4 Joint AIC - SILS Conference



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STEM Learning Paths for High School Students

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In the last few years, a series of learning paths for high school students from 16 to 19 years old has been tested thanks to a national network of researchers of the Italian National Research Council collaboratively working in the framework of national and european Projects targeted to youngsters.[1] The main goal is to increase the interest in STEM (science, technology, engineering and mathematics) disciplines, as well as the sustainable use of raw materials in view of the transition of a low carbon society. A combination of approaches such as open discussion, learning-by-doing, and peer-to-peer education have been used. The students are involved in an experiential learning process to develop communication competencies and increase their awareness about the role of science in sustainability development. [1]

A "5E" protocol is followed. The activity starts with one or more lessons (ENGAGE), followed by the visit in a research laboratory (EXPLORE). The students will strength the topic knowledge by themselves though web searches or selected scientific papers (EXPLAIN) and produce a communication product (i.e. poster, video, etc.) (ELABORATE). At the end of the learning path, they are asked to present their work at school or during science fairs (EVALUATE). [2]

At the same time, a series of educational tools, created by experts, have been implemented and tested such as "RAWsiko – Materials Around Us", a videogame on the distribution of critical raw materials in the world, [3], "BetterGeo" a Minecraft mod that adds realistic geology to Minecraft, adding new rocks, minerals and metals, as well as realistic ways to find these [4] and ecoCEO, a board game about circular economy strategies and circular business models. [5]

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[3] https://arraise.com/rawsiko/; http://rmschools.eu/

[4] https://www.bettergeoedu.com/

[5] https://ecoceo.eu

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