

# Women and Girls in STEM Forum

Robot Design Challenge for Secondary Schoolgirls

## **#WGSF23 – Third edition**

Currently in Europe, women make up only 41%<sup>1</sup> of the workforce in STEM disciplines (Science, Technology, Engineering, and Mathematics) and 19%<sup>2</sup> in Information and Communications Technology (ICT) jobs. Increasing women participation in STEM can not only contribute to a more inclusive Europe but also bring new innovative perspectives, leading to an increase in the quality of life and to new career opportunities for everyone.





The EU-funded **Girls Go Circular Project** aims to reduce the Digital and STEM Gender Gap by equipping 40,000 schoolgirls aged 14-19 across Europe with digital and entrepreneurial skills by 2027. The **Women and Girls in STEM Forum** is the project's yearly event, organised in collaboration with the European Commission, Directorate-General for Education, Youth, Sport and Culture. The next edition will take place on 5 December 2023 and will celebrate students' participation in the Girls Go Circular project by giving them the opportunity to **enter a Robot Design Challenge and try to win a trip to Brussels** to attend the Forum!

The Robot Design Challenge draws on the Girls Go Circular's project objectives by encouraging female students to gain more experience and self-confidence in dealing with technology applied to real-world issues and thus promote their interest in scientific fields.

## **The Robot Design Challenge**

For this third edition, Girls Go Circular is inviting its female students and alumnae to work in teams of three and come up with **a robot idea to solve an environmental issue of their choice in their school or their city**. To showcase their idea, students will have to develop a **robot prototype** and to present it in a **3-minute pitch video** in English. The prototype does <u>not</u> need to function. However, students will be asked to reflect on the materials needed to build their robot in real life, the target users of their product, its functionalities, and its environmental impact.

As a reward, **one team from each project country will be invited to attend the Forum in person in Brussels** on 5 December 2023! The travel costs for each selected team and one accompanying teacher will be covered by Girls Go Circular. The top three teams will even get to present their idea and compete for the Challenge Finale during the Women and Girls in STEM Forum!

The deadline to participate in the Student Challenge is **23 October 2023.** 

## **Rules for Participation**

Students participating in the challenge must fulfil **all** the following requirements:

Be a schoolgirl aged 14-19.

Be a participant or alumna of the Girls Go Circular project.

Form a team composed of 3 girls. Remember, we are working together to increase women's participation in STEM!



Each team is asked to follow the steps below:

### Step 1:

Build a **prototype** of your robot: either digitally using a 3Ddesign software or physically using recycled or reused materials. The prototype does NOT need to function.

## Step 2:

Create a **pitch video** of <u>maximum 3 minutes</u> presenting your robot prototype and explaining why your robot is good for the environment.

### Step 3:

Submit your video in <u>English</u> by **23 October 2023** using the upload form at the bottom of this webpage.

The idea behind creating a robot prototype is to communicate the robot's design, purpose, and functions. To create a quality prototype, make sure you consider the following points:

#### Understanding the problem

The first step in creating the prototype is ensuring that your robot idea contributes to helping the environment. Start by thinking about an environmental problem that you would like to solve in your school or your city.

#### Identifying key features

Once you find what environmental issue you want to address, start brainstorming how your robot will help solving this issue. Answer the following questions: Who is your robot for? What will it do? How will it do it? What will it be made of? Will it be automated or does it have a controller?

#### **Creating sketches**

Once you have figured out these key features, it is time to sketch out your robot idea on paper. One of the best ways to start thinking about the design of your robot is to create a few rough sketches of your robot from different angles.

#### Turning the sketches into a prototype

Once you have sketched your robot, you can start designing your prototype! <u>We do not expect you to develop a functional prototype</u>. Your first option is to create a digital prototype using a design software of your choice. Several online tools provide free templates to build a prototype, such as Vectr (tutorial video) or Uizard. Your second option is to create a physical prototype made out of recycled or reused materials found in your home or school.

#### **Recording your video**

It is now time to present your prototype! Record a pitch video of maximum 3 minutes to show us your prototype, and to describe its main functions, its intended users, and its environmental impact. Try your best to be creative and persuasive!

## Award criteria and prize

Students should think outside the box and develop a creative idea and pitch. The best teams will be selected based on the creativity and relevance of their robot idea, the technical execution and visual appeal of their prototype, and the persuasive power of their pitch.

Their submission will be reviewed and scored according to the following criteria:



The **robot proposals will be evaluated by an expert jury**. The best team from each project country will be invited to attend the Women and Girls in STEM Forum in person in Brussels on 5 December 2023. They will stay in Brussels for two nights, get to explore the city, and make friends from all over Europe! All the travel expenses for the selected team and the accompanying teacher will be covered by Girls Go Circular.

# Teacher's role in the challenge



As a teacher, you can offer your students the opportunity to participate in the Women and Girls in STEM Forum in Brussels and win a masterclass to further develop their digital skills. Moreover, **if a team from your class wins the national selection round and is invited to Brussels, you will get the chance to accompany them** and participate in the event in person. Your school will also be offered high-level European visibility during the Women and Girls in STEM Forum.

Please share the information about this challenge with your students, motivate them to participate, and support them in developing their ideas!

# **Uploading the materials**

#### One submission per team!

Checklist of items to be submitted:

- The pitch video presenting your robot prototype (3 minutes max.)
- The signed statement of consent for personal data processing (the template can be found below).

## If you have any questions about the challenge, please contact us at: girlsgocircular@eitrawmaterials.eu.

Your form has been successfully submitted.







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