEAME Prototype 18 steps L&C Plan development/implementation and cooperation between teachers



## Lets review a STEAME L&C Plan



STEAME logo and Erasmus+ logo at the top right of the document.

**LEARNING & CREATIVITY PLAN (L&C PLAN): A CUSTOMIZED E-SHOP**

S	T	Eng	A	M	Ent
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**1. Overview**

Title	A CUSTOMIZED E-SHOP
Driving Question or Topic	What I need to know about the costs, revenue and profit in my business?
Ages - Grades	AGES:15-16 9 <sup>th</sup> - 10 <sup>th</sup> grade
Duration, Timeline, Activities	4 LEARNING HOURS 2*90 MINUTES 6 ACTIVITIES
Curriculum Alignment	Business Costs, Revenue and Profit
Contributors, Partners	Xenia Kareli, Yannis Kotsanis
Abstract - Synopsis	Five activities for two learning periods of 90 min (first lesson) include the analysis and the calculation of a firm's profit, the analysis of its costs and how this firm creates and increases its revenue. So, for all these reasons, in the second period of 90 min (second lesson), every group of students designs and creates a customized e-shop, that formulates a real problem. In this way, they understand the mechanism of the market in action.
References, Acknowledgements	<ul style="list-style-type: none"> <li>Pearson Edexcel International GCSE (9-1) Economics -First published 2017, author: Rob Jones. ISBN 978-0-435-18864-1 (Student's book). Case Study (Lesson 16): Greenway Construction (activity 1).</li> <li>Pearson Edexcel International GCSE (9-1) Economics -First published 2018, author: Clare McCormack. ISBN:978-0-435-19134-4 (Teacher Resource Pack).</li> </ul>

**2. STEAME Framework\***

Teachers' Cooperation	1st Teacher: Economist 2nd Teacher: Technology Specialist and/or Computer Scientist (the two teachers can work together during the second lesson)
STEAME in Life (SIL) Organization	A real meeting with executives of a big firm with well-known products and on a call (via teleconference or face to face) and with a businessman whose main activity is organizing and running an e-shop. 6
Action Plan Formulation	STAGE I: Preparation by two teachers [STEPS 1-4], and STAGE II: Action Plan Formulation [Preparation STEPS 1-3] Refers to the creation of this Learning Plan, by the two teachers in collaboration.

## 1. Overview

Title  
 Driving Question or Topic  
 Ages, Grades  
 Duration, Timeline, Activities  
 Curriculum Alignment  
 Contributors, Partners  
 Abstract - Synopsis  
 References, Acknowledgements

## 2. STEAME Framework\*

Teachers' Cooperation  
 STEAME in Life (SiL) Organization  
 Action Plan Formulation

## 3. Objectives and Methodologies

Learning Goals and Objectives  
 Learning Outcomes and expected Results  
 Prior Knowledge and Prerequisites  
 Motivation, Methodology, Strategies, Scaffolds

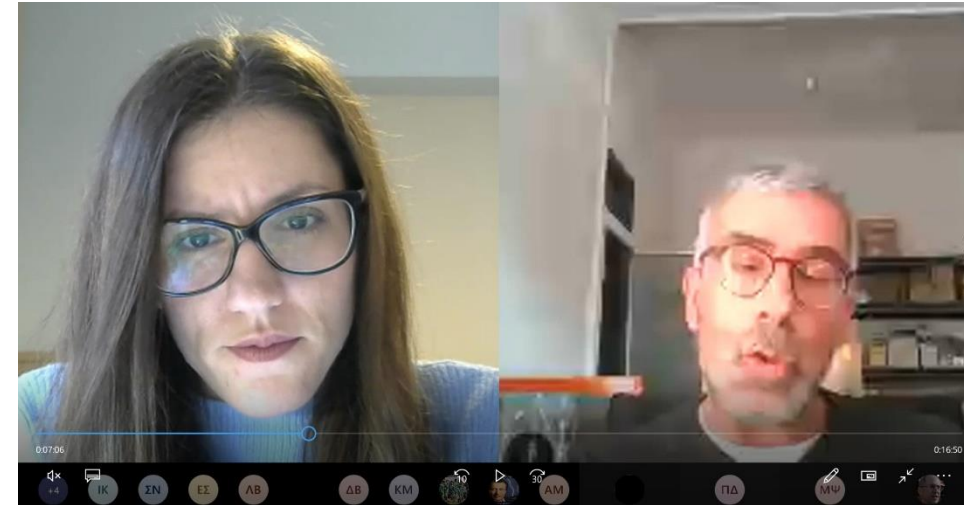
## 4. Preparation and Means

Preparation, Space Setting,  
*Troubleshooting Tips*  
 Resources, Tools, Material,  
 Attachments, Equipment  
*Safety and Health*

## 5. Implementation

Instructional Activities,  
 Procedures, Reflections  
 Assessment  
 Evaluation  
 Presentation - Reporting -  
 Sharing  
*Extensions - Other Information*

# STEAME in Life (SiL)



3) A business has fixed costs of €100.000 and variable costs of €5 per unit. Units of output are sold for €25. What is total variable cost if 50.000 units are produced?

- A. €100.000
- B. €250.000
- C. €350.000
- D. €1.250.000

### 1. Overview

Title  
Driving Question or Topic  
Ages, Grades  
Duration, Timeline, Activities  
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Contributors, Partners  
Abstract - Synopsis  
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# STEAME Examples: 3 Projects

1

## JEWELLERY

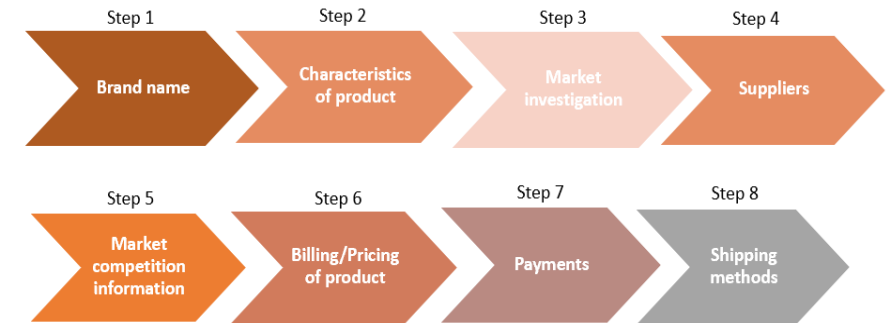



**WHY?**

1. Is a great fit for ecommerce
2. They are lightweight
3. Easy to ship
4. Come in many variations
5. They can be customized

**AIM**  
To investigate if jewellery is a suitable and profitable product for an e-shop


## SRUCTURE



2

## Market...

There isn't such a product like this in market. There are many similar websites and apps, but no one of these does this specific action of gathering movies. By adds the popularity of this app will be bigger and it will have a market growth. The website does not need any materials or suppliers due to the fact that it will be completely online.



23/1/2021

## BILLING AND PRICING

❖ <u>Total revenue</u>	} Total revenue: <b>6.700 €</b> per/month
Neclaces → 20 x 100= 2.000€	
Rings → 15 x 100= 1.500 €	
Earrings → 20 x 100= 2.000	
Bracelets → 12 x 100= 1.200	
❖ <u>Total cost</u>	
TC= ( 150+70+80+50)+(2.000+150+250+600)	
TC=350+3000	
TC= <b>3.350 €</b> per/month	
❖ <u>Profit</u>	
Profit=6.700-3.350	
Profit= <b>3.350 €</b> per/month	



## 3 STEAME: e-Shop Creation (shopify)

### 1. Overview

Title  
 Driving Question or Topic  
 Ages, Grades  
 Duration, Timeline, Activities  
 Curriculum Alignment  
 Contributors, Partners  
 Abstract - Synopsis  
 References, Acknowledgements

### 2. STEAME Framework\*

Teachers' Cooperation  
 STEAME in Life (SiL) Organization  
 Action Plan Formulation

### 3. Objectives and Methodologies

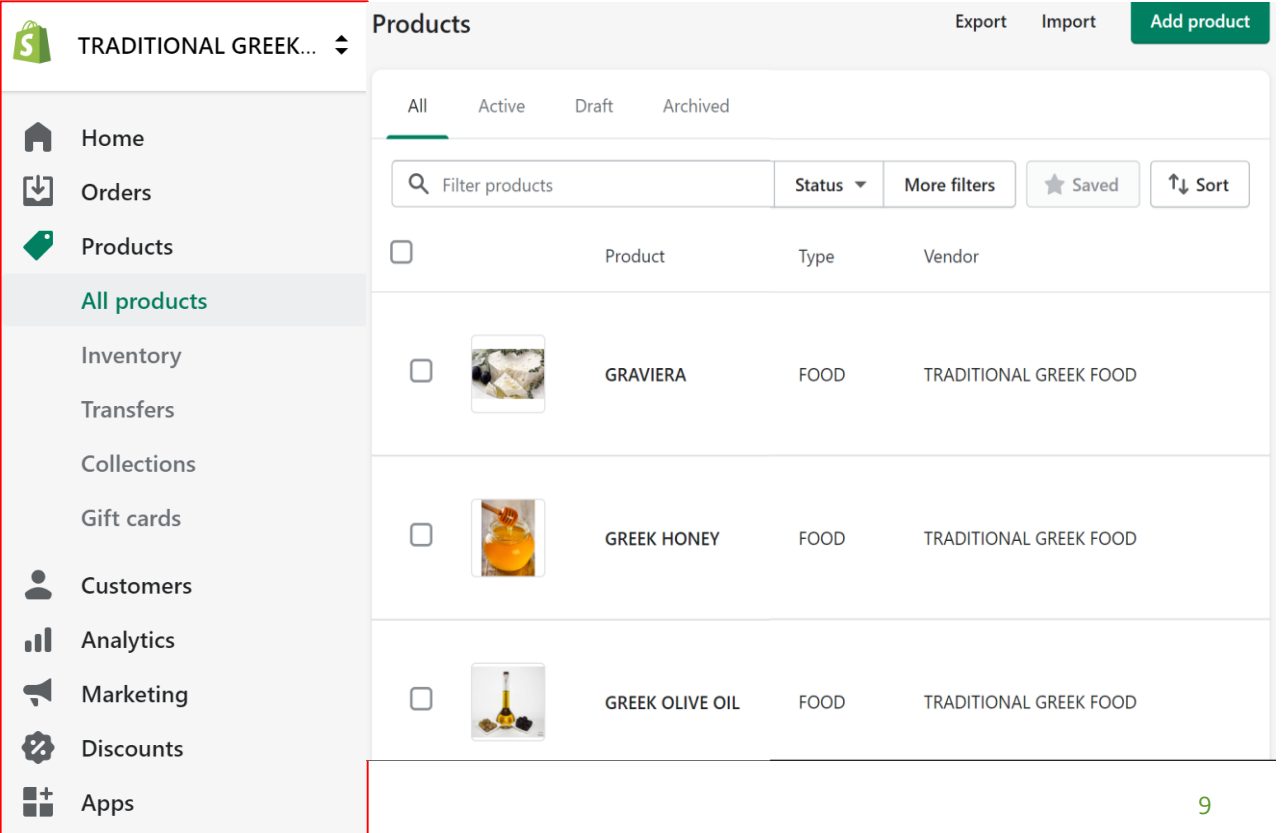
Learning Goals and Objectives  
 Learning Outcomes and expected Results  
 Prior Knowledge and Prerequisites  
 Motivation, Methodology, Strategies, Scaffolds

### 4. Preparation and Means

Preparation, Space Setting, *Troubleshooting Tips*  
 Resources, Tools, Material, Attachments, Equipment  
*Safety and Health*

### 5. Implementation

Instructional Activities, Procedures, Reflections  
 Assessment Evaluation  
 Presentation - Reporting - Sharing  
*Extensions - Other Information*



The screenshot shows the Shopify admin interface. On the left is a navigation menu with options: Home, Orders, Products, All products, Inventory, Transfers, Collections, Gift cards, Customers, Analytics, Marketing, Discounts, and Apps. A red arrow points from the 'Products' menu item to the main content area. The main content area is titled 'Products' and includes filters for 'All', 'Active', 'Draft', and 'Archived'. Below the filters is a search bar and buttons for 'Status', 'More filters', 'Saved', and 'Sort'. The product list table has columns for checkboxes, product images, product names, types, and vendors. Three products are listed: GRAVIERA, GREEK HONEY, and GREEK OLIVE OIL, all categorized as 'FOOD' and from 'TRADITIONAL GREEK FOOD'.



# Evaluation Rubric

➤ **STEAME student evaluation rubric**



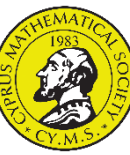
Erasmus+

1. STEAME Subjects (overall performance of respective concepts/discipline/content of K-12 level)					
	0 - N/A	1 - beginning	2- developing	3 - advanced	
<input type="checkbox"/> Science	<input type="checkbox"/> Technology	<input type="checkbox"/> Engineer	<input type="checkbox"/> Arts	<input type="checkbox"/> Mathematics	<input type="checkbox"/> Entrepreneurship

2. Competences (knowledge, skills, values-attitudes)				
	basic/beginning	emerging/developing	accomplished/strong	exemplary
creativity, innovation				
critical thinking				
collaboration				
digital skills				
oral - written language				
presentation skills				
social & emotional competences				

3. Project Management, Development and Realisation Processes				
	basic/beginning	emerging/developing	accomplished/strong	exemplary
goal achievement and motivation				
inquiry-based process				
problem-based process				
project-based and timeline process				
resources, references				
construction, artifacts, production outputs				
Entrepreneurship				

4. Formative Assessment (specified at each L&C)				
	D - limited/poor	C - adequate/good	B - substantial/great	A - detailed/excellent
Student Assessment by Teacher				
Self - Group*				
Self - Student*				



# What about Quality ?

**Learning and Creativity Plan Peer-Review Evaluation**

**Completed in January 2021**

By the STEAME Evaluation Committee:

## Quality ?.....one slide conclusions


- The overall average score from all the participants in questions related to the *The Content and structure of the L&C Plans* is **3.7/4**.
- In total the highest average score **3.8/4** for all the plans was reached in Q2 “All five fields of the L&C plan template were filled with the necessary information ” and Q4 “The L&C Plan has provided necessary additional material” which indicates the adequate applicability of those L&C Plans.
- Various expressed concerns will be considered to optimize the L&C Plans developed to be applied in schools.

## O3. Guidelines for STEAME School Organizational Structure – *in progress*

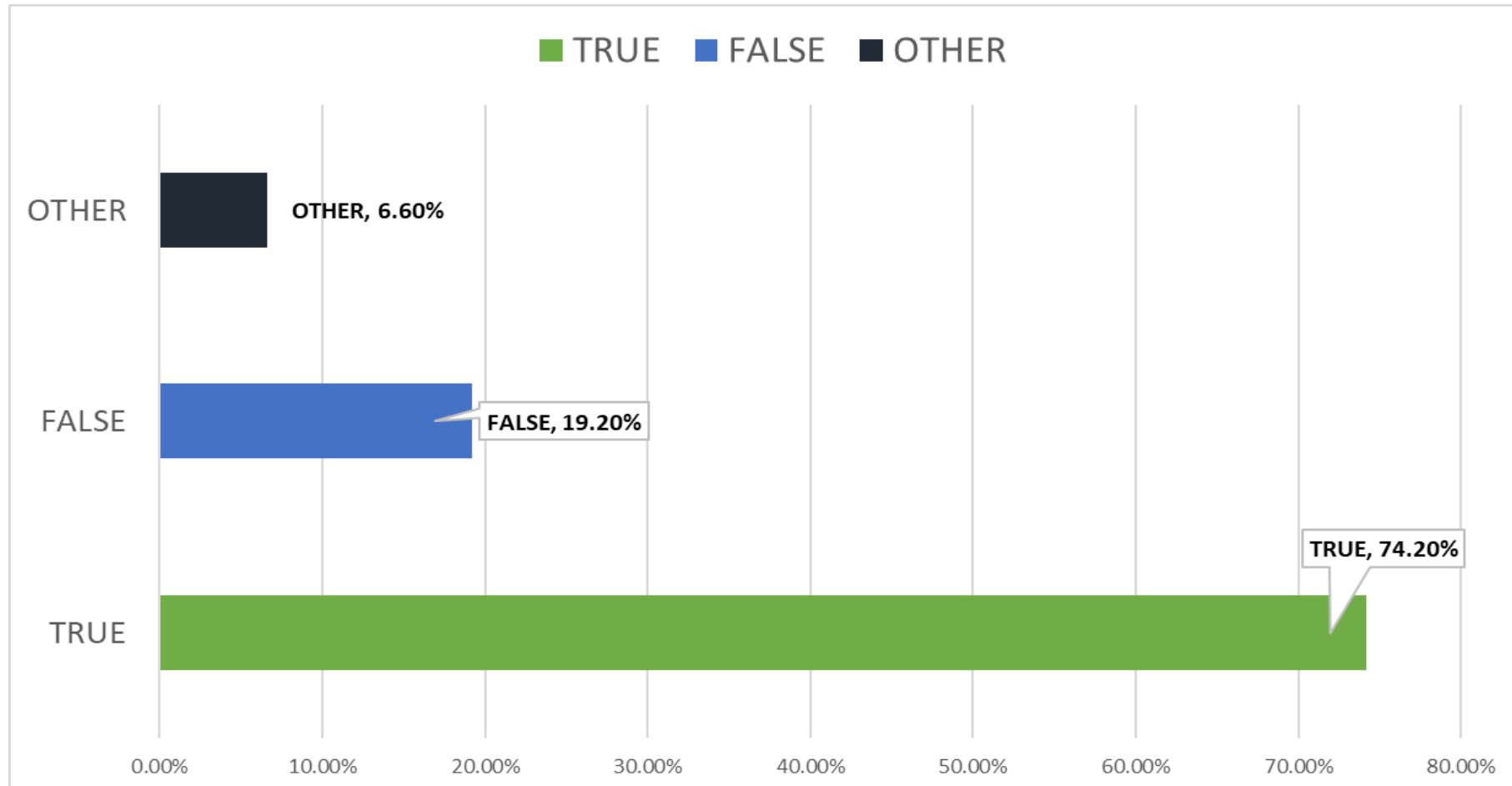
- **TYPE A: How we can run STEAME activities in current school infrastructures ?**
- **TYPE B: What should a school look like in order to best run STEAME activities?**
- **KA1 four days training course for teachers**
- **Lets see what the running survey is saying so far...**

**January 2021**

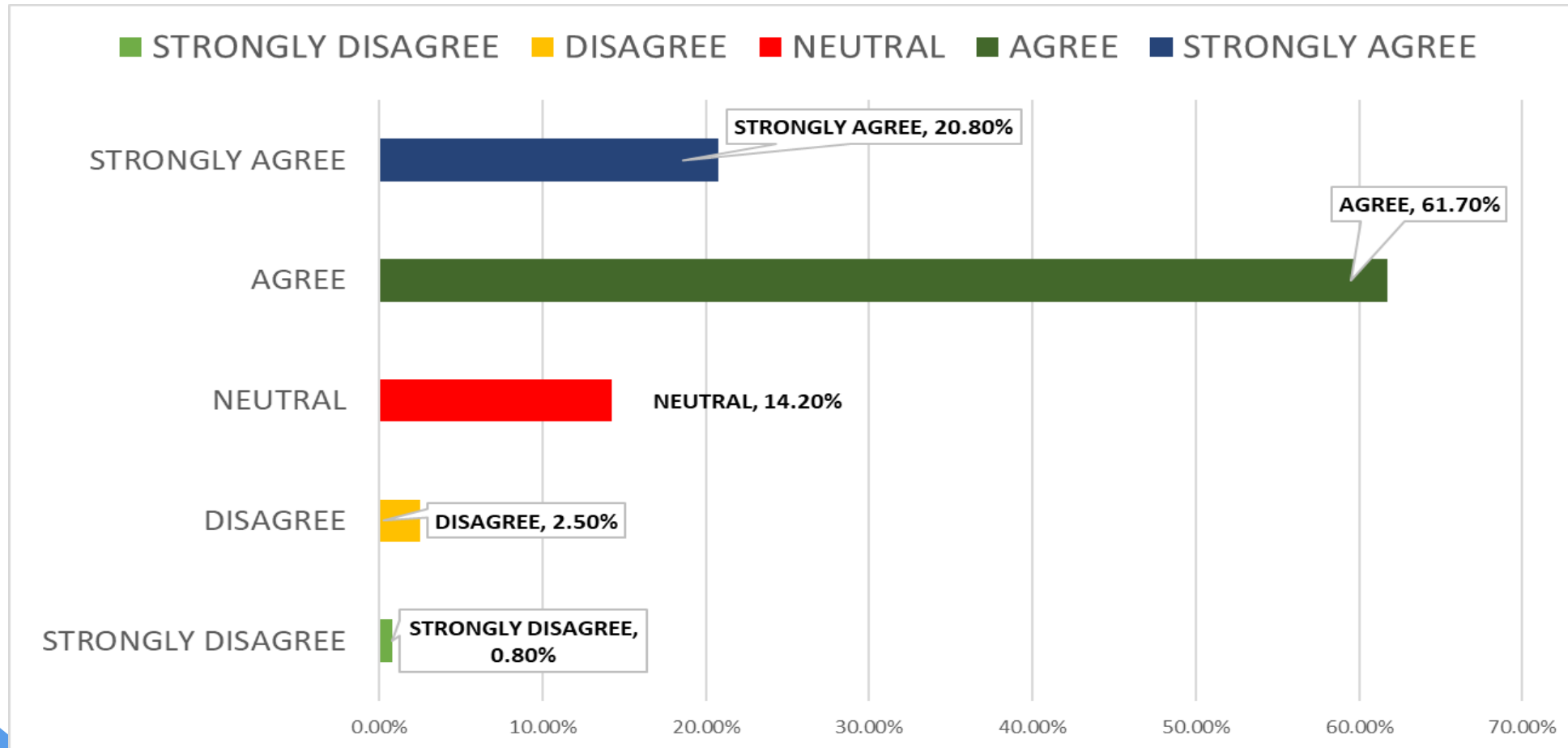
# Some survey results from 120 replies...

- **This is on-going and you are all invited to make your contribution**  
**In the NEWS of [www.steame.eu](http://www.steame.eu)** 
- **Most replies (81 out of 120) were from teachers.**
- **120 people have spoken...**

The STEAME program should shape the education process of the school and the classroom design, not the other way around

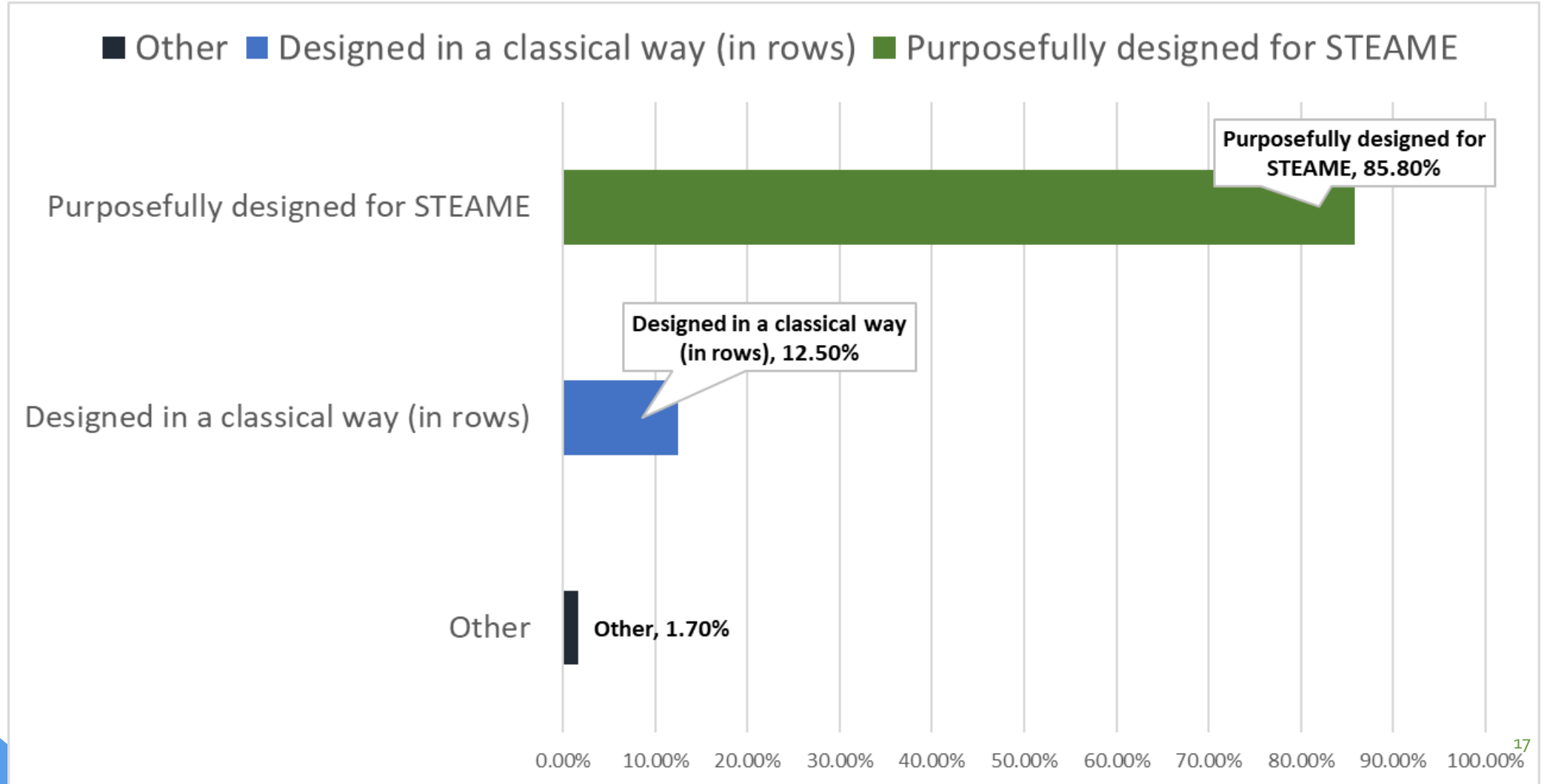


The classroom layout should be aligned with the outcomes that school principals and teachers aim to achieve when implementing STEAME and blended learning (Oxford Dictionary definition of Blended Learning: a style of education in which students learn via electronic and online media as well as traditional face-to-face teaching).

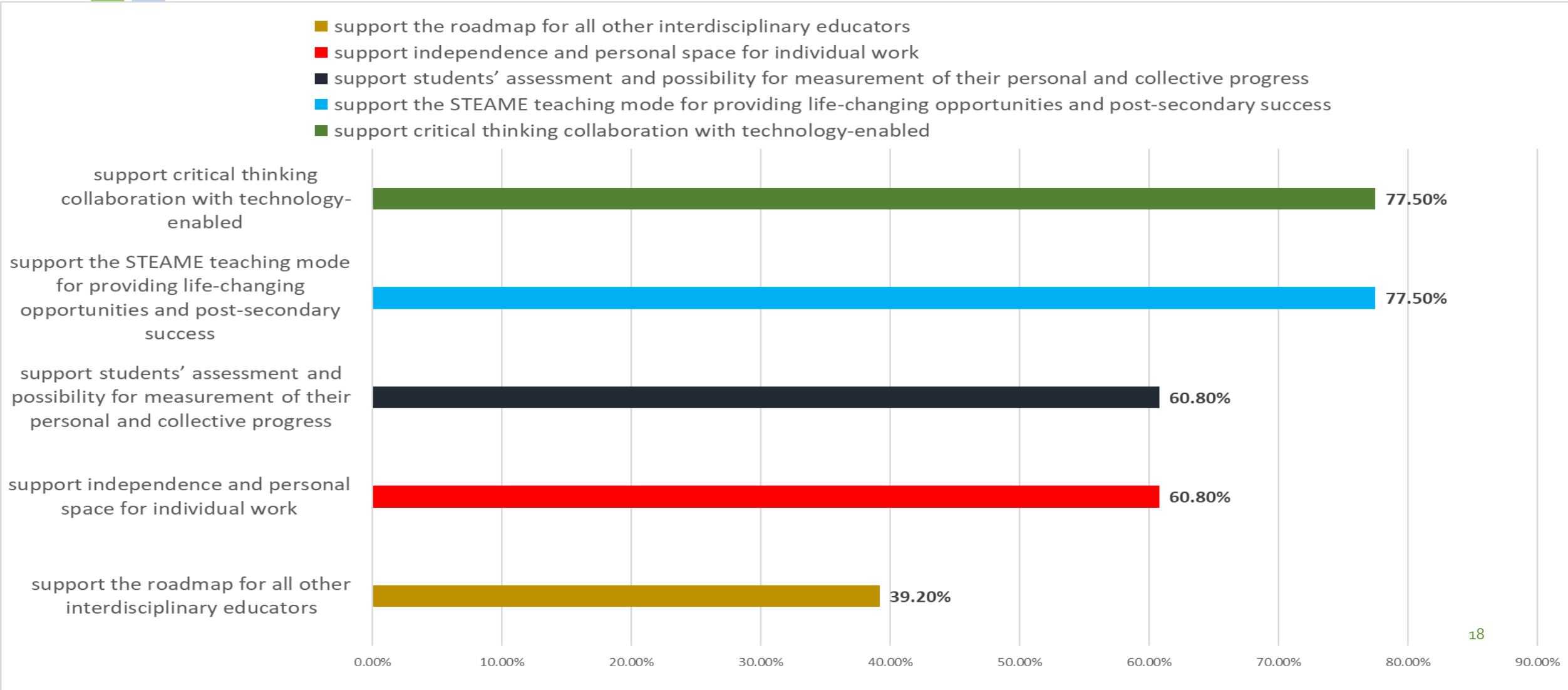




The classroom should be:

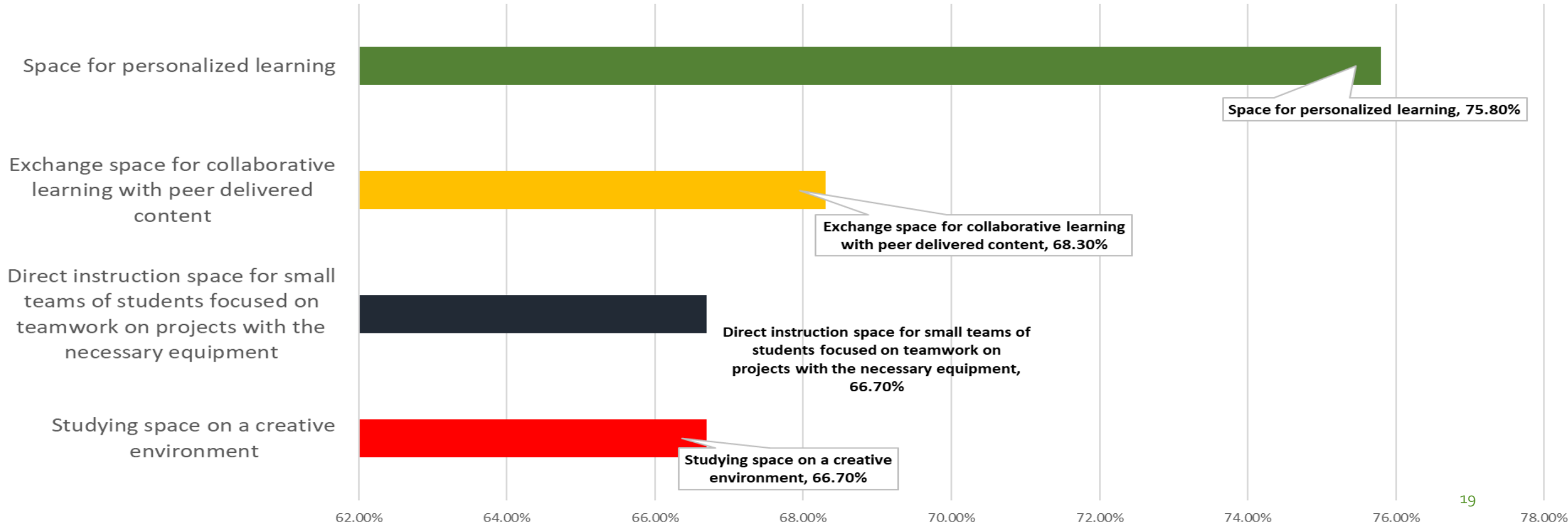


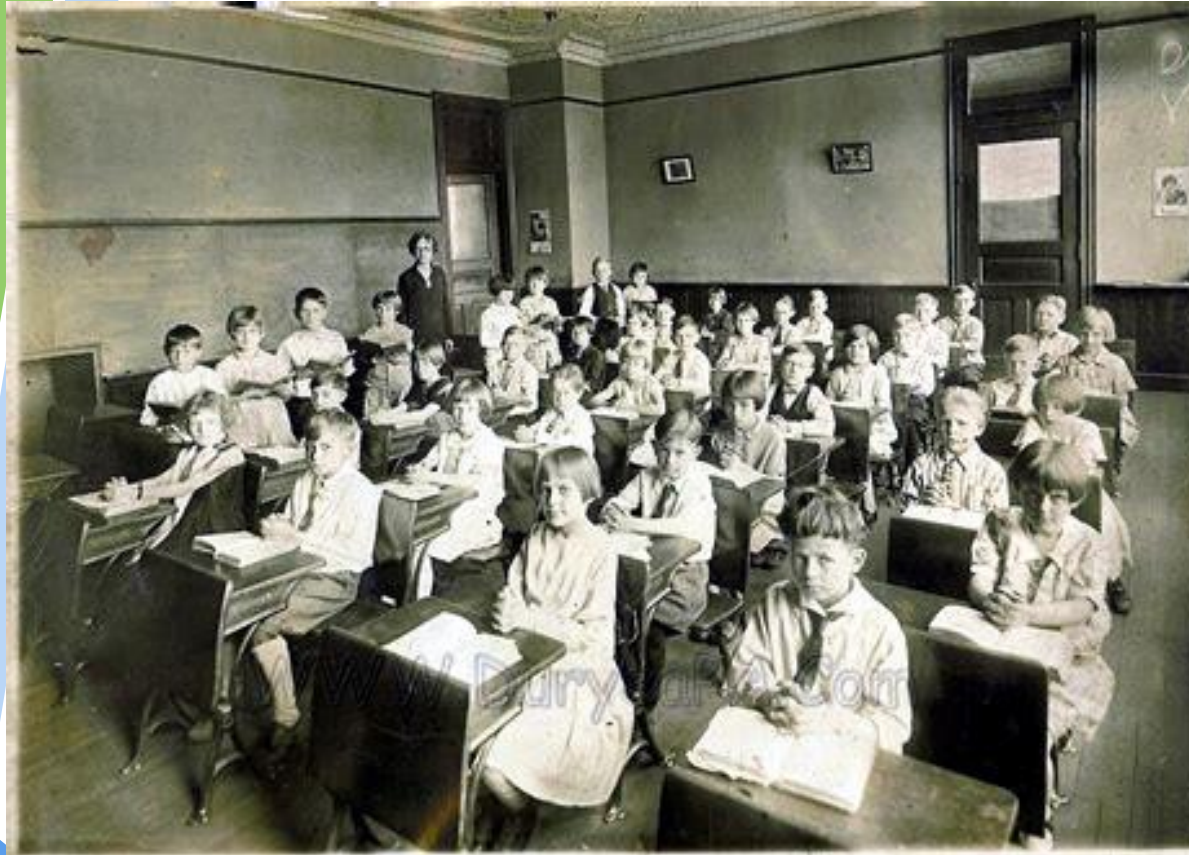
The School and the classroom in the school should be designed in such a way, to:



## STEAME schools must integrate the following spaces:

- Studying space on a creative environment
- Direct instruction space for small teams of students focused on teamwork on projects with the necessary equipment
- Exchange space for collaborative learning with peer delivered content
- Space for personalized learning





**1920**



**2020**

...and what will we do with the survey results ?

We will organize Focus Groups with experts, teachers and students in order to put in a design plan what the teachers and students need

and then we will ask an architect to implement the design plan and give us a virtual vision and tour of a sample future school



hope we will have a first draft to be presented in the European STEAME Conference and the STEAME Training Course in June 2021

# Where could students publish their STEAME project work?

- **Journal of STEAME Creations for and by School Students – ACTIVE**



[\(https://steame.eu/journal-of-steame-creations-for-and-by-school-students/\)](https://steame.eu/journal-of-steame-creations-for-and-by-school-students/)



Science



Technology



Engineering



Arts



Mathematics



Entrepreneurship

## ERASMUS+ KA1 Course

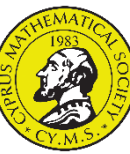
- **Pilot course , 13-16 April 2021,  
Athens, Greece (free limited  
participation)**



- **Regular KA1 course on 22-25  
June 2021, in Paphos , Cyprus  
(co-funding available)**



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# STEAME Course Modules

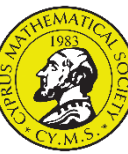
*4 days course*

- **Module 1 -2 . How to construct L&C plans**
- **Module 3. How teachers can work together (18 steps prototype and other aspects)**
- **Module 4. How to help teachers and students work online (Hybrid environments)**
- **Module 5. How to support students in making oral presentations**
- **Module 6. How to write papers/reports (journal etc)**
- **Module 7. How to work on projects (Inquiry Based Learning, Project Based Learning)**
- **Module 8. How to work on projects (peer questions.....)**
- **Module 9. How to develop STEAME schools (Type A and Type B Schools, survey results)**
- **Module 10. Evaluating STEAME project/activities work of students (Evaluation rubrics)**
- **Module 11-12: Course Assignment hands on development of a L&C Plan**





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# Coming Events

# EUROMATH & EUROSCIENCE Conference for pupils 21-26 June 2021 in Cyprus

Watch Video – 60 sec



## 2021 EVENTS : *Save the date*

*Paphos 2021*

### EUROMATH & EUROSCIENCE



Date: 21 - 26 June

Location: Aliathon Resort, Paphos, Cyprus

Organizers



E: [info@euromath.org](mailto:info@euromath.org)

W: [www.euromath.org](http://www.euromath.org)

### EUROPEAN STEAME CONFERENCE



Date: 22 - 24 June

Location: Aliathon Resort, Paphos, Cyprus

Organizers



**EU Funding Available**

Free Registration for a limited number of participants plus contribution to travel and accommodation expenses.



Co-funded by the Erasmus+ Programme of the European Union

E: [cms@cms.org.cy](mailto:cms@cms.org.cy) W: [www.steame.eu](http://www.steame.eu)



*Under the auspices of the Mayor of the city of Paphos*



Erasmus+

# European STEAME Conference Hybrid Event

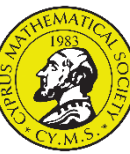
- ❖ Cyprus, 22-24 June 2021
- ❖ Limited Co-funding Available by the STEAME project – [Apply here](#)

Condition for funding





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# More STEAME Opportunities and challenges

## EUROPEAN STEAME Communication Competitions 2021

- For adults, with international participation
- Physical/online Finals on 23 June, 2021



Pre-video submission for phase 1 is required

- **Communicate STEAME Subjects in 5 minutes and win your place at the finals of the European STEAME Communication Competition of 2021.**



23 June 2021, Live Finals  
 Allathon Resort, Paphos, Cyprus

**Become a European STEAME Communication Idol of 2021**

Communicate STEAME Subjects in 5 minutes and win your place at the finals of the European STEAME Communication Competition of 2021.

Press [HERE](#) to register your participation. Deadline: 1.05.2021

### Competition Rules

- 1. Participation in the Competition**, presupposes the full, unconditional and automatic acceptance of all parts of these final and approved Competition Rules and the General Terms & Conditions of the Competition participation.
  - 2. "Participant"** in the competition can only be adults of minimum age 18 years old by the date of Phase 1. They can be individuals from any country and they can represent themselves or an organization. Participants can be university students, teachers, professors, researchers, experts, scientists, engineers, technologists, artists, mathematicians, entrepreneurs and business people who can be creative in communicating the STEAME subjects effectively to non-experts in an attractive, interesting, informative, creative, charismatic, simple and fast.
  - 3. The Competition**
    - 3.1** The competition will be conducted in two phases, the online *Preliminary Phase 1* and the live *Final Phase 2*. Deadline for phase 1 is 1.5.2021. The Final Phase may be organized online, if needed. More information on [www.euromath.org](http://www.euromath.org), [www.euroscience.info](http://www.euroscience.info), [www.thalescyprus.com](http://www.thalescyprus.com), and in and other posts.
    - 3.2** The *Phase 2 Final* will be organized on 23 June 2021 during EUROMATH & EUROSCIENCE 2021 Conference in Paphos, Cyprus.
    - 3.3** The final presentation will take place in front of a live audience and jury.
    - 3.4** The jury will, at its discretion and based on a non-disclosed methodology, evaluate all finalists and announce the winners.
  - 4. Presentations** have to be oral in the **English language** and of interesting and correct STEAME subject content that can be understood by non-experts and is made in an interesting, eye and attention catching, sometimes funny, innovatively presented and charismatic. Duration of the presentation is **minimum 3 minutes and maximum 5 minutes**. Presentation need to have a short title with a short description of what will be presented. Depending on the number of participants the organizers may consider additional awards for STEAME subjects as separate sub-competitions like **MA THFactor**, **SCIENCEFactor**, **TECHFactor**, **ENGIFactor**, **ARTSFactor**, **ENTREFactor**.
- Phase 1 presentation shall be submitted as a YouTube video link though the online submission procedure. Presentations in any other form will not be considered. The Phase 1 submissions will be assessed online and the finalists will be invited to the Phase 2 Live Finals through an email message. The criteria of assessment shall include the following:

### ORGANIZER'S

THALES FOUNDATION & CYPRUS MATHEMATICAL SOCIETY  
 36 Stasinou street, Office 104, Strovolos 2003, Nicosia, Cyprus  
[www.thalescyprus.com](http://www.thalescyprus.com), [info@thalescyprus.com](mailto:info@thalescyprus.com), T. +35722283600

- Criterion 1: Content, Criterion 2: Clarity, Criterion 3: Charisma/Talent
5. Media: The use of audiovisual tools during the presentation, such as PowerPoint, projectors, videos, audio and other is strictly prohibited. Participants are allowed to use small items that they can hold in one hand. A small table (of up to 1 square meter), a microphone and microphone stand or wireless microphone will be provided. Using a second person during the presentation to assist or otherwise is also prohibited.
6. The finalists will have to confirm their participation and to accept the GDPR rules during submission for allowing the use of their personal data, photo and videotaping in relation to this competition, for broadcasting, announcements or samples. Participants in the live final will require a registration at the ASTUCON event with a special fee that covers some meals also.
7. Competition prizes:
- 7.1 The first prize will be 500 euro. A relevant certificate and trophy will be awarded.
  - 7.2 The second prize will be a tablet and a relevant certificate.
  - 7.3 The third prize will be a relevant certificate plus a book.
- Additional prizes may be awarded per STEAME subject categories.

### Organizers



### Collaborators and Sponsors



### ORGANIZERS

THALES FOUNDATION & CYPRUS MATHEMATICAL SOCIETY  
 36 Stasinou street, Office 104, Strovolos 2003, Nicosia, Cyprus  
[www.thalescyprus.com](http://www.thalescyprus.com), [info@thalescyprus.com](mailto:info@thalescyprus.com), T. +35722283600

## Mathematics Journalistic Article Competition 2021

- For students of ages 10-19



THEME

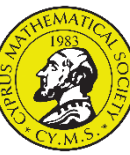
“The Role of Mathematics in STEAME Education”



## European Comic Poster Competition in STEAM 2021

- **For students of age 14-18**



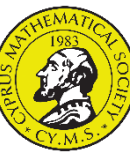


# STEAME SUMMER CAMP 2021

26-31 July 2021, Agros, Cyprus

For grades 4-9 (Ages 10-15)

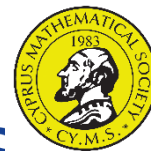




***NEXT CHALLENGE***

**STEAME GOES HYBRID**

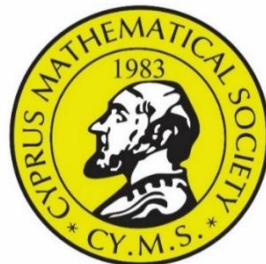




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## STEAME Partners



[info@steame.eu](mailto:info@steame.eu)

FB: STEAME



ITCSPACE "E. MORANTE" LIMBIATE



**Prof. Ivan Apostolov**  
ENGLISH LANGUAGE SCHOOL