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Ocean Acidification: a school experiment

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Marine water is becoming less basic because of the rising of atmospheric CO2 partial pressure: this is the so called "Ocean Acidification" problem, which might reduce the capability of marine organisms to deposit carbonates in their shells, skeletons and hard pieces. Even if the scientific community undertook several project focussed on Ocean Acidification effects on species and ecosystems, taking evidence of the concerning risks, the issue still doesn't seem to be well known by the public. To fill the gap between research and education, the University of Trieste established a partnership with a middle school, offering an experimental course on global climate change and ocean acidification to 14 years-old pupils. The idea was to test a pilot project in order to export the experience to a wider number of students afterwards. The course was experimentally based on thallus of calcareous red algae grown in aquariums under different acidic conditions. The scientific baseline came from previous research conducted by the authors at the University laboratory, were the sensitivity of calcareous red algae to ocean acidification was studied following different approaches, both on mature and juvenile thallus.
During the seminar pupils learned to use instruments, collect qualitative and numerical data and represent the data, elaborate them and take conclusion from the results. The course represented not only a way to spread knowledge on global climatic change among the young people, but also a tool to measure how much new methods of teaching can improve scientific knowledge and skills at school level.
In order to evaluate the project 21 students have been chosen randomly. Another 21 students, not taking part to the lessons, represented the control group. All the students have been tested at the beginning and at the conclusion of the school year (October and May 2010). OCSE PISA-like tests have been used to estimate previous and final skills and knowledge of both groups. Differences between the two groups have been statistically analyzed. The interesting results suggest further developments of the initiative.