

Europeana Learning Scenario

(Teachers)

Title

Girls Can Travel to Space

Author(s)

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Abstract

This learning scenario aims to support girls in choosing their future careers in STEM. It is dedicated to promoting space topics to girls. Students explore biographies of famous women who took part in space research or travel to space, make creative work and represent images of women travelling to space, but also work on programming a drone.

Keywords

drone, girls, programming, STEM, space

Table of summary

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Subject	Art, Coding, Geography, History Multidisciplinary approach
Topic	The learning scenario is intended for coding lesson-block programming. geography lessons-space and space research, and for art lessons-portrait.
Age of students	12
Preparation time	Three hours
Teaching time	Three lessons, for each activity the time of one lesson is required (45 minutes)
Online teaching material	Tello
Offline teaching material	Paper, colours, drone
European resources used	Resource 1 - Pioneers Resource 2 - John Glenn Resource 3- Bees keeping https://www.europeana.eu/en/exhibitions/pioneers https://www.europeana.eu/en/item/2051943/data_euscreenXL_EUS_6763F600D843476DBDF60ED8C6429994

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Integration into the curriculum

The learning scenario can be integrated into Serbian National Curriculum for the fifth grade of elementary school for several subjects: Coding, Geography, and Art.

Aim of the lesson

The main aim of the learning scenario is to support girls to choose their future careers in the STEM field since it is noticed that girls give up STEM subjects very early, even though a future career in the STEM field would secure their jobs and other professional opportunities. By showcasing famous and successful women and researching their careers, girls could find motivation for their future choice. We have chosen one specific aspect of STEM of the STEM and that is space research, due to the significance and relevance of the topic. This learning scenario has consisted of three different lessons or activities that can be performed independently. The first lesson is dedicated to the role of women in art and science, the second lesson is dedicated to space achievements and famous women in space, and the third lesson is dedicated to programming and coding.

Outcome of the lesson

Students will:

- Understand the role of women in the world of science and art from the biographies of "pioneer women" from Europeana.
- Gain knowledge about famous women in space research.
- Learn about space achievements such as Apollo, Moon Landing, and Mars research.
- Creatively express their vision about women and their role in space research and possible space travel.
- Developing digital skills with drone programming.

Trends

Project-Based Learning, Students Centered Learning, Coding, Creativity, Girls in STEM, Gender equality

Key competences

Creativity, Critical Thinking and Problem Solving, Communication, ICT

Activities

Name of activity	Procedure	Time
Role of the women in art and science (Lesson 1)	<p>The teacher opens the topic about famous women in art and science, using a Europeana resource.</p> <p>1. The teacher asks students to talk about famous women in art and science in their country that they know.</p>	20 minutes

Name of activity	Procedure	Time
	<p>2. The teacher opens a discussion about the role of women in the world and their position in the world regarding education and job opportunities and students express their opinion.</p>	
<p>Space achievements (Lesson 1)</p>	<p>1. The teacher introduces students to the information about space in general and our Solar system. To check students' knowledge, the teacher could give them a Kahoot quiz (or another type of quiz) to check students' knowledge. Suggestions to this at the end of the Lesson plan in the Assessment section.</p> <p>2. The teacher opens the topic with famous space research, such as information about famous astronaut John Glenn. In this video, students can observe how news informed people about space research and activities.</p>	<p>25 minutes</p>
<p>Famous women in space research (Lesson 2)</p>	<p>1. The teacher gives tasks to students to research if there were any women involved in the space research or travelling to space. Students work in groups of 3, use the Internet and note their findings.</p> <p>2. After finishing their research, students present their findings.</p> <p>3. The teacher closes this activity with a short discussion that women are less involved in space research, even though they obtained remarkable results.</p>	<p>15 minutes</p>
<p>Creativity vision of women in space (Lesson 2)</p>	<p>1. The teacher opens a discussion about the role of women in space research. Students discuss possible problems that make girls not choose their future careers in the field of space research.</p> <p>2. After a short discussion, the teacher gives students the task to make a portrait of the women that are successful in space research.</p> <p>3. Finishing the work, students make an exhibition.</p>	<p>30 minutes</p>
<p>Coding (Lesson 3)</p>	<p>1. To support girls in STEM disciplines and show them that they can be successful in many disciplines such as coding, students, especially girls, are introduced to drone programming. This activity is optional, and it can be substituted with programming any other programming activity.</p> <p>2. In the case, that students program drone, they are introduced to the growing importance of drone and their importance in many STEM branches such as agriculture or transportation of objects, or some other applications.</p>	<p>15 minutes</p> <p>30 minutes</p>

Assessment

Space achievements quiz:

- What is the Sun made of?
- Which is the smallest planet in the Solar System?
- How many satellites have planet Mars?
- What is the name of the Earth's satellite?
- Who was the first man in space?

***** AFTER IMPLEMENTATION *****

Student feedback

The students share reflections, comments and give feedback to the class. Students exhibit their creative work in the school hall. Students commented the following:

“It is important what kind of idea a person has; not what gender a person is”.

“Being a princess could be boring, flying to the Moon could be more interesting”.

“Programming is not very hard, and when girls and boys collaborate then they can achieve even more”.

Teacher’s remarks

The activities are more-less general, and teachers can adjust them to their students. This lesson has three parts which can be applied subsequently, or separately. Drone programming can be substituted by any other programming activity.

This learning scenario combines art activities as a support for STEM activities such as programming. That is a very good way of engaging students, especially girls who are many times reluctant to take part in STEM activities. Also, it is important to encourage teenage girls to take into consideration future careers in STEM. Increasing space research requires more professionals in the field of astronomy, astrophysics, and mechanics. Even though today it looks almost impossible, one day we might fly to the Moon on the regular basis and girls should take part in this important project of our civilization.

About the Europeana DSI-4 project

[Europeana](#) is Europe’s digital platform for cultural heritage, providing free online access to over 53 million digitized items drawn from Europe’s museums, archives, libraries and galleries. The Europeana DSI-4 project continues the work of the previous three Europeana Digital Service Infrastructures (DSIs). It is the fourth iteration with a proven record of accomplishment in creating access, interoperability, visibility and use of European cultural heritage in the five target markets outlined: European Citizens, Education, Research, Creative Industries and Cultural Heritage Institutions.

[European Schoolnet](#) (EUN) is the network of 32 European Ministries of Education, based in Brussels. As a not-for-profit organisation, EUN aims to bring innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers, researchers, and industry partners. European Schoolnet’s task in the Europeana DSI-4 project is to continue and expand the Europeana Education Community.



Figure 1. A drone, programmed by students, is taking videos of the school hall (Credits: author of the Lesson plan)

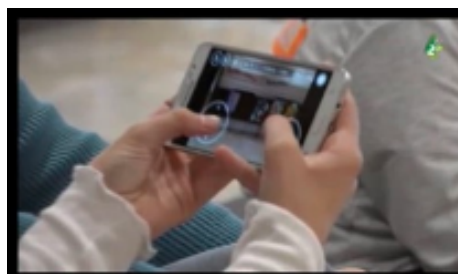


Figure 2. A girl student is programming the drone using a cell phone (Credits: author of the Lesson plan)



Figure 3. Exhibition of students' creative work about women in space (Credits: author of the Lesson plan)