

Summer School Learning Plan

Empowering Girls to understand their role in STEM- Colors Uncovered

The purpose of the summer camp is to engage girls in Cyprus with STEM activities, with an emphasis on understanding the role of STEM, and especially the entrepreneurial potential of the field. More than 12 female scientists, science communicators and educators have worked together to develop interactive activities around the topic of “Colours”. The girls, in small groups will have the opportunity to learn about colours and their importance from the perspective of science, mathematics, technology, engineering and the arts and will collaborate on producing final products and present them. The teams will learn about design process and how to produce and present products, and for the final day of the summer school they will prepare their own product based on knowledge and skills gained during the summer school. The girls will also have the opportunity to work with female scientists, interview female scientists, participate in a field trip at an environmental centre and prepare their own digital advertisements to promote their products.

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University of Nicosia GEM Summer School

Target Group:

12-14 year old students

Venue:

University of Nicosia main campus (4 days), and Athalassa National park (1 day).

At the University of Nicosia we will use teaching classrooms, labs and outdoor facilities.



Transportation to the venue / digital access to the Summer School:

Parents will transport the students to the venues.

Subsistence:

Free lunch and snacks will be provided.

Contact person for girls and their guardians:

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Schedule

Monday, June 27

Day 1	
Introduction and the science of colours	
9:00 - 10:00	Introduction to the summer school and ice breaking activities
	<ul style="list-style-type: none"> • Draw a STEM person activity and share it with the rest
10:00 – 11:15	Pause
11:15 – 12:15	Virtual Reality and Colors <i>visiting the VR lab of UNIC</i>
12:15 – 13:00	Discussing with female role models
	<ul style="list-style-type: none"> • Meeting an astrophysicist Dr. Stella Manoli
13:00 – 13:30	Lunch
13:30 – 15:00	The science of colors and materials
	<ul style="list-style-type: none"> • The students will work in groups in the science lab mentored by a female scientist to understand the science behind iridescent colors. • Students will experiment with materials to create their own iridescent colors.

Tuesday, June 28

Day 2	
Colors in the environment – Visit to National Park and environmental center	
9:00 - 10:00	Introduction to the activity, field study and tools
	<ul style="list-style-type: none"> • Students will be introduced to the problem: what is the role of colors in the environment and where can you spot iridescent colors in the National Park. • Students will be introduced to field study rules and the technological tools that they will use during the field study.
10:00 – 11:15	Pause
11:15 – 13:00	Group Work
	<ul style="list-style-type: none"> • Field study • Presentation of findings and discussion of findings with female scientists
13:00 – 13:30	Lunch Break
13:30 – 15:00	Designing a sustainable school – activity using LEGO

Wednesday, June 29

Day 3	
Using colors in the lab and the mathematics of colors	
9:00 - 10:00	Introduction to lab work and lab rules
	<ul style="list-style-type: none"> • Students will visit the Human Biology and Technology labs at the University of Nicosia and will learn about basic rules and the technologies and tools that are available for them to use (i.e. 3D printer, stop motion animation, lab equipment). How do we use colors in lab work? Using indicators and change color as a way to see changes • Introducing the role of women in STEM through an interactive presentation of history of STEM • The role of mathematics in STEM • Interview with a female scientist Dr Vicky Nicolaidou, Immunologist
10:00 – 11:15	Pause
11:15 – 13:00	Learning how to program – workshop on programming LEGO we do 11 using light and color as the problem (Dr. Efi Nisoforou and Eftychia Xerou)
13:00 – 13:30	Lunch Break
13:30 – 15:00	Time for cinema! Movie screening of a movie about women in STEM

Thursday, June 30

Day 4	
The role of technology and the process of designing and promoting products	
9:00 - 11:00	Working with technological tools and how they can help
11:00 – 13:00	Group work on design thinking and promoting products
13:00 – 13:30	Lunch break
13:30 – 15:30	Working in groups to produce a product related to colors

Friday, July 1

Day 5	
Entrepreneurial skills in STEM	
9:00 - 11:00	During the last day the students will work in their groups in order to prepare the final project.
11:00 – 13:00	Meeting female role models Christina Vasiliou, Interface Designer and Eleni Michailidou, Software Designer
13:00 – 13:30	Lunch break
13:30 – 15:30	Presentation of final project and Evaluation by Female Role models



Learning Activities

Learning Activities	STEM/ICT subject knowledge	Knowledge of inspiring role models and their meaning	Knowledge about the STEM/digital world of work	Entrepreneurial mind-sets	Transversal skills
Draw a STEM person	X	X	X		
Giant bubbles	X				X
The science of colors and materials	X		X		X
Visit to National Park	X	X	X		X
Using colors in the lab	X	X	X	X	X
The role of designing and promoting products	X	X	X	X	X
Final presentation	X			X	

During the five days of the summer school the girls Will have the opportunity to engage in inquiry based activities, meet and work with female STEM role models, understand the role of female STEM scientists in the development of knowledge, explore a problem in depth, and follow the design based process to prepare a solution and pitch it to their audience.

Specifically, the summer school Will focus on the topic of colors and Will explore them in an interdisciplinary way focusing on physics (day 1), the environment (day 2), chemistry, biology and technology (day 3) giving the opportunity to the girls to learn about different STEM subjects, while at the same time collaborating with female scientists from various fields. The driving problema for the five days, linked to colors, is: Using colors to créate a more comfortable space for scientists. The girls Will collect information during the first three days, and then Will engage in design thinking in order to narrow down the problem, find posible solutions and prepare a product as a solution that Will be presented during the last day of the summer school.

During the five day process the girls Will have the opportunity to work with technological tools that Will support them in understanding content knowledge, they Will work with female scientists from different STEM fields and Will engage in enterpreunerial activities as a way to promote their product.

Lecturers and mentors

Maria Evagorou	Associate Professor in Science Education focusing on inquiry based learning
Efi Nisiforou	Lecturer on Technologies, her work focusing on using technological tools (i.e. eye tracking) to identify users' needs.
Myrtani Pieri	Associate Professor, her research focuses on gastrointestinal track physiology. She also holds a diploma on entrepreneurship
Maria Nicolaou	Theoretical physicist
Liza Pitri	Artist, work focusing on materials and color
Vicky Nicolaidou	Assistant Professor, her work focuses on autoimmunity
Iris Charalambidou	Associate Professor, her work focuses on biodiversity
Stella Hadjiachilleos	Environmentalist, work focusing on sustainable development
Maria Solomou	Entrepreneur, work focusing on immersive technologies, working with PWC Cyprus
Agni Stylianou	Associate Professor on Learning Sciences, work focusing on multiple perspectives
Anastasia Datsogianni	Mathematician

UNIC GEM Summer School Support Site

You can find more information about the Summer School in the national language by following this link: <http://www.girls4stemcyprus.com>

