STEAM EmbRaCe

A STEAM project for Empathy, Resilience and Creativity

Citizen Science

Author(s)	
Papadimitriou Sofia	
Summary	
This course focuses on the basics of the Citizen Science (CS) concept and its connection to data collection and data analysis. It examines the link between Citizen Science and the UN's Sustainable Development Goals, Artificial Intelligence and Big Data, as well as the implementation of CS around the world and, more specifically, in Europe. Students will familiarize with the basic principles of CS and take part in real CS projects online. This course is suitable for all students with social conscience and interest in various technological projects.	
Key elements	
Keywords	Science / Science Community / Data Collection / Data Analysis / Big Data / Artificial Intelligence / SDGs
Subject	Computer Science / Citizen Science
Age of students	12 - 17
Preparation time	4 - 5 hours
Teaching time	1 - 2 hours
Online teaching material	-
Offline teaching material	Steam EmbRaCe "Citizen Science" presentation
Resources used	-

Licenses
© European Union, 2021 **Attribution CC BY 4.0** The Commission's reuse policy is implemented by Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39 – https://eur-lex.europa.eu/eli/dec/2011/833/oj). Unless otherwise noted, the reuse of this document is authorised under the Creative Commons Attribution 4.0 International (CC BY 4.0) license (https://creativecommons.org/licenses/by/4.0/). This means that reuse is allowed, provided appropriate credit is given and any changes are indicated. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.
Trends
SDGs Tier 3 Indicators / Big Data Analysis / Artificial Intelligence Development / Urban Life Development / Tracking Inaccessible Areas
21st century skills
Creativity / Critical Thinking / Collaboration and Teamwork / Technology Literacy / Information Literacy / Citizenship / Social Responsibility and Ethics

Lesson Plan

Activity	Description	Duration
Introduction to Citizen Science theory, its principles and its applications	Use the Steam EmbRaCe “Citizen Science” presentation to familiarize students with the theory of Citizen Science and its importance to the science community. Clarify the categories of Citizen Science, emphasizing the difference between Data Collection and Data Analysis. Describe the principles of Citizen Science and highlight the reliability of the projects due to their supervision by experts. Explain the importance of CS projects for the achievement of Sustainable Development Goals and for the increase of human development index, while presenting relevant global and European maps. Emphasize the contribution of CS theory to Artificial Intelligence development and to Big Data Collection and Analysis.	60 min
Confirmation of Consolidation	Make sure that students have understood correctly and in depth the concept and the importance of Citizen Science through an evaluation project (e.g Included crossword by Puzzlemaker - free and online).	15 min
Taking part in an online CS project	Give the students the opportunity to take part in a real CS project by analysing online real data collected under the auspices of verified organizations. Indicatively you can use a project by the following platforms (free and online): https://eu-citizen.science/ https://www.zooniverse.org/projects https://scistarter.org/ https://science.nasa.gov/citizenscience	15 min

SEL practices

The following techniques support self-awareness and self-management which are the two main domains of the CASEL model in social and emotional learning.

At the beginning of the course we identify students' emotional state by following the activity "Practice for identifying emotional state".

At the end of the lesson students reflect upon their work by following the activity of Reflection.

After the reflection they practice the square breathing technique and the aim is for them to learn to practice this every time they are about to begin a challenging activity.

Assessment

Use the included crossword by Puzzlemaker to verify that discussed concepts have been understood.

About STEAM EmbRaCe project

This Learning Scenario has been created in the framework of the STEAM EmbRaCe project.

STE(A)M EmbRaCe aims to promote inclusion by engaging and inspiring students from different backgrounds. Students work on real-world STE(A)M problems, which will help develop their cultural empathy, resilience, and creative thinking. The idea is to create digital content which will be ready to be used by teachers in any classroom setting. More specifically, the project will allow the development of a 7-week course and teacher training on how to use the developed material with students.

Find out more about the STEAM EmbRaCe project:

https://steamingthefuture.gr/steam-embrace/

Annex 1