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# I will not crumble: Earthquake among science, poetry, technology and music

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Nowadays one of the most effective way to catch students' interest in science education is starting from actuality and topics related to their own territory. The aims of this activity were: the promotion of sense of initiative, the improvement of entrepreneurship, enhancing students' motivation, increasing knowledge and social competences in order to become aware citizens. The activities were tested on a third class of middle school in Civitanova Marche, a central Italy city situated just near the villages where earthquake occurred in 2016. This seismic event had catastrophic consequences with strong environmental, human and architectural impacts. Observation of the students' short attention span makes evident that active involvement, scientific research, laboratory experiences, hands-on activity, support problem based approaches1 and are instruments that can really spark the interest of students on earth science.
Therefore, in cooperation with Italian, Geography, Technology and Music teachers the activities were structured in phases: the engage phase (videos about 2016 earthquake damages, victims and volunteers and INGV experts interviews), brainstorming phase and hands-on activity phase with Jigsaw method (students were divided into groups to research about different topics with ready-to-use materials - books, articles, newspapers, computers - and to realize 3D models of tectonic plates movements, seismic relief maps of central Italy, seismic wave models, seismograph reproduction) and communicating phase (pupils wrote a text, composed a song and recorded a video2 dedicated to earthquake survivors, as a sign of solidarity which could be send to the schools of that area). Over all the activities, pupils worked with enthusiasm and concentration and refine their social skills in order to solve problems arosen especially during group work and in the realization of 3D models.
Oral and written tests showed knowledge improvement about earthquakes for all students, included less prone to study ones, and enlargement of student's scientific glossary. The teachers appreciated the interdisciplinarity of the activity which accomplishes also the requirements of the school curriculum for students this age.
Jigsaw approach, cooperative learning and interdisciplinary are very interesting strategies to promote a constructivist learning and to foster individualization and customization of teaching as a means to respect the personal talents of each student and to encourage their blossoming3. The effectiveness of a cosmic education based on cross disciplinary didactic paths was appreciated both by teachers and pupils.
1 Immacolata Ercolino, Sabina Maraffi, Francesco M. Sacerdoti. Could hands-on activities and smartphone in science CLIL teaching foster motivation and positive attitudes in students? Geophysical Research Abstracts, Vol. 18, EGU2016-4908-2, 2016. EGU General Assembly 2016.
2https://youtu.be/bKbjTxO7lU0
3Graziano Cecchinato, Romina Papa (2016). Flipped classroom. Un nuovo modo di insegnare e apprendere. Editore: UTET Università. ISBN-13: 978-8860084699.