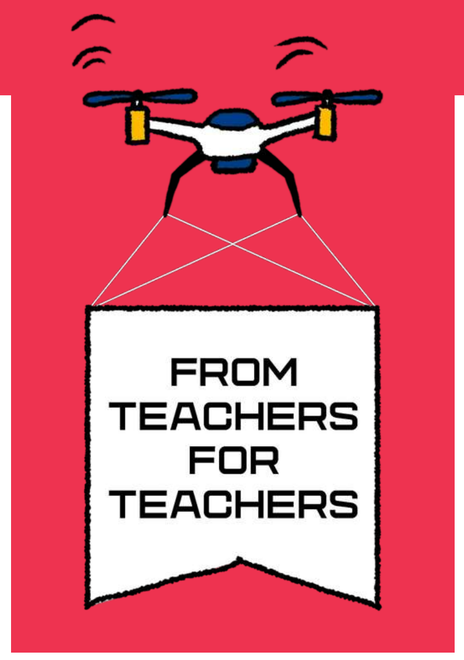


Sustainable Development Goals in Education

Rita Limiroli | IIS CARAMUEL RONCALLI | VIGEVANO | ITALY

"Environmental changes and biodiversity: man and natural selection at work!"

The aim of this project is to encourage **high school students** to verify how climate changes could cause the extinction of some species and the survival of more adaptable ones using an investigative, cooperative learning approach according to **IBL method**.

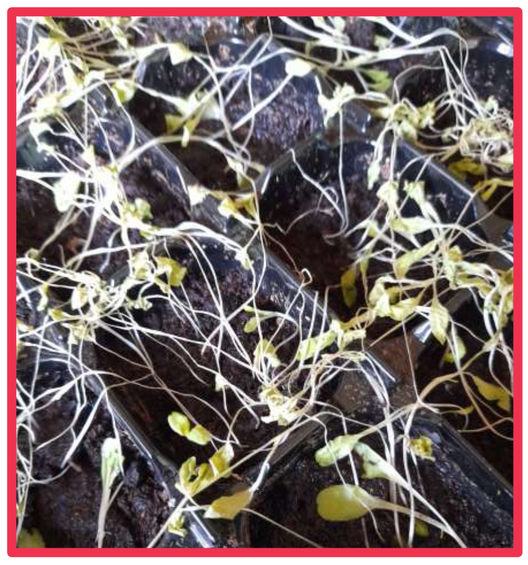
Learning project The project develops through different phases by which students

1st phase Preliminary approach	• read up on climate changes
2nd phase Brainstorming	• suppose their possible consequences on biodiversity
3rd phase Experimental design and analysis results	• verify the effects of UV radiation on model organisms (lettuce seeds, brewer's yeast) by experiments
4th phase Environmental research	• search for UV resistant organisms (tardigrades)
5th phase Drawing conclusions and dissemination	• communicate their experiments and results

Experiments with Lactuga *sativa* Tests on plants

Plants grown in two 24-cell seeding trays and exposed to UV-C (3h a day for 9 days). A negative control specimen is present.

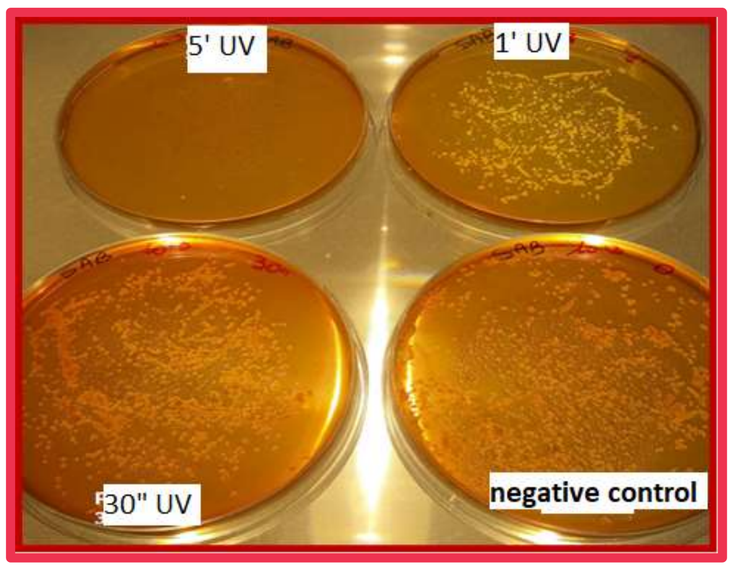
Not exposed to UV rays



Exposed to UV rays

Experiments with brewer's yeast (*Saccharomyces cerevisiae*)

Growth test carried out on diluted suspensions of Saccharomyces. Petri plates are irradiated by a single differential UV dose for different periods and then incubated for 48 hours at 20°C. A negative control plate is submitted to the same procedure.



Experiments with *Lactuga sativa* Tests on seeds put on a damp layer of cotton and treated with UV–C for different periods (1h or 2 h for day) .

Search for UV resistant organisms: Tardigrades (usually named after water bears or moss piglets)

Tardigrades research can be carried out in a humid environment (for example in damp moss). Collecting few drops of water used to wet moss surface it is possible to observe tardigrades by a light microscope.

At the end of the project students will be able to understand how important the respect for environmental balance is with specific regard to abiotic factors and they will have the opportunity to play an active role in raising awareness of the goals of the 2030 Agenda.

A special acknowledgment to Maria Grazia Gobbi, Marina Gandolfo and Angela Colli for their precious collaboration.