

GIRLS vs BOYS or Is Gender Playing a Role in STEAM Field

/Lesson Plan/

Learning

Objectives:

(SMART)

To present main stereotypes in STEAM field concerning gender in order to be remembered and recognised

To understand the reasons for stereotyping girls' and women's role in the field

To apply the new awareness of the issue to students' own personal plans

GIRLS

vs Learning

outcomes:

(Bloom's taxonomy

action verbs)

By concluding this session / class participant will have:

Knowledge:

To know about the existence of the stereotypes, to know there were and there are lots of women who have great careers in STEAM

Skills:

To be able to distinguish stereotypes behaviour that withdraws girls from STEAM

To gain confidence in their abilities in STEM subjects

Attitudes:

To practise strategies which prevent the influence of the stereotypes

To challenge own internal/unconscious bias about girls interest in STEAM field

Stereotype and counter arguments

To foster the motivation to study maths and science

S 1 *Girls are less interested in STEAM subjects.*

CA1 STEAM abilities are not male qualities.

CA2 There are girls with higher results in STEAM than boys

**Target group: Upper - Secondary School Students
(15)**

Activity Title & number	Short description of the activity	Resources needed	Time
1. Lesson preparation	<p>1. Before starting, the teacher should take the following into consideration:</p> <p>1.1. Must have in mind the lesson is tailored for a mix group with equal/or almost/ number of girls and boys</p> <p>1.2. Have to prepare the materials for the activities/ small pink and blue papers; old newspapers and glue, flip chart; computer</p> <p>1.3. Have to arrange two sitting areas/4 desks form a big table/ with chair around them</p> <p>1.4. Have to prepare the videos for the lesson</p>	<p>Computers Video projector TV 32' screen or above HDMI cable</p>	<p>10 min.</p>

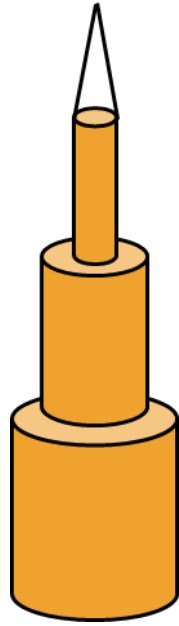
Activity Title & number	Short description of the activity	Resources needed	Time
<p>2. Getting started</p>	<p>2. To start the lesson ask every student to take only one small paper/ two piles with pink and blue/ are on the table and to write on it his/her favorite school subject/.</p> <p>Let discuss the reasons for their choices- / what color did they choose and what is their favorite subject. Ask about their opinion- is there a correlation between colors and subjects/why girls prefer pink and boys blue; explain about stereotypes, ask students what other stereotypes concerning genders they know or recognize</p> <p>Make a chart on a flip chart and stick the papers in groups according to the choice and ask the following questions:</p> <p>Do you notice a difference in boys and girls' preferences?</p> <p>What do you think is the reason for the difference/ if any/?</p> <p>Who are the best three students in your class in STEAM subjects/ secret vote/?</p> <p>Let discuss after the vote/ girls or boys are more interested in STEM subject/</p>		<p>15 min.</p>

Activity Title & number	Short description of the activity	Resources needed	Time
<p>3. Understanding the stereotypes and check if they are true for us – a game-</p> <p>THE GREAT COMPETITION GIRLS vs BOYS</p>	<p>3. Once the previous debate comes to an end, the following video will be shown:</p> <p>https://www.youtube.com/watch?v=wDyW-uPyC2g</p> <p>Start a discussion with the questions:</p> <p>Did the video change your opinion? Do you think girls and boys have the same capacity in STEM subjects? What are your arguments? Lets check if you are right:</p> <p>We have a competition today GIRLS vs BOYS- The competition will take place in two parts: a math problem and a construction task:</p> <ol style="list-style-type: none"> 1. A team of architects and engineers plan to make calculation on how much material they need to cover a building which consists of three cylinders and a cone as every cylinder and the cone has the same height/10 meters/, the radius of the bottom one is 6 meter and each of the next ones radius is 2 meters less, and the cone has the same radius and the smallest third cylinder. So, each team has to make the calculation as the covering layer is an expensive one and everything should be precise/no overlapping of the material is allowed and only 10% reserve should be planned. The first team with the right answer wins. 20 min 	<p>Computers</p> <p>Video projector</p> <p>TV 32' screen or above</p> <p>HDMI cable</p>	<p>50 min.</p>

Activity Title & number	Short description of the activity	Resources needed	Time
	<p>Let's see the results and discuss which team was faster and has the correct answer. 10 min.</p> <p>2. The second task is a construction one- THE HIGHEST TOWER. Your teams have 15 minutes with the help of the old newspapers and glue to create the highest possible tower/ keep in mind it should be stable, stands on its own and survive the attack with a paper ball of the other team.</p> <p>After the game let us discuss which tower was taller; which was stronger, what did they consider while building it, what professions are needed for these towers to be built in real world / architects, engineers, constructors, IT specialists etc./ 10 min.</p> <p>Ask the questions: *Male or female practice these professions? *What is the reason for the predominant role of men in STEM careers/family, society expectation, prejudices. etc./ * Do you know a woman who works in STEM field/ tell her story/ 5 min.</p>		

Activity Title & number	Short description of the activity	Resources needed	Time
<p>4. Giving a Historical context to women in STEM</p>	<p>Watch the video Women in science who changed the world - YouTube</p> <p>You saw and heard the stories in the animated video, now please take a picture and search on INTERNET the discoveries these women made.</p> <p>Reflection: think for a while and say only one word that corresponds to the things you personally heard, saw , learnt or felt today.</p>		15 min.

Annexes:



To the math problem



To the construction task/ an example/



Marie Curie



Caroline Herschel



Elise Meitner



Jocelyn Bell Burnell



Cecilia Payne- Gaposchkin



Rosalind Franklin



Emmy Noether