

IGNITE EUROGEMS

Empowering Girls, Igniting Futures in STEAM

Topic: Introduction to steam & Role Models 1.1 The Power of STEAM in today's world

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Consortium



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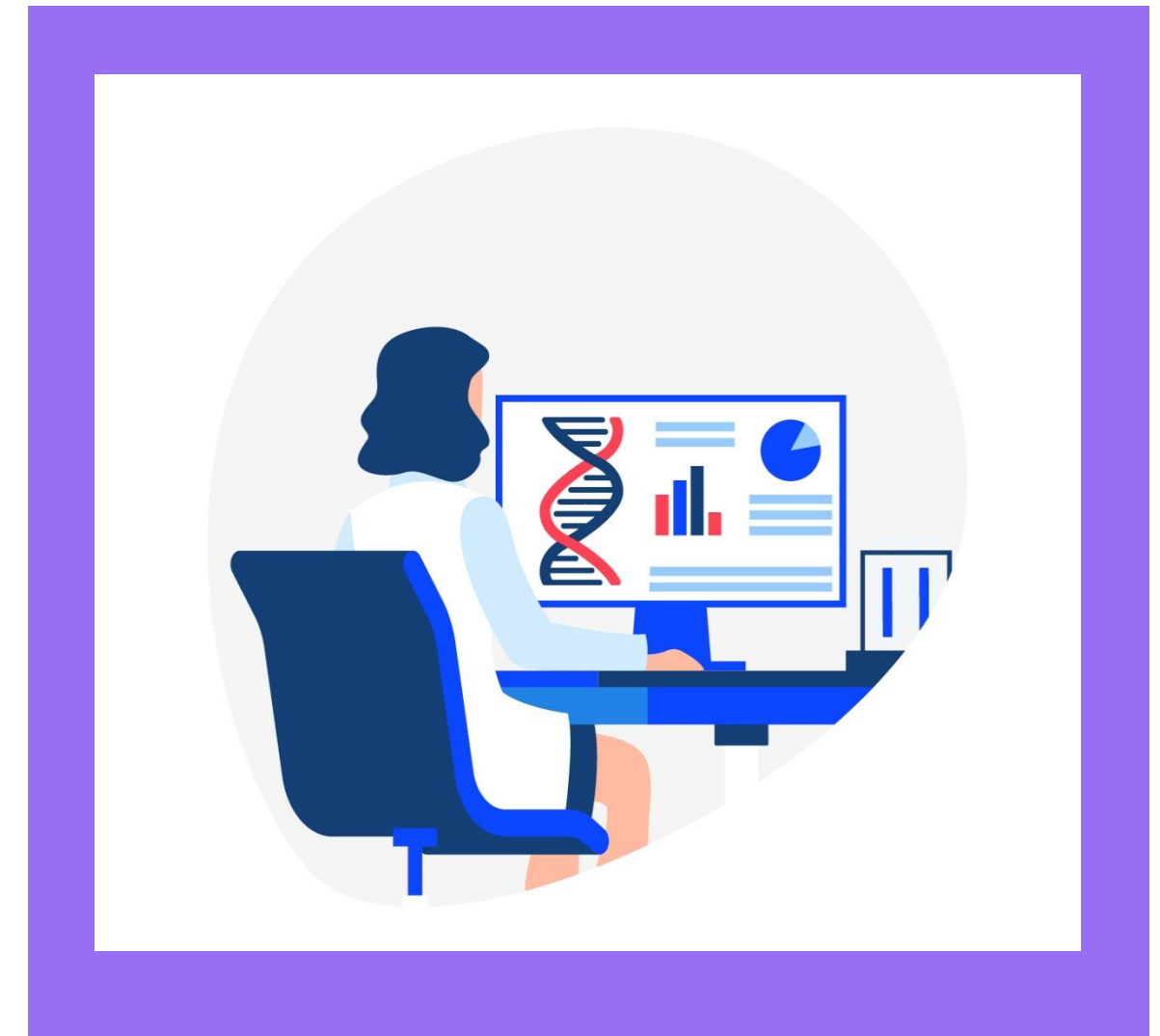
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What is STEAM?

Science

Technology

Engineering

Arts

Mathematics

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Mathematics

Mathematics provides a framework for understanding patterns, logic, and relationships.

Why STEAM Matters

- **STEAM is everywhere:** from the music we listen to, to the way we learn online, to how we solve big problems like climate change and health.
- **STEAM can lead to exciting careers** in medicine, tech, engineering, gaming, space exploration, and so much more.
- The world needs **young girls like you** to bring fresh ideas and solve important problems!





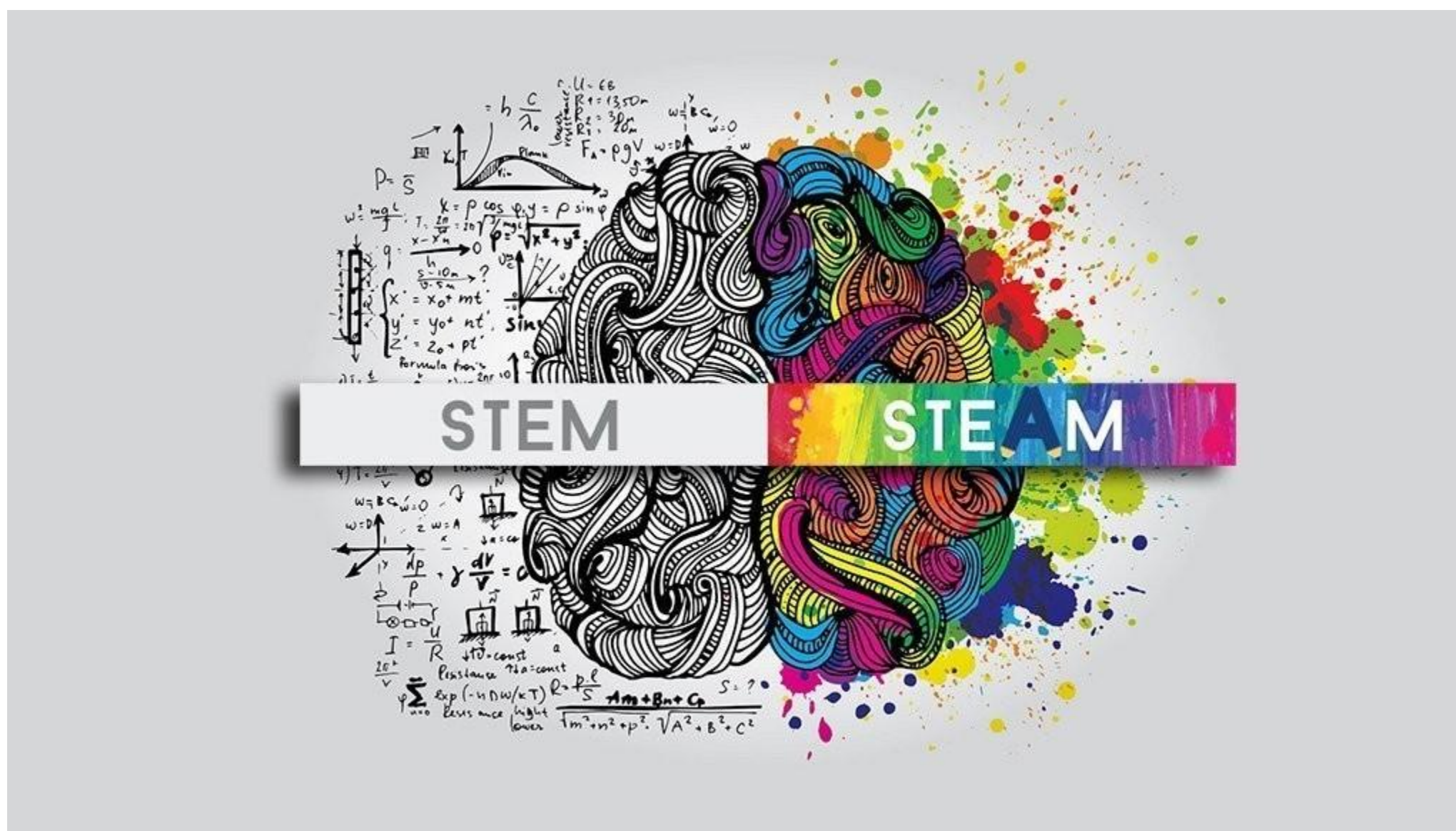
https://www.youtube.com/watch?v=VLrN6pxvfJ4&ab_channel=Code.org

STEM vs. STEAM: What's the Difference?

- **STEM** – Science, Technology, Engineering, Mathematics
Focus on science, technology, engineering and mathematics, mainly "logical" and technical approach.
- **STEAM** – Science, Technology, Engineering, Art, Mathematics
It adds Art, i.e. creativity and artistic thinking, along with basic STEM skills.

Why the 'A' Matters in STEAM

- Technical solutions need to consider human experiences and societal impact.
- The arts component of STEAM encourages empathy, ethics, and design thinking, making technological advancements more meaningful and sustainable.



STEM in Action: How It Shapes Our Everyday Life



Science

Help us understand and improve the world around us! It's the reason we can fly in airplanes, talk to friends across the world, and even predict the weather.

Engineering

Have you ever built something with LEGO or designed a project for school? That's engineering! Engineers create everything from roller coasters to fashion designs.

Technology

Think of your favorite app, gaming console, or social media platform—technology is behind all of that! It's about creating new gadgets and cool systems to improve life.

Mathematics

Numbers might seem boring, but they're everywhere. Math helps you plan, measure, and solve problems. It's used in everything from baking cookies to coding apps!

STEAM around you

Activity 1: Instructions

- Look around you right now (or think about your daily life).

Find things you use, wear, or see that involve Science, Tech, Engineering, Art, or Math.

→ Write them down (at least five)

Science isn't just in labs..

Example 1 : Your phone! it's in your hands every day

But do you know that **science** is behind almost every part of it?

Physics



Helps create touchscreens that respond to your fingers.

Chemistry



Chemistry is used to make the battery that powers your phone

Math & Algorithms



Allow apps like TikTok or Instagram to work smoothly

Biology & Medicine



Help in health apps that track steps or sleep



Example 2 : BUILDING A BRIDGE

When someone builds a bridge, they use STEAM:

- **Science:** Materials and forces
- **Technology:** Tools and software
- **Engineering:** Design and structure
- **Art:** Making it look nice
- **Math:** Measuring and calculating

Example 3 : Creating TikTok / YouTube videos

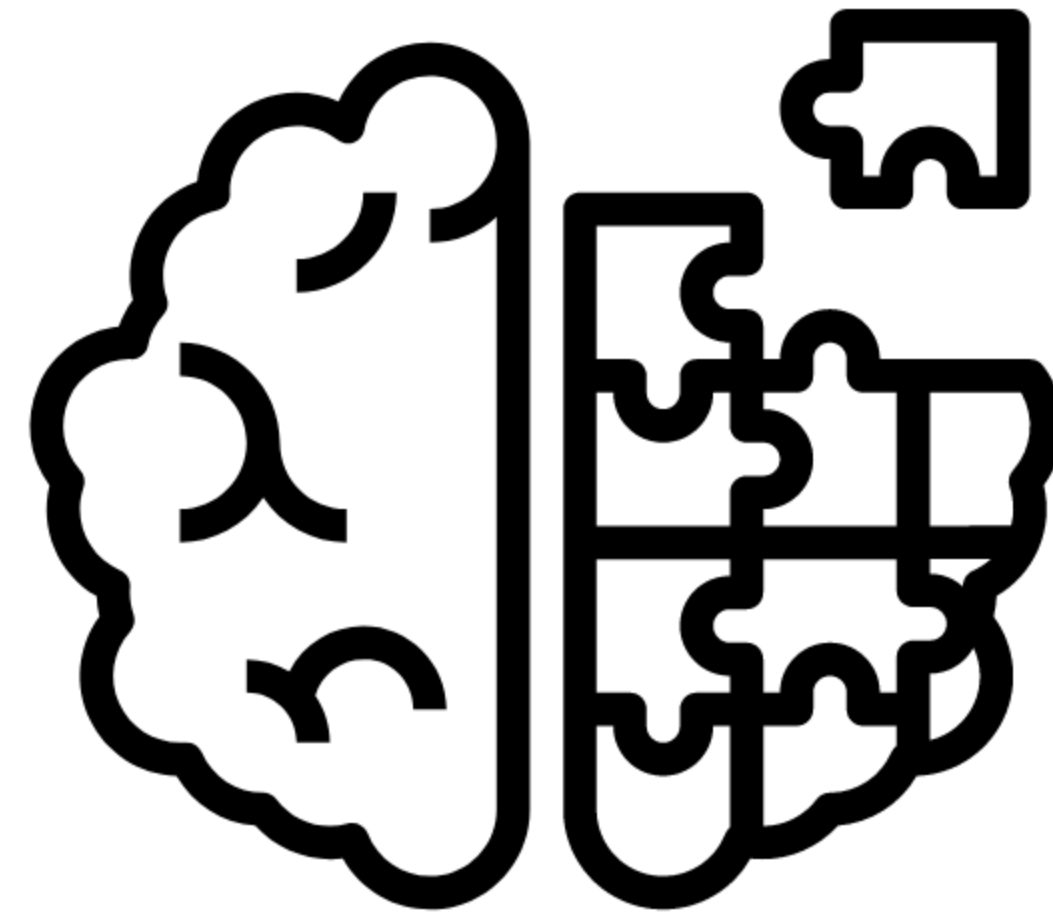
- Science:** Light, sound, color.
- Technology:** Mobile, editing applications.
- Mechanics:** Camera mount, tripod.
- Art:** Music, aesthetics, effects.
- Mathematics:** Synchronization of music and scenes.

Example 4 : Baking a dessert

- Science:** Reaction of heat and materials.
- Technology:** Use oven/mixer.
- Engineering:** Mixing and manufacturing process.
- Art:** Decoration and presentation.
- Mathematics:** Measurements of materials, temperature, time.

Developing critical and creative thinking

- Arts promote curiosity, imagination, and expression
- Science and math develop analytical and logical skills
- Together, they build a well-rounded mindset capable of both creative ideation and rigorous execution.



<https://www.horizeducational.com/what-are-5-essential-steam-education-skills/t1451?currency=usd>

Whole-brain development

STEAM strengthens logical and analytical thinking.

The arts nurture imagination, empathy, and emotional intelligence.

Together, they build more versatile thinkers.

Hands-on learning

STEAM often involves projects, experiments, and real-world problem-solving. This makes learning active, practical, and more exciting.

Adapting to the Unknown

STEAM prepares students to handle uncertain, rapidly changing futures. HOW?

By a) Emphasizing adaptability and lifelong learning

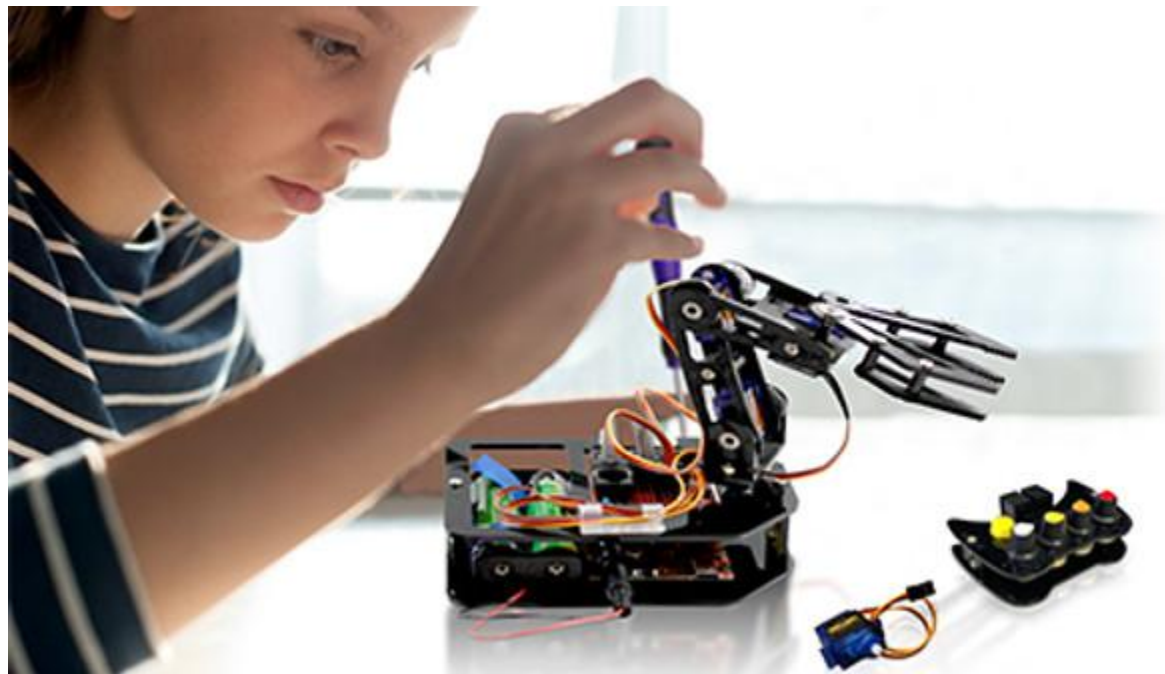
b) Teaching students to view failure as a learning opportunity.

Connecting Cultures Through STEAM

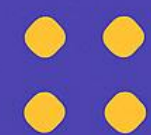
STEAM projects often connect students globally. International design competitions, global hackathons, and virtual collaboration that builds cultural understanding and global teamwork skills.

The Art of Failure: Learning to Learn Again

STEAM encourages resilience and growth mindset through iterative design. In art and design, **failing is part of creating** - the same applies to tech and science. Students learn that failure is feedback, not defeat.



<https://hamiltonbuhl.com/blog/best-stem-steam-education-products-by-grade-level/>



Join a girls' STEAM Challenge



WHAT TO EXPECT

- Serve as a role model, ambassador, and future leader
- Hands-on STEM/STEAM activities
- Promoting STEAM to peers in schools and/or local communities
- Represent IGNITE-EUROGEMS at events and/or at your school
- Help organize or co-organize fun STEAM activities to inform and raise awareness
- Share personal experiences to inspire other girls

WHAT YOU WILL GAIN

- Enhancing social skills, such as leadership, teamwork, and presentation
- Developing digital skills
- Awareness of gender equality in Steam domains
- Participation in actions that promote inclusive education
- Creation of a network of STEAM ambassador girls
- Contact and communication with women role models who have succeeded
- Long-term online access to educational materials



**Teaching
Strategies**



Role models and mentors

Successful female STEAM professionals to inspire and guide girls through mentorship and storytelling



Use of technology and digital tools

Digital platforms, coding, robotics, and virtual labs to make learning dynamic and accessible



Interactive and collaborative learning

Teamwork, peer-to-peer learning, and engaging activities that stimulate participation

Certificate of participation

As part of the training program, each girl who completes the trainings will receive a Certificate of Participation that will be issued to the project team.

Purpose of the Certificate:

- Recognizing your role as STEAM Ambassadors
- Recognizing successful completion of training
- Useful addition to your portfolio by enriching your resume from a young age



IGNITE EUROGEMS

Empowering Girls, Igniting Futures in STEAM

Topic: Introduction to steam and role models

1.2 Inspiring women in Steam careers

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in STEAM Fields



Introduction



→ That didn't stop them from **breaking barriers and making history.**

Did you know that some of the greatest scientific discoveries and technological advances were made by **women?**

From coding the first computer program to exploring space, women have **changed the world** and you can too.

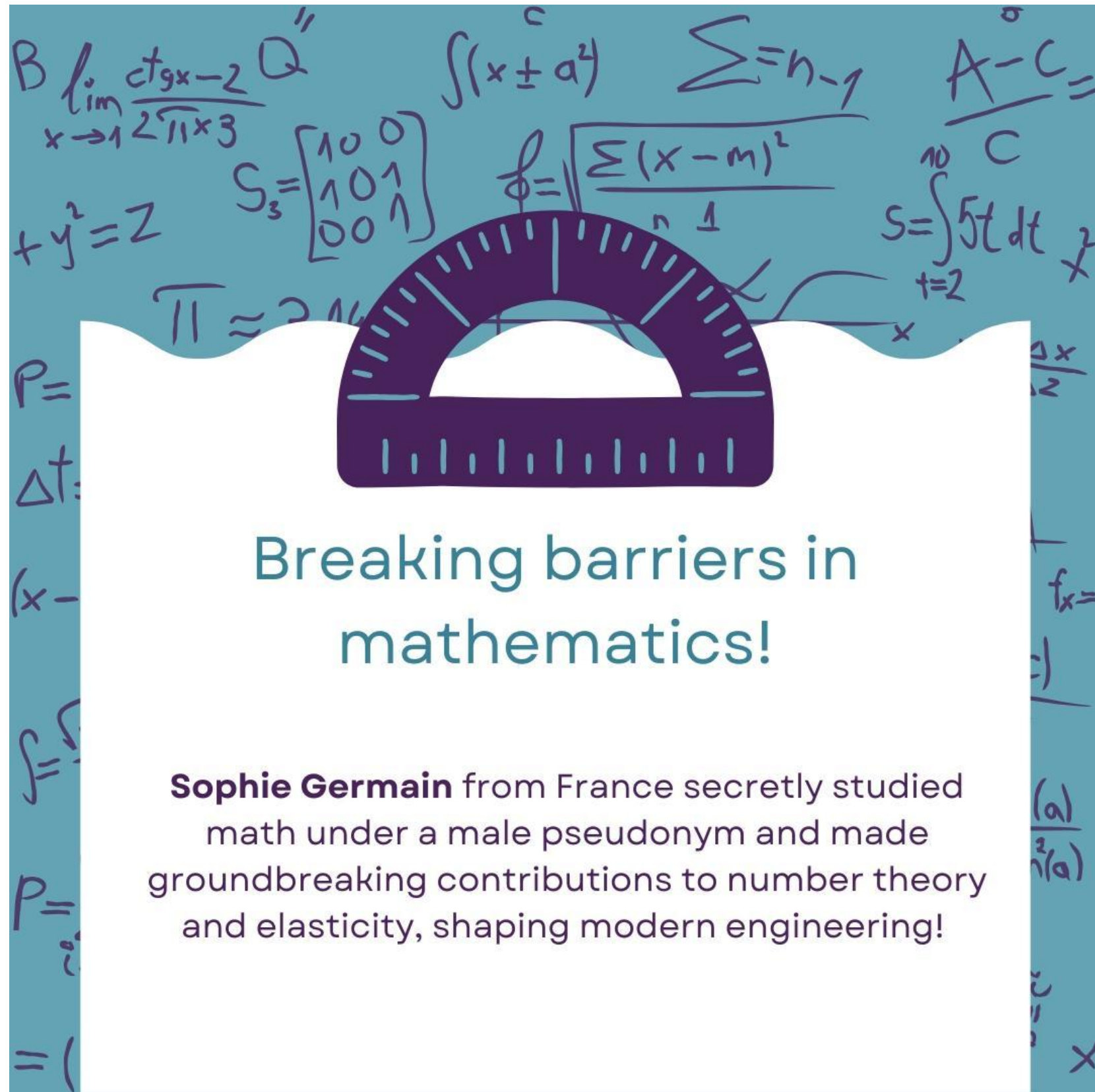
For many years, women were told that steam (Science, Technology, Engineering, and Math) wasn't for them.

Why Role Models Matter for You

- Role models show you that you **can** succeed in steam, even if others say it's hard or not for girls.
- They can guide you, share tips, and offer advice, helping you avoid mistakes and find the right path.
- Seeing women like you in steam shows that it's possible to break barriers and pursue dreams that others might think are impossible.
- You don't have to be perfect—role models are real people who faced challenges but didn't give up.

Women Who Made History in STEAM

Marie-Sophie Germain (1776 –1831): : the great self-taught mathematician



Breaking barriers in mathematics!

Sophie Germain from France secretly studied math under a male pseudonym and made groundbreaking contributions to number theory and elasticity, shaping modern engineering!

Handwritten mathematical formulas on the teal background include: $\lim_{x \rightarrow 1} \frac{\text{ctgx} - 2}{2\sqrt{11}x^3}$, $\int (x \pm a)^4$, $\sum = n - 1$, $\frac{A - C}{C}$, $S_3 = \begin{bmatrix} 10 & 0 \\ 10 & 1 \\ 00 & 1 \end{bmatrix}$, $\phi = \sqrt{\frac{\sum (x - m)^2}{n}}$, $s = \int_2^{10} 5t dt$, x^2 , $+y^2 = z$, $\pi \approx 3.14$, $P =$, Δt , $(x -$, $f_x =$, $\int = \sqrt$, $P =$, $= ($, x .



<https://www.ma8imatikos.gr>

Who was Sophie Germain



- She was born on April 1, 1776, in Paris, into a wealthy family - her father was a silk merchant and political figure.
- A self-taught mathematician, she learns Latin, Greek, calculus, number theory and physics from her father's library - even when her parents tried to forbid her to study

Obstacles she faced: Denied access to formal education: denied entry to École Polytechnique simply because she was a girl

Secret Scholar: she adopted the male pseudonym "Monsieur Le Blanc" to submit a work under a man's name.

Key Achievements: Number Theory & Fermat's Last Theorem

Fascinated by Legendre and Gauss, she wrote to Gauss in 1804 as "Le Blanc"

Developed Sophie Germain's Theorem, Elasticity & Acoustics Award

Sophie Germain



She won a major prize from the Paris Academy of Sciences for her work explaining Chladni's vibrating plate experiments - the first woman to receive such recognition

Her work laid the foundation for the theory of plate vibrations and the mathematics used to construct the Eiffel Tower

Early woman in academia

Although she was guided by notable mathematicians such as Lagrange, Legendre, and corresponded with Gauss, he could not hold a formal academic position

She was posthumously honored with an honorary degree from Göttingen (which she did not receive as he died in 1831) and eponymous awards, a road, a crater on Venus, and even mathematical concepts such as "Sophie Germain primes" and "Sophie Germain's identity"

Inspiring Women in Science and Tech



**Ada
Lovelace**
Early Computer
Programmer

1840

**Marie
Curie**
Pioneering
Scientist

1800

**Lise
Meitner**
Trailblazing
Physicist

1903

**Grace
Hopper**
Computer Pro-
gramming
Pioneer

1950

**Katherine
Johnson**
Mathematician
& Physicist

1960

**Margaret
Hamilton**
Software Eng-
(Apollo)

1969

**Radia
Perlman**
Internet
Pioneer

1980

Ada Lovelace (1815–1852) - The First Tech Visionary

"The more I study, the more insatiable I feel my genius to be."



Image source: "#WomenThatDid: Ada Lovelace" entitymag.com

Ada Lovelace, the First Tech Visionary

She developed the first-ever computer algorithm, realizing that computers could do more than just math - they could follow instructions to solve complex problems.

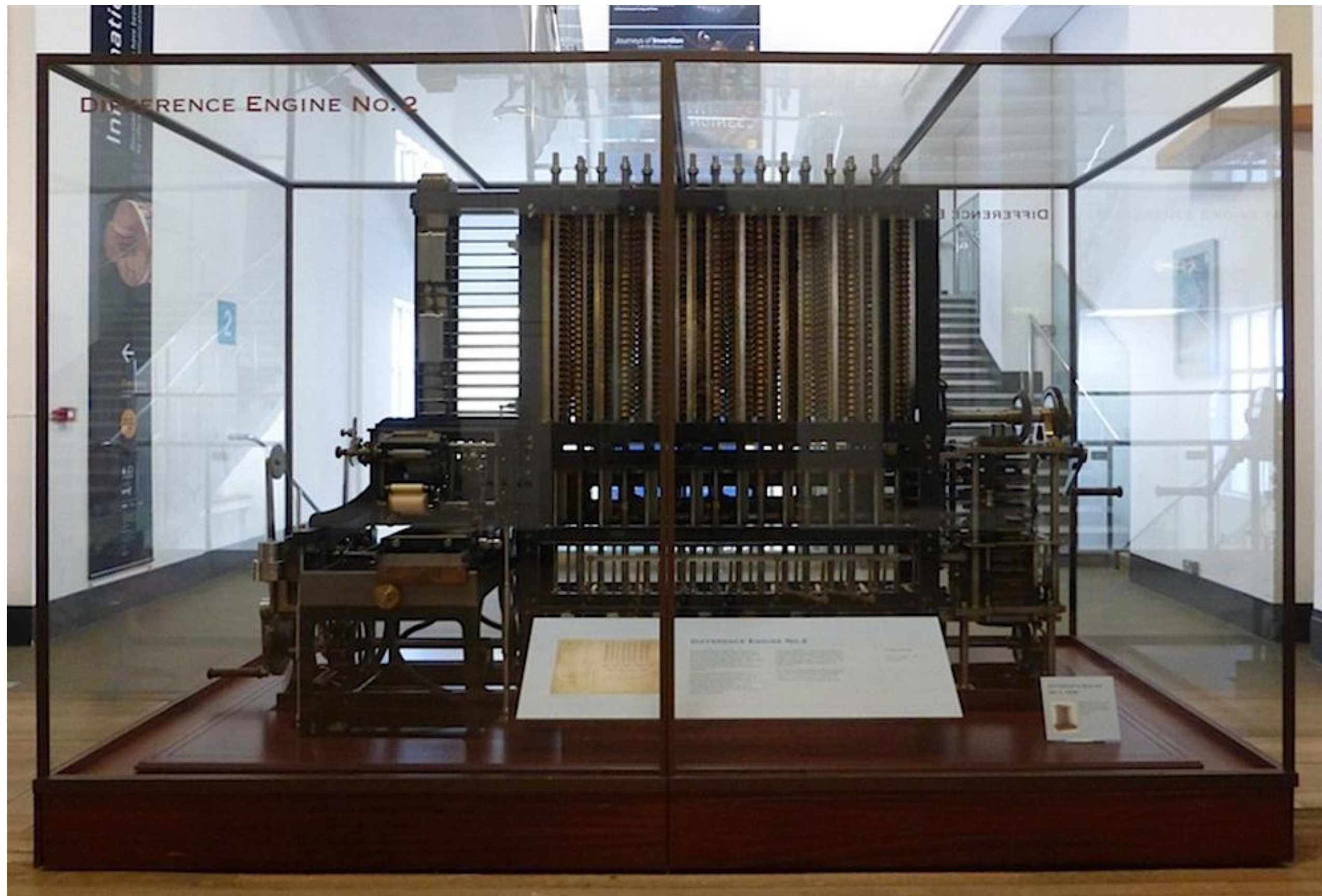
Why Does She Matter?

Ada imagined computers doing things like creating music and art way before modern computers existed! Her vision laid the foundation for today's software, coding, and AI.

Fun Fact: The programming language "Ada" was named after her!



Ada Lovelace



Marie Curie (1867 –1934)

“Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.”

– Marie Curie



Who Was Marie Curie?

Marie Curie was a Polish-French physicist and chemist who conducted pioneering research on radioactivity.

She was the first woman to win a Nobel Prize, the first person and the only woman to win the Nobel Prize twice in both scientific fields.

She was also the first woman to become a professor at the University of Paris in 1906.

FUN FACTS: 💡 She loved learning so much that she secretly studied at night because women weren't allowed in universities in Poland.

💡 Einstein once said that the strength of character, willpower and dedication of Marie Curie were rare properties. He believed that if more people shared her spirit, the world would have a better future.

- During World War I, Marie Curie created mobile X-ray units to help doctors treat wounded soldiers right on the battlefield.
- Later, she founded the Curie Institutes in Paris and Warsaw, which remain world-famous centers for medical research.
- Her lifelong dedication to science exposed her to radiation, which sadly led to her death in 1934.



Marie Curie on her mobile x-ray unit, 1917

Lise Meitner (1878-1968)

Meitner was
praised by
Albert Einstein
as the "German
Marie Curie."



Lise Meitner



A great physicist who paved the way for nuclear science. Thanks to her work, nuclear fission was discovered – that is, the process by which an atom's nucleus "breaks" and releases enormous energy.

She was also a co-discoverer of the element protactinium and the first to give the name "nuclear fission" to this process.

Despite the great difficulties she faced – the sexism of the time and the fact that she had to leave Germany to escape the Nazis – Meitner did not give up.

She continued her work and became head of physics at the Kaiser Wilhelm Institute of Chemistry in Berlin, inspiring many women scientists after her

Honors That Keep Her Legacy Alive

In science

- The 109th chemical element, **Meitnerium** (Mt), was named after her in 1997 as a tribute to her work.
- During her lifetime she was honored with important awards, such as:
 - 🏆 Medal Max Planck (1949)
 - 🏆 Enrico Fermi Prize (1966)

Why Lise Meitner inspires us:

- She chose **morality** over power.
- When asked to participate in the **Manhattan Project** (atomic bomb construction) she said:

"I will have nothing to do with a bomb!"

She dreamed of science as a field that would bring peace and progress to the world. She wanted to use her discoveries as a tool to improve lives, not to provoke war.

Grace Hopper (1906-1992)



"A ship in port is safe, but that's not what ships are built for"

Grace Hopper (1906-1992)

- Hopper was one of the first women in computer science and believed that computers should be easier to use for everyone. He contributed to the creation of the COBOL programming language, which was used for many years in businesses and organizations. She was also known for her sense of humor and persistence in innovating. Her work paved the way for modern programming.
- In addition, she served in the U.S. Navy and reached a high rank, showing that women can succeed in every field. She liked to encourage young people to try new ideas and not be afraid of mistakes. With her work, she inspired many women to get involved in technology.

Katherine Johnson (1918-2020)



“Girls are capable of doing everything men are capable of doing. Sometimes they have more imagination than men.”

The Presidential Medal of Freedom was awarded to Johnson in 2015.

Who Was Katherine Johnson?

American mathematician who worked at NACA/NASA for more than 30 years.

Stood out in math from an early age - graduated college at 18.

One of the “human computers,” doing complex calculations by hand before electronic computers existed.

Why She Inspires Us

Showed how math and precision can shape history.

A role model for girls in STEM - honored with the Presidential Medal of Freedom and celebrated in the book & film Hidden Figures.

Recent Examples of Women as Role Models in STEAM Fields

Margaret Hamilton (1936 – today)



Margaret Hamilton



Hamilton coined the term “software engineering”, giving legitimacy to a field that was, at the time, undervalued and male-dominated.

She led the development of on-board flight software for NASA's Apollo missions — an achievement that helped land the first humans on the Moon.

Breaking Gender Barriers at a time when few women were in technology or leadership roles, Hamilton directed a team of engineers at MIT's Instrumentation Laboratory.

Her visibility challenged stereotypes about women in science, paving the way for future generations of women in tech.

Radia Periman 1951 – Present (Mother of the internet)

“Sometimes The best
way to learn something
is to do it.”



Radia invented a “rule system” known as (the STP)

The Spanning Tree Protocol (STP) tells computers: Don't send the same message in circles (no endless loops).

Gives the command to the computer as follows:

- Find the best path to send the information.
- Keep the network calm
- Work smoothly

🌟 Thanks to her invention:

- 1) The Internet became reliable and could grow bigger
- 2) Billions of people can connect online without chaos.
- 3) Every time you watch YouTube, send a DM, or scroll TikTok — STP is working quietly in the background.

Dr Adriana Albini (1951 – Present) Scientific director

First Italian on AACR Board: In 2018, she became the first Italian to serve on the Board of Directors of the American Association for Cancer Research (AACR), highlighting her international influence in oncology.

Champion for Women in Science: As President of the 'Top Italian Women Scientists' club, Dr. Albini actively promotes and supports female researchers, fostering gender equality in STEM fields.

BBC 100 Women: Recognized in 2020 as one of the world's most inspiring women for her contributions to science and advocacy.



Nicky Goulimis (1980s – present) – A steam Role Model in Fintech

“Any startup is the sum of the small nudges in many directions.” Nicky Goulimis



Nicky Goulimis (1980s – present)

It is important to understand that STEAM skills can **drive social change**, just like Nicky Goulimis has done through fintech innovation. Nicky Goulimis's achievements and advocacy, can encourage young girls like YOU to pursue steam education and careers, showing that they can lead and innovate in technology-driven fields.

Combines **technology, finance, and social impact**, showing how steam skills can solve real-world problems.

Nicky Goulimis (1980s – present)



Nicky Goulimis

Rebuilding trust in payments
8mo · Edited

** Calling all women software engineers **

I'm a [female] founder, daughter of a [female] Professor of Computer Science and Dahl-Nygaard prize winner, who wants to meet [female] engineers. If you are a woman engineer, please reach out in my DMs here or nicky@tunicpay.com and I will do 20 women engineer office hours in the next 7 days.

I'd love to use those slots to build an awesome community, to be helpful with people's careers, and of course to explore working together too! We just launched Tunic Pay to fight scams in payments, and need the best brainpower to get this right. We are lucky to be helmed by a stellar experienced team, supported by fantastic investors, and working with some of the largest banks in the world.

Still: I would prefer to not have to include the [female] gender parentheses. No one enjoys being a token, or minimized to one facet. (For myself the "women in" awards often ring hollow, especially when compared with the deflation I feel when yet another failed founder with a history of sexual harrasment gets funded...) In the end, I would love to be able to work alongside the very best people, by truly seeing 100% of the population and ensuring all have an equal opportunity to engage with us. It's time to hustle to build a more representative & more excellent pipeline -- please don't hesitate to reach out.

  6

 Like  Comment  Share

-A Greek businesswoman who uses technology to address financial challenges by applying **data science, engineering and analytics skills to the financial sector (fintech)**.

-Nicky Goulimis has shown dedication to supporting women in her field technology.

Eleni Charitonos (1990s – Present)

"It is difficult to process the fact that something that until now seemed elusive to you, will now be your new reality..."
Eleni Charitonos



Eleni Charitonos

Paving the way for Cypriot women in space exploration



The first Cypriot woman to participate in an internship program in the context of Analog Astronaut training in the United States.

Education: Pursuing an undergraduate degree in Mathematics and Statistics at the University of Glasgow.



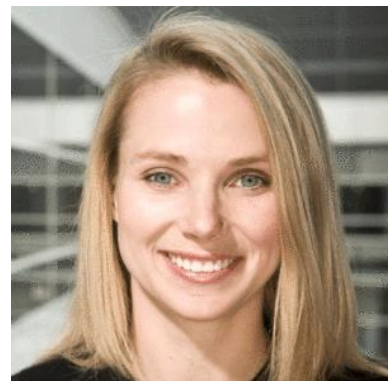
Recent Examples of Women as Role Models in STEAM Fields



“When you put the helmet on, it doesn’t matter if you are woman or man: your mission is to compete to win.

The important thing is your ability, your intelligence and your determination.”

— **Milka Duno, Race car driver**



“If you’re beautiful, you’re led to believe that you can’t also be smart, but you can be fun and fit and social

and be really smart. And the smarter you are, the more capable you’ll be to handle whatever challenges come up in life.”

— **Marissa Mayer, CEO of Yahoo, former engineer at Google**



“People ask me all the time: ‘What is it like to be a woman at Google?’ I’m not a woman at Google, I’m a geek at Google. And being a geek is just great.

“I’m a geek, I like to code, I even like to use spreadsheets when I cook.”

— **Danica McKellar, Mathematician, writer and actress**

These remarkable women have laid the foundation for future generations! Let's continue to celebrate and empower women in STEM everywhere!



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1.2 Career opportunities

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STATISTICS PER COUNTRY

| FIELD | Cyprus | Greece | Italy |
|------------------------------|----------------------------------|---|---|
| TECHNOLOGY | 34.7% women in high-tech sectors | 29.4% women in ICT specialists | 34.1% female scientists/engineers |
| ENGINEERING | 44% women in science/engineering | 39% women in science/engineering | 30.6% in southern region |
| MATHEMATICS & DATA SCIENCE | 3.7% female STEM graduates | 46% women (25–29) with basic digital skills | Data limited; overall lower STEM representation |
| LIFE & ENVIRONMENTAL SCIENCE | 3.7% female STEM graduates | 39% women in science/engineering | 30.6% in southern region |

A STEAM career in healthcare connects modern technology with medical science and contributes to the development of personalized care for each person.

Career Examples:

- Biomedical engineer creating artificial organs
- Medical technologist performing important examinations
- Data scientist using health data to combat disease.
- Genetic counselor
- Biotechnology researcher



2. TECHNOLOGY

UX/UI Designer

Perfect for creative minds who want to blend tech with design and psychology

Robotics Engineer

Especially in manufacturing

Game Developer

It combines coding, storytelling, and design

IT Project Manager

Combines tech with leadership and soft skills (great for girls who like to organize and lead)



2. TECHNOLOGY

- **Marine Engineer** → It makes sure that the ships operate properly and safely. Very important for countries like Greece and Cyprus that have a lot of shipping.
- **Mechatronics Engineer** → It combines mechanical, electronic, and computational systems to make "smart" machines and factories or robots.



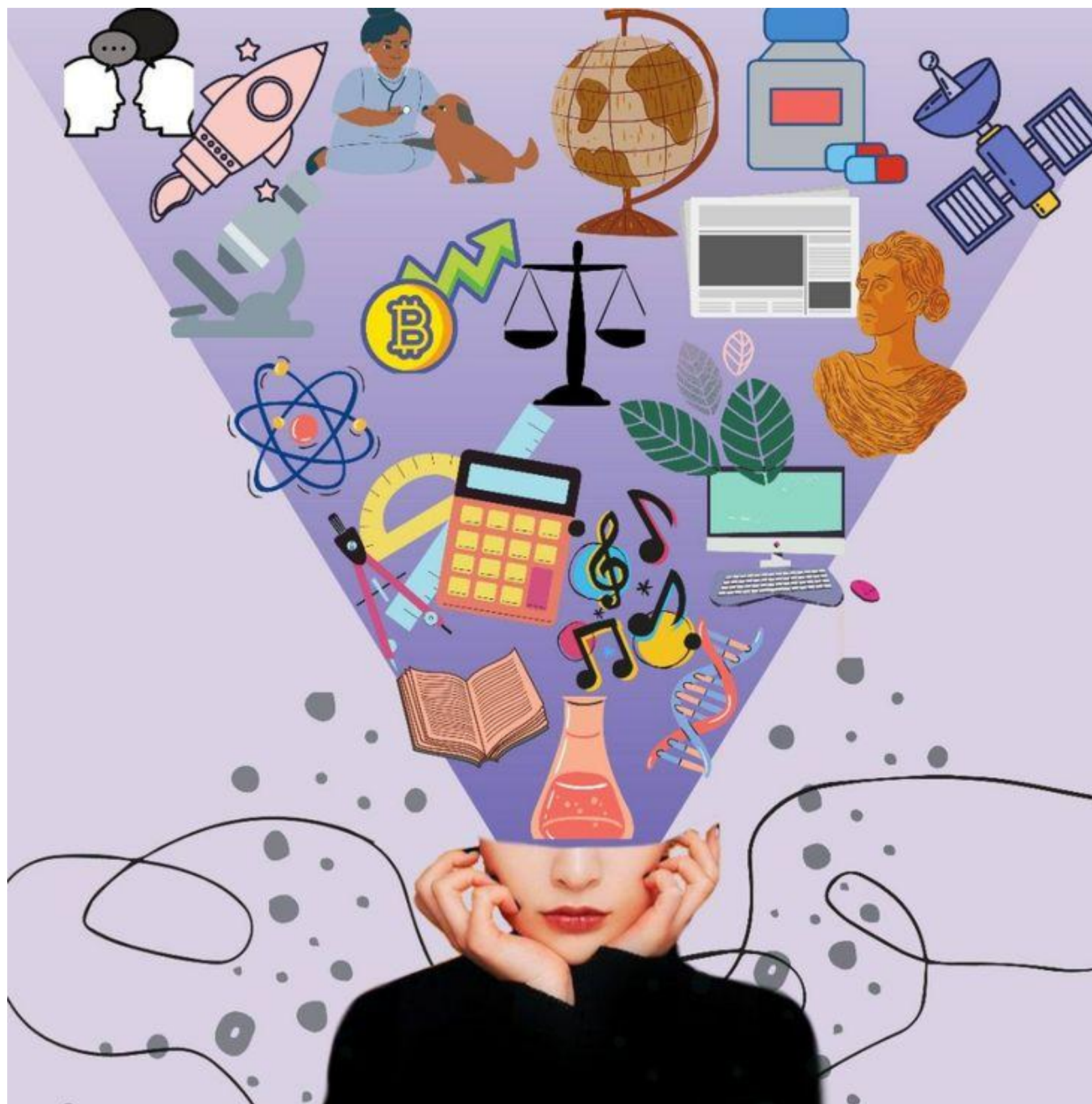
1. **Business Intelligence Analyst**

2. **Cryptographer / Cybersecurity Analyst**

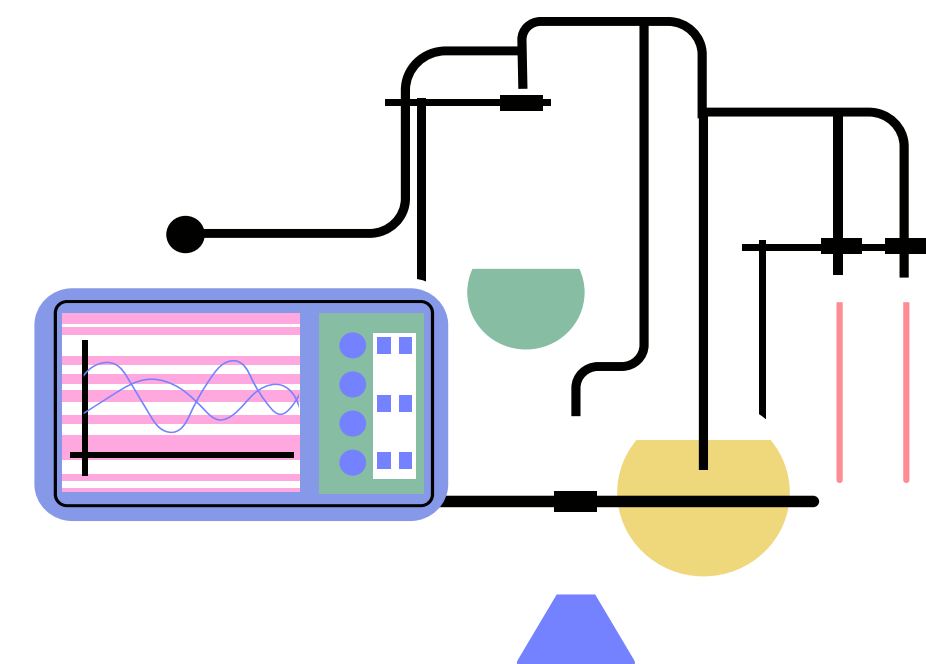
3. **AI & Machine Learning Specialist**

4. **Quantitative Analyst**

3. STEAM PROFESSIONS IN MATHS AND DATA SCIENCE



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



Accessibility technology developers

THE IMPORTANCE OF ACCESSIBILITY IN SOFTWARE DEVELOPMENT



What They Do

- **Design Assistive Technologies** - Devices or software that help people perform tasks they might otherwise find difficult (e.g., screen readers, speech-to-text tools)
- **Improve Digital Accessibility** - Make websites, apps, and software compliant with accessibility standards (like WCAG).
- **Develop Inclusive Hardware** - Specialized keyboards, adaptive controllers, hearing devices, or eye-tracking systems.
- **Integrate AI and Emerging Tech** - Use AI, AR/VR, voice recognition, haptics to improve accessibility in education, workplaces, and public spaces.

Humanitarian Drone Pilots



When you hear “drones” you might think of photography or entertainment - but drones nowadays are saving lives. Today, we’ll see how humanitarian drone pilots and STEAM education come together

What Are Humanitarian Drone Pilots?

Professionals trained to use drones for:

Disaster Relief: Delivering food, water, and medicine.

Search & Rescue: Locating missing persons in floods, earthquakes.

Environmental Monitoring: Mapping wildfires, floods, and deforestation.

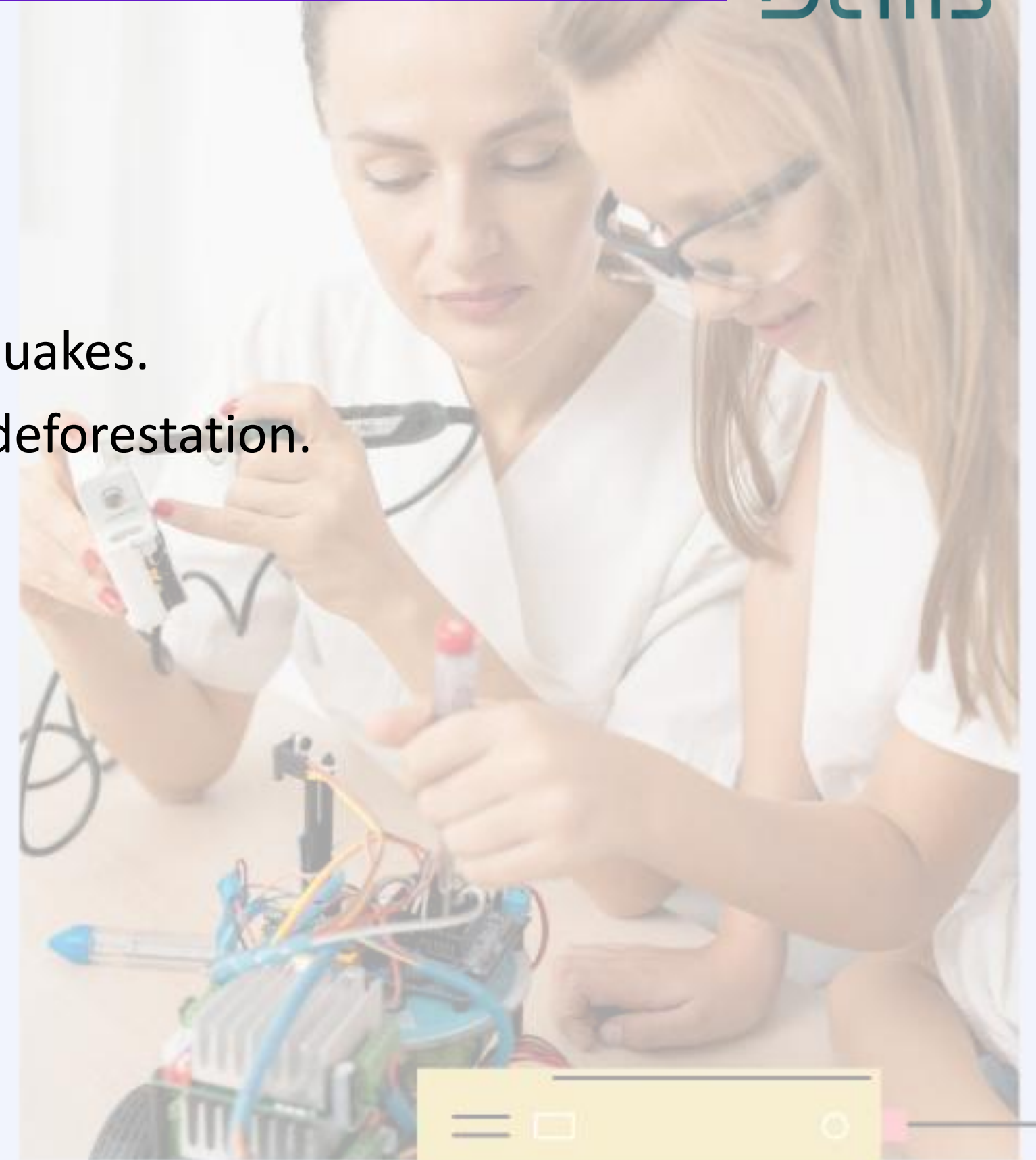
Why it matters: Saves lives in crisis zones.

Example humanitarian missions

Rwanda: Medical drones delivering blood to rural hospitals

Nepal: Drones mapping earthquake-hit regions

Wildfire response: Aerial surveillance & fire mapping



STEAM & Environmental Sciences

Climate Scientist – Relevant for Mediterranean countries facing environmental challenges

Ecologist / Conservation Scientist – Biodiversity and nature protection roles are growing under EU green funding

Agritech Specialist – Combines agriculture and innovation — crucial for sustainable food systems in Southern Europe

Renewable Energy Engineer – Solar, wind, and sustainable energy are important sectors in the Mediterranean

Environmental Engineer – In demand for tackling climate change and EU green transition



Preparing for a STEAM Career

You don't have to wait until college to start your STEAM journey. Join school clubs, enter science fairs, try coding games, or watch STEAM videos on YouTube.

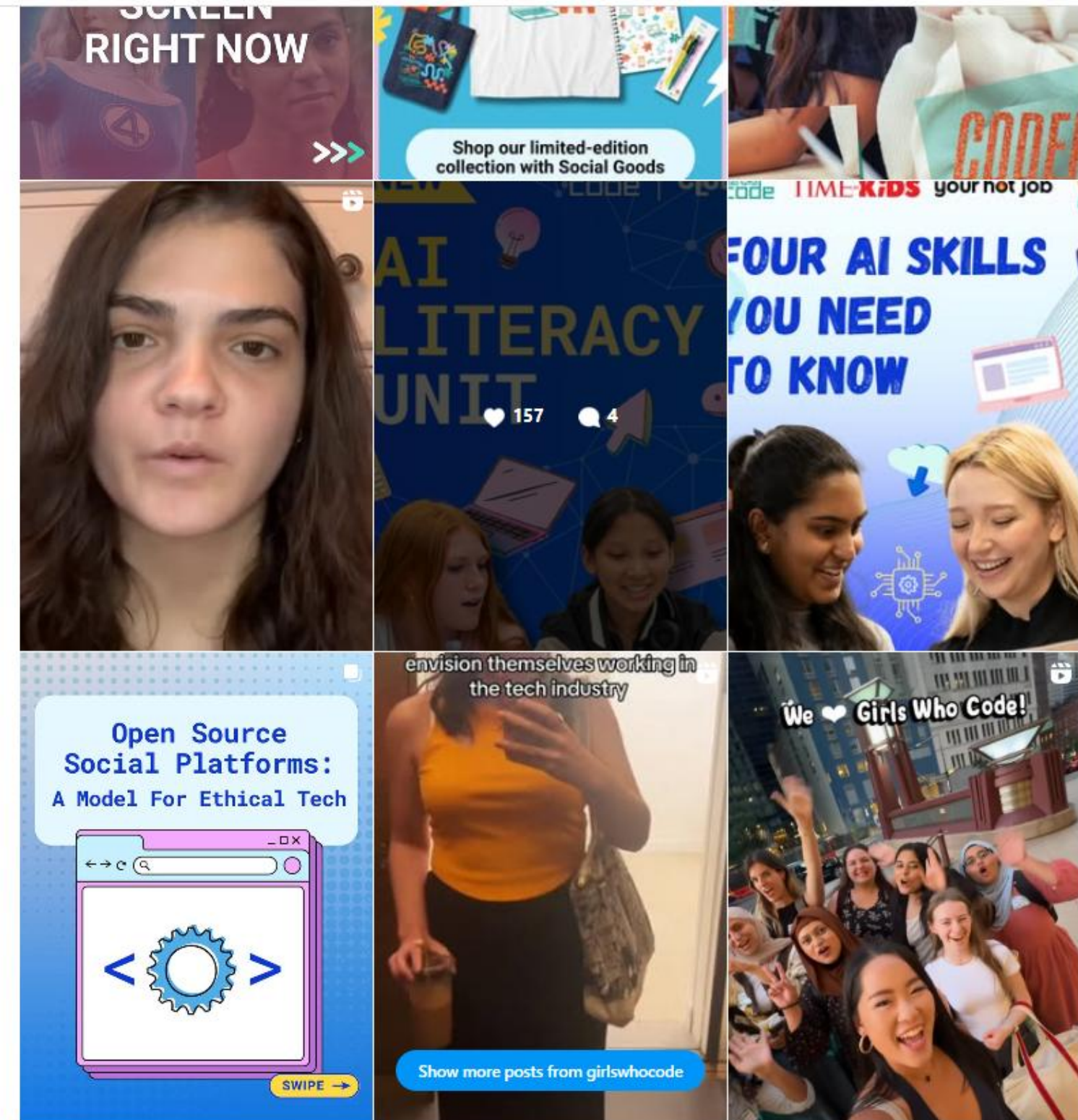
Preparing for a STEAM Career



- Start a “Mini STEAM Journal”. Start a personal journal to reflect on their STEAM interests, document small experiments, or track your inspirations and goals, so you can ask for guidance
- Choose who is your favorite STEAM role model who inspires you the MOST and learn how she made it to the TOP!!!
- Learn Coding and Digital Skills Early. Start learning programming languages (like Python, Scratch, or JavaScript) through free online platforms, apps, or local workshops.
- **Look for mentors, role models, and internships to guide you.**
- **Read, Watch, and Stay Curious** - Read books, watch documentaries, and follow YouTube channels about STEAM topics. Keep asking questions and stay curious about how things work, new technologies, and creative ways to solve problems.

Social Media & Online Communities

- **YouTube Channels like:** STEM in 30 (NASA), STEM Behind the Scenes
- Follow **role models** in STEAM for inspiration. Search on Instagram & TikTok accounts with hashtags **#GirlsInSTEM, #STEAMEducation, #GirlsWhoCode.**
- **Discord & Slack Communities:** Coding and robotics clubs for teens
- Listen to specific **Spotify** episodes
- **Online Learning Platforms** (Code.org – Free coding courses for beginners (code.org))



Instagram Accounts:

@girlswhocode – Girls Who Code official account, coding challenges and role models.

@womenintech – Highlights female tech leaders and innovators.

@wearetechwomen – Inspiring stories of women in tech, coding, and engineering.

@engineergirlorg – Engineering career tips and projects for girls.

TikTok Accounts

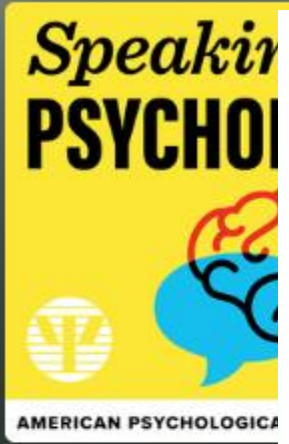
@girlswhocode – Coding tutorials and challenges for teens.

@stemgirlsclub – Fun STEM experiments, robotics, and maker projects.

@theengineeringfamily – DIY engineering projects and STEM creativity.

@NASA – Short videos about space, drones, and STEM projects.

@curiosityunlimited – Cool STEM facts and creative science content.

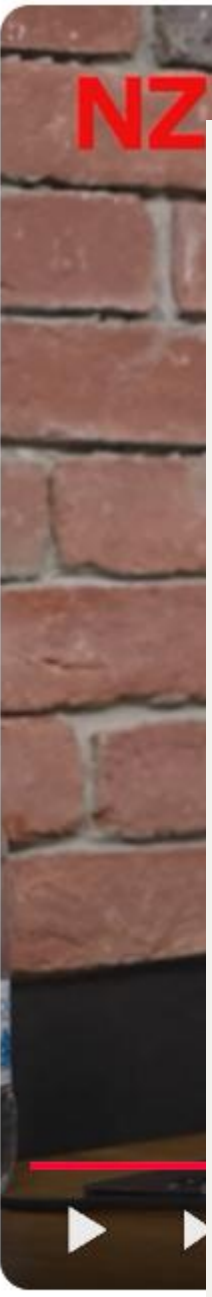


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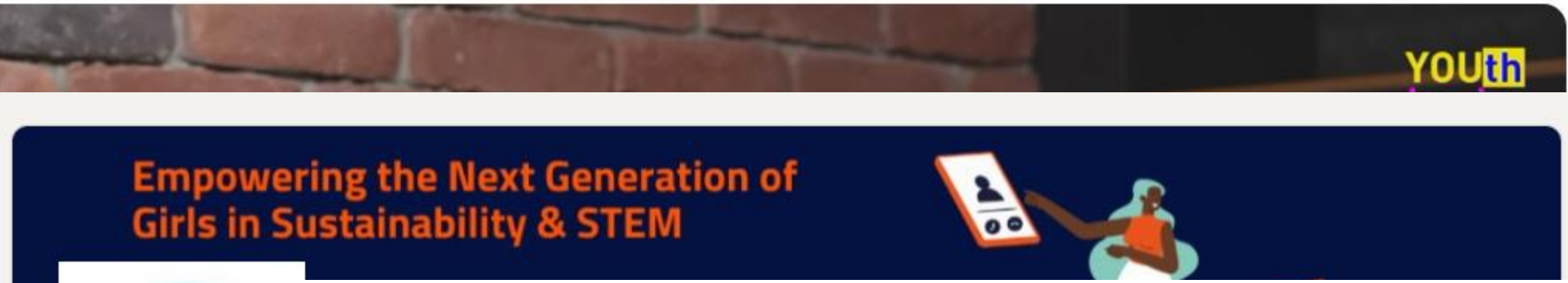
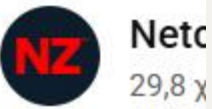


Episode D

What can you learn from you want to see University of Pe From Where You



Ταξίδι στ



Want to try coding without signing in?

Girls Go Ci

Equipping Scho

Education · Berlin ·

Maria & 2 otl

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Home About

Overview

Girls Go Circular entrepreneurial : Go Circular train



Dance Party

Code a Dance Party to share with friends and family. Featuring Beyoncé, Harry Styles, Lizzo, Lil Nas X, Selena Gomez, music from Disney's "Encanto," and more!



Minecraft

Use your creativity and problem solving skills to explore and build underwater worlds with code!



AI for Oceans

Learn how AI and machine learning can be used to address world problems.



Flappy Code

Wanna write your own game in less than 10 minutes? Try our Flappy Code tutorial!

IGNITE EUROGEMS

Empowering Girls, Igniting Futures in STEAM

Topic: Introduction to STEAM and role models 1.4 Breaking Stereotypes in STEAM

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them. Project Number: 2023-2-EL01-KA210-SCH-000179083

Consortium:

NOVATEX
SOLUTIONS.EU



Scuola di
Robotica

Co-Funded by:



Co-funded by
the European Union



Cliché vs. Reality

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



Gender stereotypes & education by European Institute for Gender Equality

<https://www.youtube.com/watch?v=HV-3tjZMTsg>



How Stereotypes are formed and spread



What Are Stereotypes? How Do They Affect Us?

- Stereotypes are generalized beliefs or assumptions about a group of people based on characteristics such as race, gender, age, or profession. They often simplify complex human attributes and can lead to misconceptions.
- Stereotypes affect us by influencing perceptions, behaviors, and interactions. They can perpetuate bias, reinforce social inequalities, and lead to discrimination.
- Both individuals and society may experience negative impacts, including reduced opportunities, strained relationships, and hindered personal growth. Additionally, stereotypes can limit the potential of those being stereotyped and contribute to a culture of misunderstanding and prejudice.

Gender Bias in STEAM is Systemic and Starts Early

- Gender bias in STEAM is **not just about individuals** being discriminatory - it's a **systemic issue** embedded in culture, education, and professional environments
- Stereotypes about girls being less capable in math or science begin in **early childhood** and are reinforced throughout the next stages of life.

STEM is for EVERYONE, not just “Geniuses”

You don't have to be a genius or a math wizard to thrive in STEAM. Curiosity, effort, and creativity matter more than being perfect.



STEAM isn't just for one gender

Anyone can build a robot, code an app, or study marine - no matter how they identify.

Skills and interests matter more than gender



STEAM isn 't boring

Why science rocks ?

1. You get to **discover secrets** of the universe
2. You can **create** (robots, apps, makeup formulas, slime)
3. Science explains how your **favorite things** work — from TikTok filters to galaxy photos

STEAM isn't just technical

_____ CREATIVITY _____

_____ EMPATHY _____

_____ TEAMWORK _____

STEAM is About Thinking Big!

It's not just numbers.
It's problem-solving!

STEAM fields need
creative minds to
innovate

Scientists, engineers,
and programmers
etc. are shaping the
future

STEAM isn't just a field!



Smartphones,
WiFi, and apps
we use daily



Medical
breakthroughs
and life-saving
treatments



Sustainable
agriculture and
clean energy
solutions



Myths vs. Facts

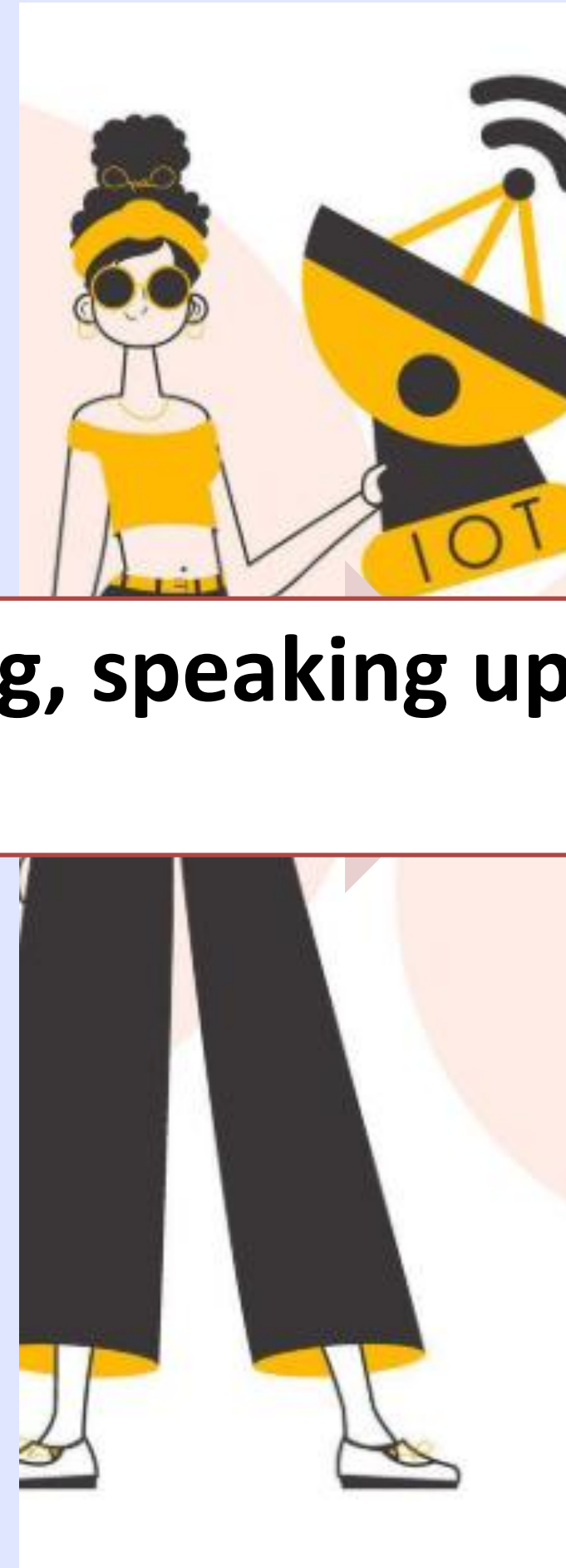
- ❌ “STEM is too hard.” → ✅ Anyone can learn with practice!
- ❌ “Only boys do STEAM.” → ✅ Girls have made history in STEM!
- ❌ “You have to be a genius.” → ✅ Curiosity & hard work matter more!



Personal empowerment tips!!

You can be a **change-maker** by learning, speaking up
and encouraging others

1. Speak up when you hear bias
2. Support your friends exploring STEAM
3. Join a STEAM club
4. Encourage others, especially younger girls



Activity 2 : Creative Reflection (5' – 10')

Write one personal statement for each:

→ A myth I will stop believing about STEAM is

→ A way I'll support another girl in STEAM.....

→ STEAM is for me because.....



***Optional:** Share a few with the group or pin up on the wall.

Activity 3 : Commitment Statements (5' – 10')

Write one commitment statement for each

- I will be the kind of girl who
- I will use my creativity to
- I will remind other girls they belong to STEAM education and careers by.....
- I will help build a world where girls.....

*Optional: Share a few with the group or pin up on the wall.

Barriers to Girls' Participation in STEM

- Gender stereotypes: societal beliefs that associate STEAM primarily with males, discourage girls from participating
- Lack of female role models: Limited visibility of successful women in STEAM fields reduces motivation and aspiration
- Limited access to resources: Insufficient educational materials, labs, and technology hinder equitable learning opportunities
- Cultural and societal constraints: Traditional cultural norms may restrict girls' involvement in STEM activities outside school

Strategies & Initiatives to promote Girls in STEAM – Support Systems

- **Government policies promoting girls in STEM**

Development and implementation of national and regional strategies to increase female participation

- **School and community programs**

Local initiatives to create supportive environments and encourage girl engagement at various levels

Teachers and professors play a key role in shaping confidence and interest among girls and marginalized students

- **Stay in contact with industry and organizations**

Collaborations with tech companies, NGOs, and educational bodies to provide resources, mentorship, and opportunities

2025

IGNITE - EUROGEMS
**STEAM
PROJECT**

ARE YOU READY TO
BECOME A GIRL AGENT
AND CREATE LEGACY?



Activity 4 : (20' – 30')

Come up with one of these:

1. Short slogan
2. Drawing, meme, or
3. Mini-campaign idea

AIM: To challenge stereotypes in STEAM

Each group presents briefly their idea(2 -5' minutes).

Guidance and active promotion are powerful tools

- Mentoring helps us to be more confident, believe in ourselves, and in our ability to succeed.
- Active support for one's progress is even more effective and necessary to help women rise to leadership positions in STEAM.

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Thank You