

## “Create and surprise, shaping your STEM entrepreneurial ideas”



<b>School subjects</b>
STEM
<b>Age of students</b>
14 – 18
<b>Aim of the activity</b>
This activity offers an interesting opportunity to acquire key knowledge about STEM entrepreneurship in a meaningful way and to engage in a hand-on activity to shape innovative ideas in a creative way, giving rise to something new and valuable.
<b>Background</b>
You probably may know many more male entrepreneurs than women, especially concerning digital and technological related business (Bill Gates, Steve Jobs, Larry Page, ...). Digital and technological entrepreneurship stand as the best bet to produce valuable innovations that guarantee social progress. However, for this to reach its full potential, the entrepreneurial world must include the female perspective, which represents 50% of the world's population.



Gender stereotypes, lack of role models and difficulties in accessing financing support may be among the reasons that keep women away from entrepreneurship and, on the other hand, training in transversal skills that foster an entrepreneurial mind is a requirement to motivate them. In this sense, creativity, leadership, communication, negotiation and critical-thinking skills are key to strengthen entrepreneurial competence that prepares for teamwork, problem solving and the decision-making process.

This learning unit was carried out as an initial workshop at the GEM Summer Camp in Spain and it was complemented during the week with inspiring talks from successful young female entrepreneurs in the field of STEM with the aim of fostering an entrepreneurial mindset in girls. The leader of the session in which this learning unit was implemented was Ximena Villalonga, founder and director of the company Xcience Designs (<https://xciencedesigns.com/es/>).

## Activity

### Introduction

The introduction talk was led by a female role model in entrepreneurship that explains the aim of the workshop and also shares her personal experience and professional career in terms to let participants know about the power and happiness of overcoming barriers when starting your own business. In the case of the session implemented during the GEM Summer Camp in Jaén the leading person of the workshop was Ximena Villalonga. She began her professional career as a Biotechnology graduate developing her doctorate in the area of immunopharmacology at the Faculty of Medicine of the University of Buenos Aires. However, at the moment, she is dedicated to combine science and art, in particular, to the jewelry design, creating accessories inspired by molecules and biological element and teaching-learning resources including shapes, structures, colors and other components that make science something beautiful.

### Tasks

Participants are divided into different groups of 8 people/group and have to choose a topic among several business ideas related to technology for innovation that are presented to them during the introduction talk (same idea for all groups in order to be able to discuss):

- Warnings about when we should go to the bathroom.
- Mobile phone battery recharging.
- Rehabilitation of the Boulevard park in Jaén.
- Comfortable and accessible mean of locomotion for the elderly.

Then, using different materials (LEGO, playdough, colored glass bead, etc) they have to represent that idea and ask themselves about the following questions:

- Is it a feasible idea to carry out?
- I know my potential clients, who are they? What features does they have, what do they like?
- I have resources and financial support, where can I get them?
- Do I need training? Do I need infrastructure? Do I need to hire technical/professional staff?
- Do I know my weaknesses and strengths?
- Do I believe in my idea? Do I believe in being able to carry it out?
- How am I going to sell it, how can I make it known?



- What will happen to your project in a few years?
- And other questions such as: Why does a business idea fail?

### Final presentations

Participant will orally present the products they created and their entrepreneurial idea. The goal of the presentation is to sell the proposal to the rest of the groups by answering the questions above.

### Time necessary

2 hours: 30 minutes for explanation, 1 hour for working in groups and 30 minutes for final presentations.

### Learning outcomes

Through this session participants learn about :

- female role models in the STEM-related business.
- the world of STEM work related to entrepreneurship.
- how to explore creativity in the designing and planning process.
- the value of STEM knowledge to propose a robust entrepreneurship idea.
- how technology is a promising field for entrepreneurship.
- the empowerment through making ideas come true.

### Materials

- Playdough.
- Lego pieces.
- Blackboard.
- A classroom equipped with large tables for teamwork.
- It is recommended to prepare a presentation including the guidelines and questions girls have to address during the tasks.

### Costs

The cost can vary widely depending on the chosen materials for the workshop.  
 LEGO pieces: 1 cube of building blocks per working group (1 cube ≈ 15 €).  
 Playdough: 1 pack of 10 colored playdough bars per working group (1 pack ≈ 3.50 €).  
 Colored glass bead: 1 pack per working group (1 pack ≈ 8 €).  
 Cords or strings: 1 ball per working group (1 ball ≈ 3 €).

