

A graphic on the left side of the slide consists of numerous colorful, hand-drawn brushstrokes in shades of green, orange, purple, blue, and pink, radiating from a central point towards the left edge of the frame.

# Crea STEAM

CreaSTEAM: STEAM-Labs, a new  
approach to support diversity and  
inclusion at schools

**CreaSTEAM Consortium**

# CreaSTEAM project

## Co-thinking and Creation for STEAM diversity-gap reduction

- **Acronym**

- CreaSTEAM

- **Funding**

- European Union. Erasmus + KA2 – Cooperation and Innovation for Good Practices. Strategic Partnerships for school education

- **Reference**

- 2020-1-ES01-KA201-082601

- **Dates**

- 01/10/2020 a 30/03/2023

- **Budget**

- 240.736€

Fonseca, D., García-Holgado, A., García-Peñalvo, F. J., Jurado, E., Olivella, R., Amo, D., Maffeo, G., Yiğit, Ö., Keskin, Y., Sevinç, G., Quass, K., & Hofmann, C. (2021). **CreaSTEAM. Hacia la mejora de brechas en diversidad mediante la recopilación de proyectos, buenas prácticas y espacios STEAM.** In M. L. Sein-Echaluze Lacleta, Á. Fidalgo Blanco, & F. J. García-Peñalvo (Eds.), *Innovaciones docentes en tiempos de pandemia. Actas del VI Congreso Internacional sobre Aprendizaje, Innovación y Cooperación, CINAIC 2021 (20-22 de Octubre de 2021, Madrid, España)* (pp. 38-43). Servicio de Publicaciones Universidad de Zaragoza. doi:10.26754/CINAIC.2021.0007

# CreaSTEAM Consortium

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Clemens-Brentano-  
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UNIVERSIDAD DE SALAMANCA	Spain
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Bursa İl Milli Eğitim Müdürlüğü	Turkey
Sadettin Türkün Ortaokulu	Turkey
Studienseminar GHRF Gießen	Germany
Clemens-Brentano-Europaschule	Germany

# CreaSTEAM Objectives

- Develop a framework for secondary schools to create a collaborative space in which diversity and inclusion in STEAM is promoted
- Establish mechanisms to foster collaboration between STEAM communities and initiatives and secondary schools





Co-thinking and Creation for  
STEAM diversity-gap reduction

Co-funded by the  
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of the European Union



# STEAM-Labs



# STEAM-Labs

- STEAM-Labs merge three concepts
  - Fab-Labs
  - Media Labs
  - User Labs
- They seek to create inclusive spaces that work with STEAM in an integrated way
  - Science
  - Technology
  - Engineering
  - Arts
  - Mathematics

# Fab-Labs and Maker culture







- A Fab-lab is a space for the production of physical objects on a personal or local scale that brings together machines controlled by computers
- Maker is a citizens' movement in which anyone can make and create their own products with the help of technology and knowledge available on the Internet



# Fab labs

# Media Labs

- Spaces that work in the fields of art, technology, new media and society
- They focus on new ways of learning, fostering creativity and experimentation with digital technologies to promote social innovation
- Their main mission is to offer a new space for learning and experimentation with new technologies and to promote the connection between the academic, professional, social and research spheres

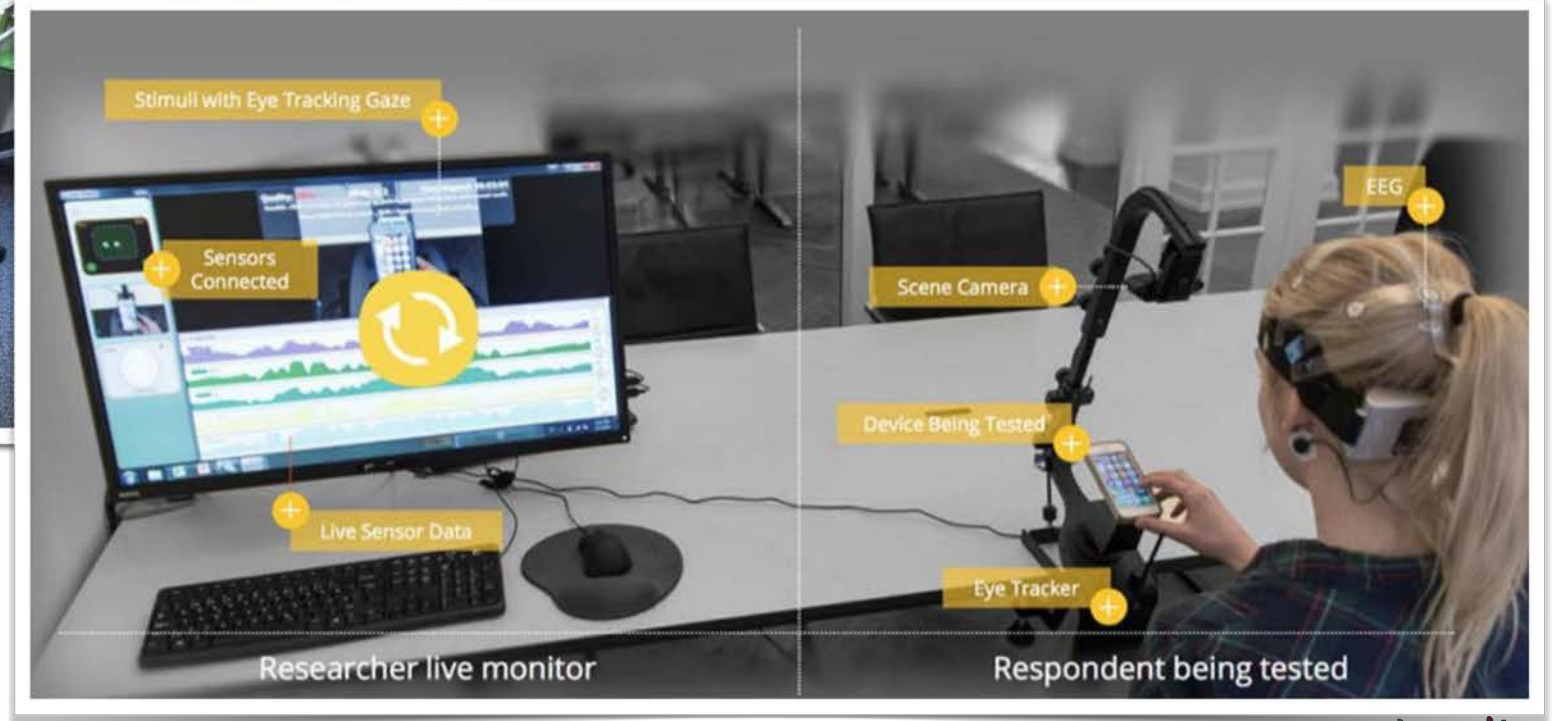
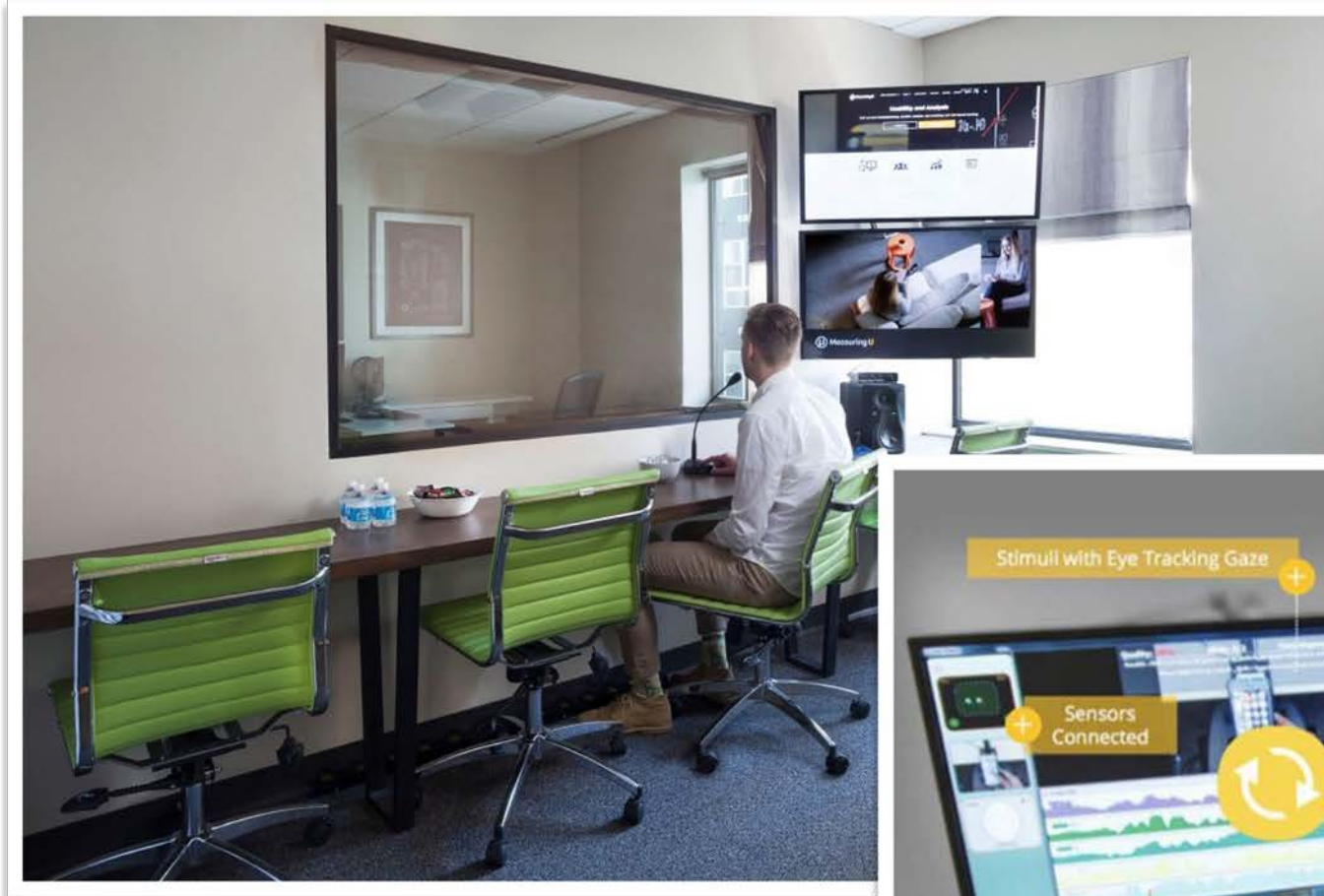
 <p><b>HackForGood_2017</b> SALAMANCA DATA DRIVEN ECONOMY</p>	<p>FINALIZADA, MESA REDONDA</p> <p><b>MEDIALAB</b> Presenta: Anatomía de la Crisis</p> <p>f t in s</p>	
<p>CONVOCATORIA, FINALIZADA, SEMINARIO, TALLER</p> <p><b>HackForGood_2017</b></p> <p>f t in s</p>	 <p>DESTELLOS DE LA NATURALEZA</p>	<p>FINALIZADA, SEMINARIO</p> <p><b>DATALAB</b> Nuevo Curso</p> <p>f t in s</p>
 <p>Copiad Malditos</p>	<p>FINALIZADA, MESA REDONDA, SEMINARIO</p> <p><b>MEDIALAB</b> Presenta: Destellos de la Naturaleza</p> <p>f t in s</p>	
<p>FINALIZADA, MESA REDONDA</p> <p><b>MEDIALAB</b> Presenta: Copiad Malditos</p>		<p>FINALIZADA, MESA REDONDA</p> <p><b>MEDIALAB</b> Presenta: El Poder de las Redes</p>



# User Labs

- Spaces for usability testing and user experience research
- People are the main target of this type of spaces
- In the technological field, they are used to create applications focused on the needs and characteristics of the people who are going to use them

# User Labs



## School Infrastructure

- **Separate space**
- **Access to technology and equipment**

## Curricula Implementation

- Emphasis on **STEM subjects** (Science, Technology, Engineering, Mathematics)
- **Interdisciplinary** instruction
- Emphasis on **creativity**
- **Social** approach

## STEAM-LAB

## School Culture

- **School leadership** (existence of governing boards, management teams, etc.)
- **High level of cooperation among staff**
- **Inclusive culture**
- **The school has strong connections** with families, local industry, other educational platforms

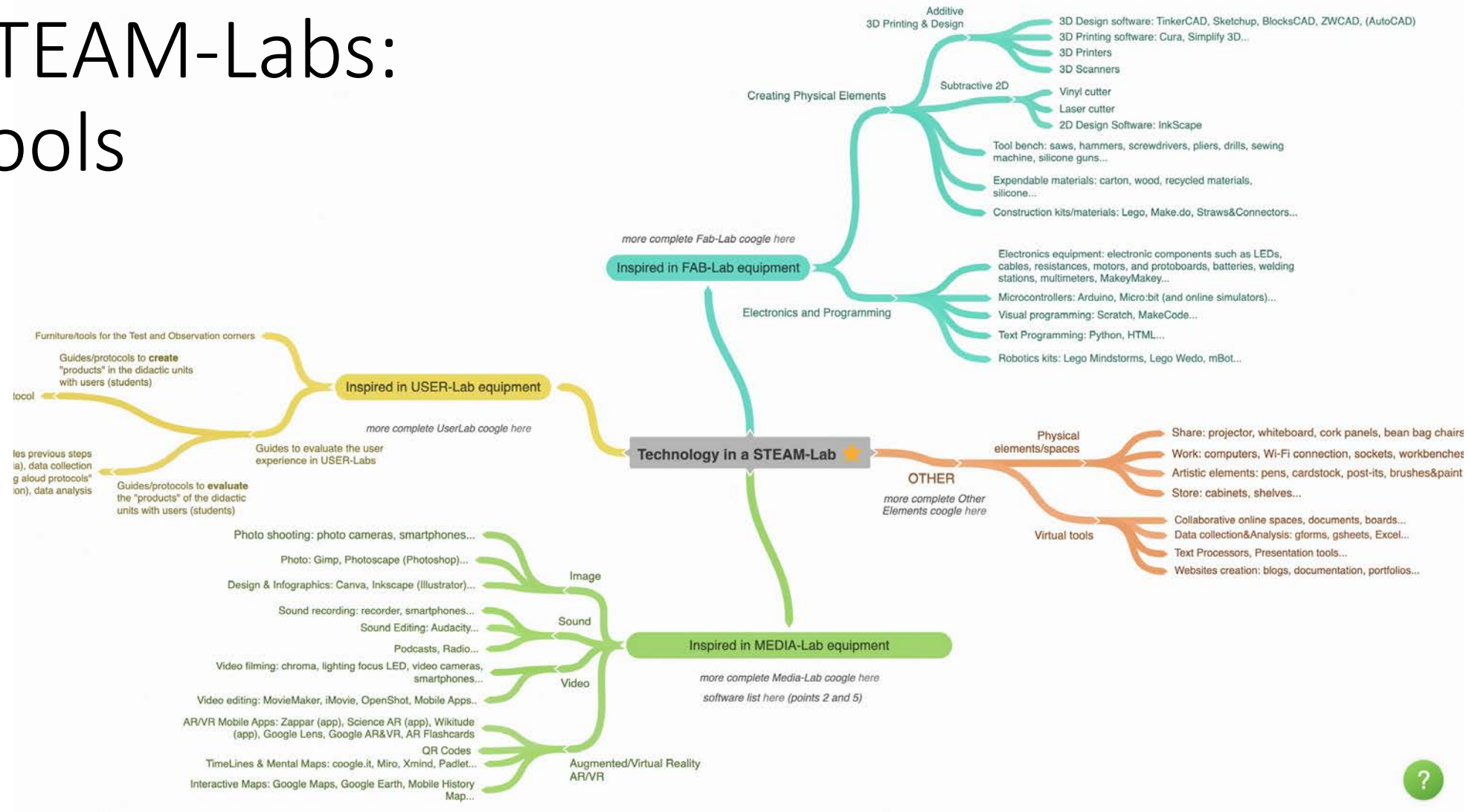
## Instruction

- **Active Learning**
- **Project based Learning.**
- **Personalisation of learning and Inclusive environment.**
- **Service-learning**
- **Collaborative learning**
- **Design Thinking methodologies**
- **Inquiry Based Learning**

## Results

- **Interdisciplinary projects, works, initiatives.**

# STEAM-Labs: Tools




[https://coggle.it/diagram/X-Cy2\\_YZrx-l8zDJ/t/technology-in-a-steam-lab-star/87aa2de749f590535e3050cd2eb3f71eea7934008b241419a12782b21f23872e?present=1](https://coggle.it/diagram/X-Cy2_YZrx-l8zDJ/t/technology-in-a-steam-lab-star/87aa2de749f590535e3050cd2eb3f71eea7934008b241419a12782b21f23872e?present=1)

# STEAM-Labs: projects

**TITLE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**SCHOOL:** \_\_\_\_\_ **AGE LEARNERS:** \_\_\_\_\_  
**MAIN TEACHER:** \_\_\_\_\_ **NUMBER OF TEACHING HOURS:** \_\_\_\_\_

## CreaSTEAM Unit Plan



<b>SUBJECTS INVOLVED:</b> (ENSURE TWO OR MORE) <input type="checkbox"/> SCIENCE <input type="checkbox"/> TECHNOLOGY <input type="checkbox"/> ENGINEERING <input type="checkbox"/> ARTS <input type="checkbox"/> MATHS	<b>IMPLEMENTATION:</b> (ENSURE ALL) <input type="checkbox"/> INTERDISCIPLINARY INSTRUCTION <input type="checkbox"/> EMPHASIS ON CREATIVITY <input type="checkbox"/> ADDRESSES DIVERSITY GAP (IMMIGRATION / GENDER / ECONOMIC / RELIGION)	<b>INSTRUCTION:</b> (ENSURE ONE OR MORE) <input type="checkbox"/> ACTIVE LEARNING <input type="checkbox"/> PROJECT BASED LEARNING <input type="checkbox"/> PERSONALISATION OF LEARNING <input type="checkbox"/> SERVICE-LEARNING <input type="checkbox"/> COLLABORATIVE LEARNING <input type="checkbox"/> DESIGN THINKING METHODOLOGIES <input type="checkbox"/> INQUIRY BASED LEARNING <input type="checkbox"/> TINKERING
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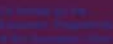
**SHORT DESCRIPTION:**  
\_\_\_\_\_

<b>MATERIALS/RESOURCES:</b> _____	<b>LEARNING OBJECTIVES:</b> _____
--------------------------------------	--------------------------------------

**LESSON PLAN OUTLINE:**  
\_\_\_\_\_

**RESULTS/EVIDENCES:**  
\_\_\_\_\_

**PERSONAL NOTES:**  
\_\_\_\_\_

# STEAM-Labs: Co-education

Project/Problem Based Learning (knowledge and observation of the environment)

Crash of traditional educational dynamics and practices

Active Methodologies, participatory and motivating

Non-sexist language

Sensitization of students, teachers and the immediate environment

Participation and cooperation

Discovery, critical thinking and debate

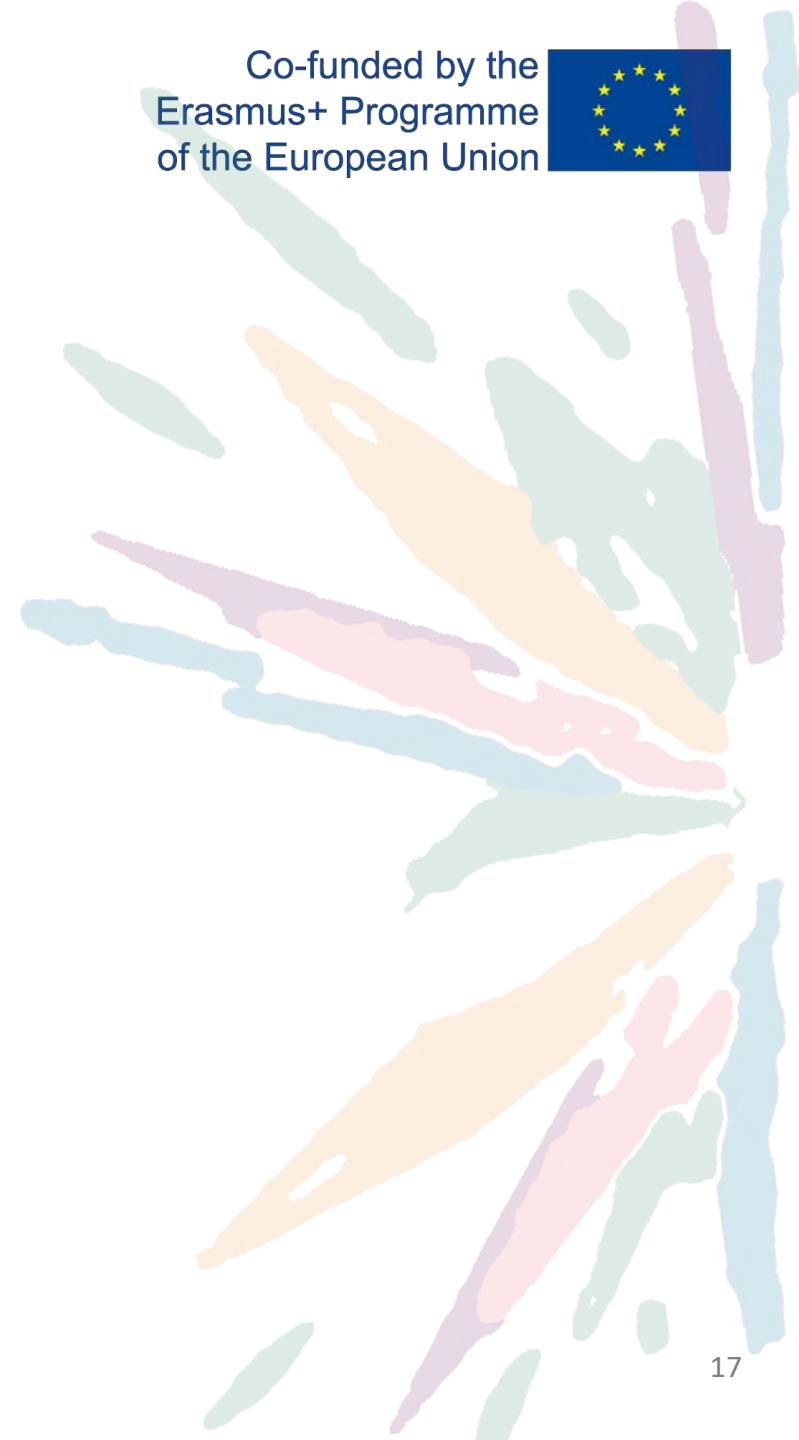


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# Piloting the STEAM-Labs

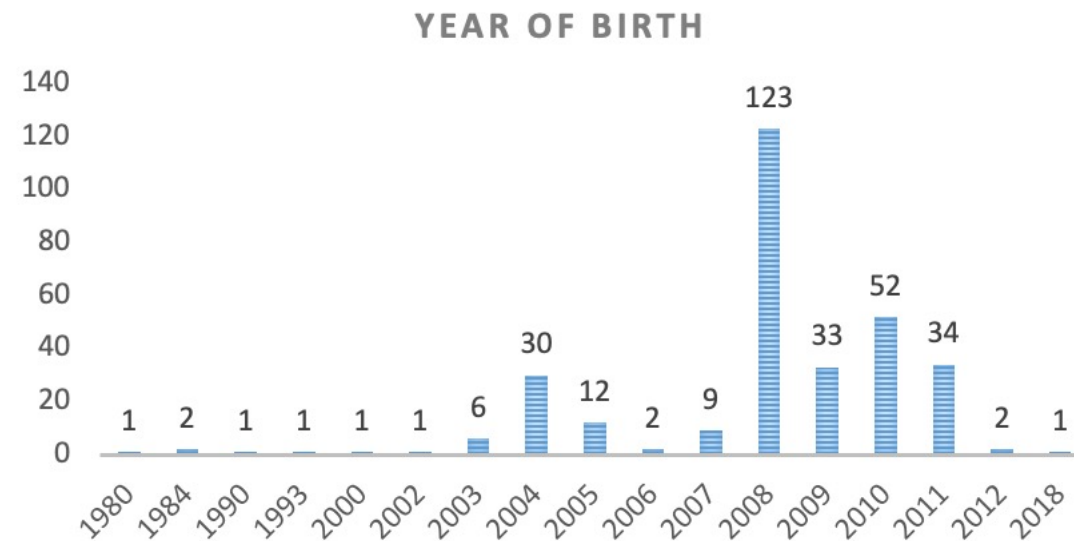
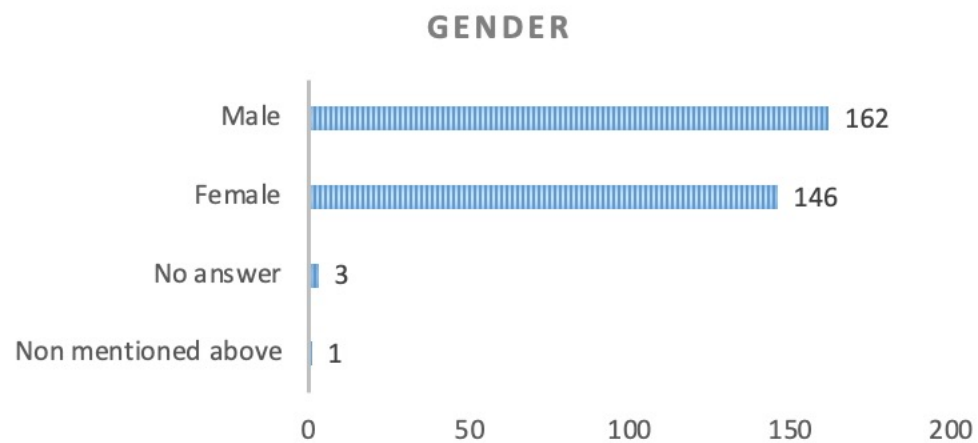


# Schools involved

- Wirtschaftsschule am Oswaldgarten Gießen (Germany)
- Clemens-Brentano-Europaschule Lollar (Germany)
- Fundació Llor (Spain)
- La Salle Congr s (Spain)
- La Salle Palam s (Spain)
- La Salle Seu d'Urgell (Spain)
- Sadettin T rk n Ortaokulu (Turkey)
-  zel Mesafe Mesleki ve Teknik Anadolu Lisesi (Turkey)
- Uluslararası Murad H davendigar Anadolu imam-hatip lisesi (Turkey)
-  zel  ağdaş  nc  Okulları (Turkey)
- Maria Ausiliatrice (Italy)
- SSIG Vincenza Poloni (Italy)
- Santa Umilt  (Italy)
- Manfredini Scuola (Italy)
- ...

# Participants

- 312 students





# Projects / Unit plans developed (II)

	Science	Technologies	Engineering	Arts	Maths	Other
<b>n= 64</b>						
<b>Total</b>	47	57	32	37	36	34
<b>%</b>	73,44	89,06	50,00	57,81	56,25	53,13

<b>n=64</b>	<b>Diversity GAP</b>				
	Gender	Inmigration	Economic	Religion	Disability
<b>Total</b>	46	16	40	7	43
<b>%</b>	71,88	25,00	62,50	10,94	67,19

# Projects / Unit plans developed (III)

	<b>Active Learning</b>	<b>PBL</b>	<b>Personalization of learning and inclusive environment</b>	<b>Service-learning</b>	<b>Collaborative learning</b>	<b>Design thinking methodologies</b>	<b>Inquiry Based Learning</b>	<b>Tinkering</b>
<b>Total</b>	54	41	29	16	49	32	19	31
<b>%</b>	84,38	64,06	45,31	25,00	76,56	50,00	29,69	48,44



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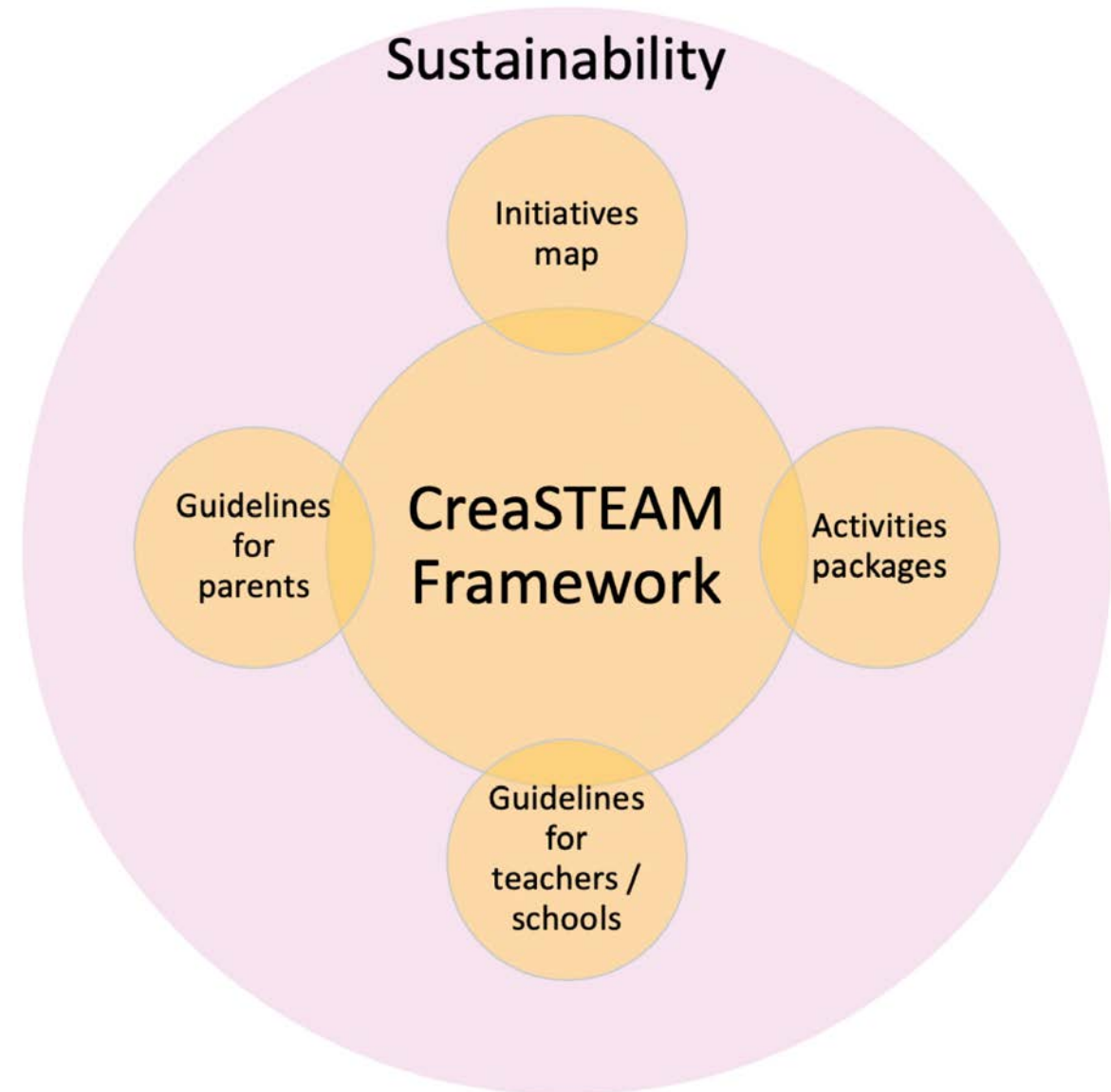


# STEAM-Labs framework



# CreaSTEAM Framework

- Map of STEM initiatives
- Good practice pack (activity pack)
- Guides for parents, teachers and school



# Map of STEM Initiatives (I)

<http://tool.creasteam.eu>



Create initiative

INITIATIVES

MAP

STATISTICS

ABOUT



Profile

**Filter by:**

**Areas**

- Arts
- Engineering
- Mathematics
- Science
- Technology

**Target groups**

- Adults
- Children
- Evaluators
- Students
- Women

**Initiatives**

- All
- My initiatives

Clear

**Integration durch...**

Arts

**BLEIB in...**

Adults

Arts Engineering Mathematics

Science Technology

**Jugendförderung des...**

Children Students

Arts

**Mathematikum Gießen**

Engineering Mathematics

Science Technology

**MINT Girls...**

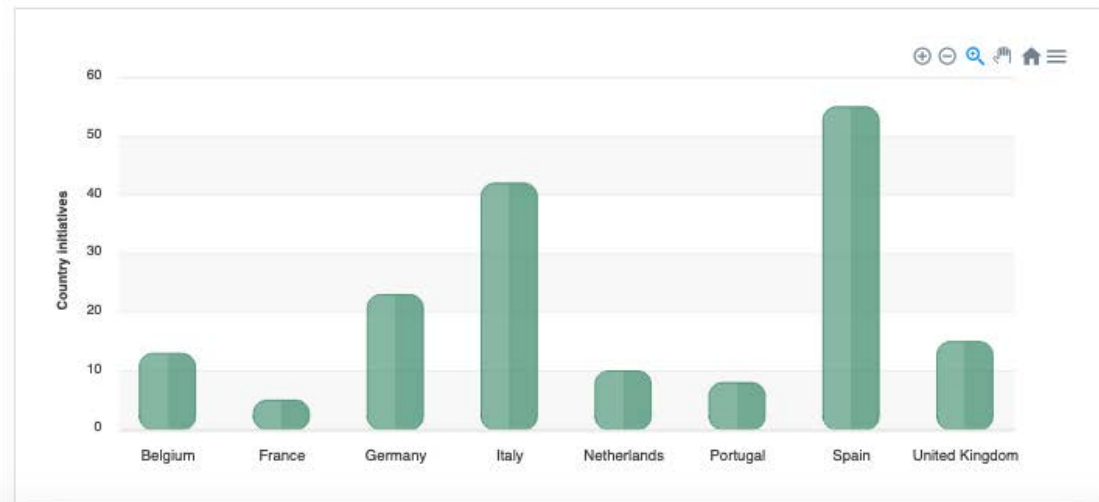
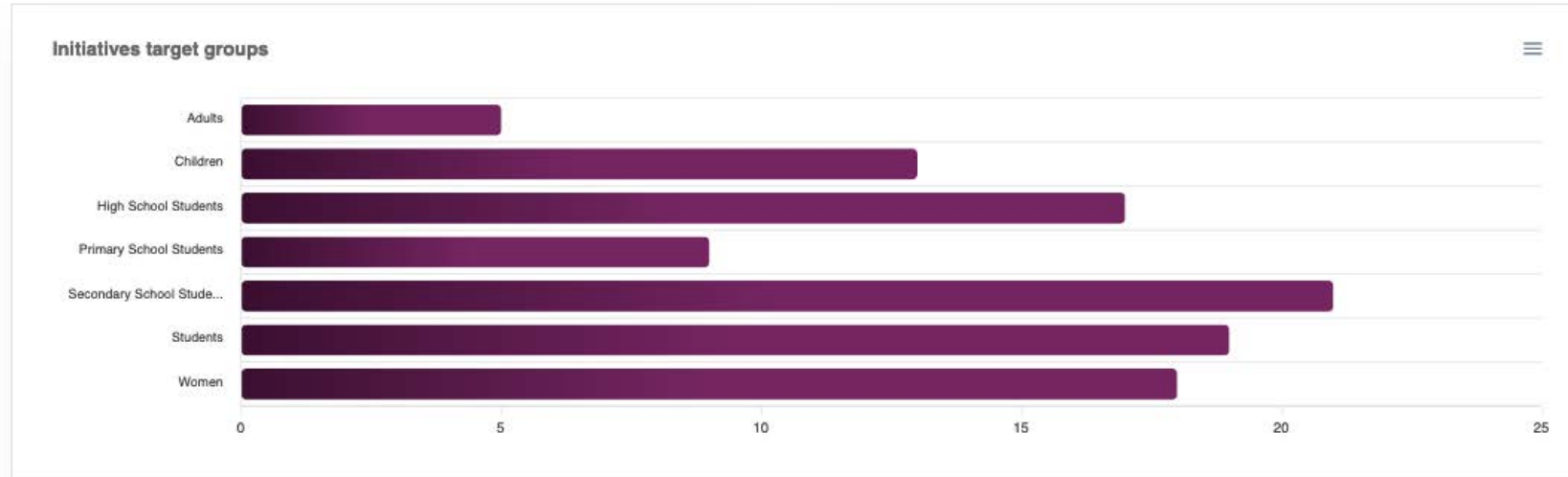
Engineering Mathematics

Science Technology

**Iustus Kinderuni**



# Map of STEM Initiatives (II)



# Good practice pack (activity pack)

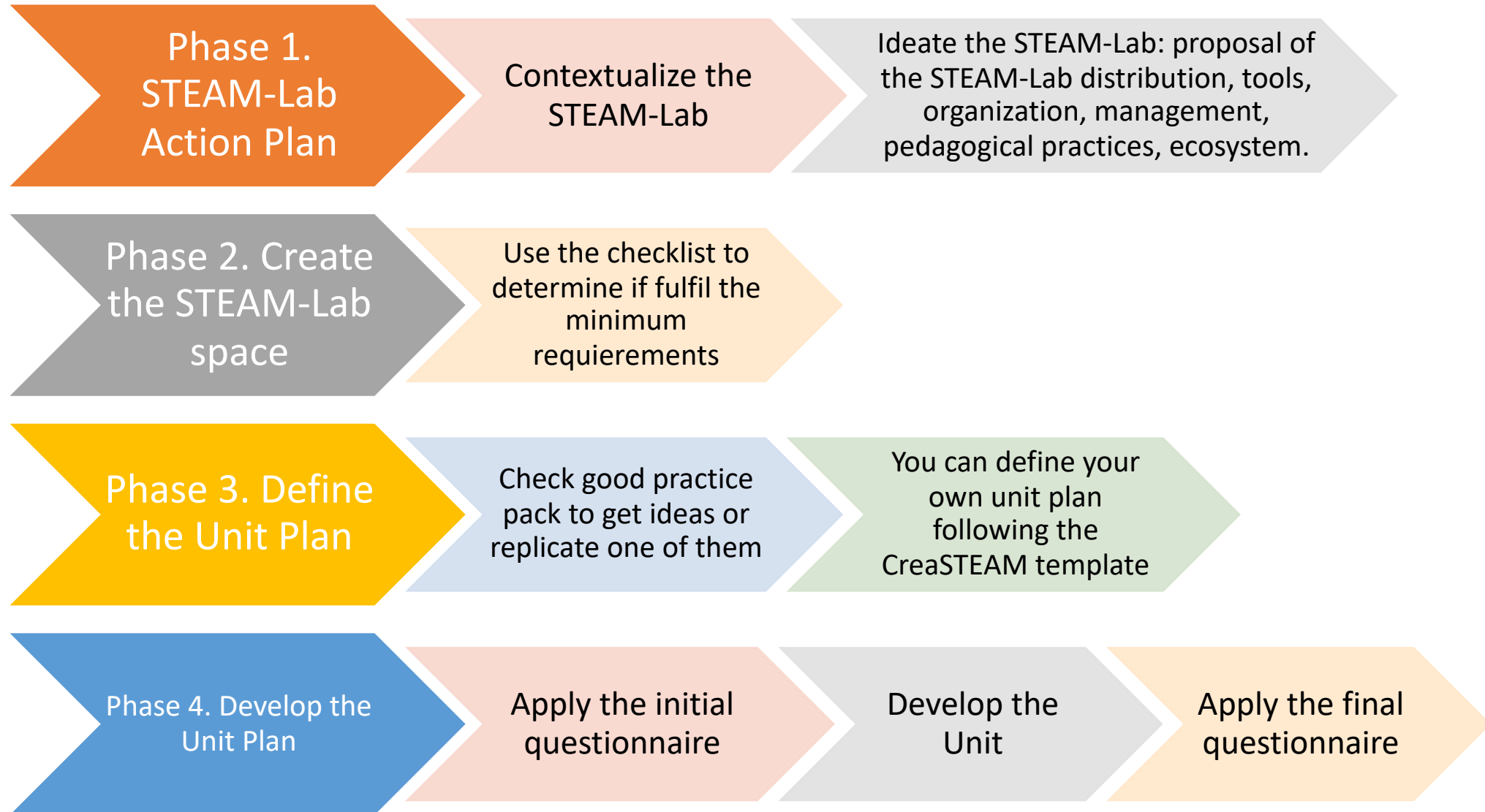
Download at <https://creasteam.eu/steam-labs/>

The result of the  
piloting phase

64 practices  
implemented in  
STEAM-Labs

Examples in real  
contexts in  
Germany, Italy,  
Spain and Turkey

# Guide for implementing an STEAM-Lab (I)



# Guide for implementing an STEAM-Lab (II)

Check <https://creasteam.eu/steam-labs> to get all the details and resources

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A graphic on the left side of the slide consisting of numerous colorful, hand-drawn brushstrokes in shades of green, orange, purple, blue, and pink, radiating from a central point.

# Crea STEAM

CreaSTEAM: STEAM-Labs, a new  
approach to support diversity and  
inclusion at schools  
**CreaSTEAM Consortium**