



ENVRI Environmental Science serious game for High School students

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Within the context of the ENVRIplus project we have developed a serious game for high school students who are competing in various fields of Environmental science.

ENVRIplus is a project, funded by the European Commission in H2020, where Research Infrastructures in Environmental Science work together in developing technical tools, ICT solutions, training, access policies, ethical frameworks and citizen science initiatives for cross disciplinary research.

The bespoke serious game is part of the outreach activities and aims to introduce high school students with the full realm of environmental science as well as teach them scientific research methods. The game is accessible for all schools in Europe, developed in several languages and is played once a year. We stimulate active engagement of the geoscience community to promote the game in schools of their children or relatives, in their area etc. to further create awareness of the Planet Earth and its vulnerability.

By using a Moodle platform for the game environment, we are able to achieve interaction among participants and easy access for project staff to the results of the game. The game has a dedicated website within the Environmental Research Infrastructures community platform (<http://scientificgame.envri.eu>).

The game consists of two distinct parts: a project assignment where small groups of students need to set-up and perform an experiment, using the scientific approach of defining a hypothesis and experiment, collect data, analyse data, draw conclusions and test the hypothesis. The students need to present their research and results in a report, a poster, a movie etc. These results are assessed by a jury and points are given.

The second part is an online quiz on the mentioned platform that all participating schools play simultaneously, in which players are required to answer questions, solve problems, drag and drop images and concepts, analyse figures and tables about Environmental sciences.

The score of both parts of the game determines the end result. As award, winners of the game are invited to travel to a project meeting of ENVRIplus to present their project results to a big audience. These presentations are highly successful and stimulating for both the students and the ENVRIplus scientific project community (<http://www.envriplus.eu/2018/11/09/awards-for-the-envriplus-scientific-school-competition/>).

The ENVRIplus project operates in the four main domains of Environmental Science: Marine, Atmosphere, Biosphere and Solid Earth. The game can also be played in one of these areas, as well as in the area of ICT/data infrastructure.

Examples of projects that have been developed by students are: 'Establishing your own CO₂ footprint (<https://youtu.be/GZMJJrl0tZE>)', 'Biodiversity in the Market, how do different apples taste and is there a correlation with color', 'What circumstances influence the rotting of fruits', 'Marine litter awareness and perception'.