



## **Making Geology Come to Life in the Classroom**

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In an effort to maximize engagement, the curriculum for the Earth and Space Science course was designed to incorporate many simple and diverse hands-on lessons and research projects. The intent is to make topics in geoscience fun, exciting, and relevant to the real world. The teaching philosophy is centralized on students be part of their learning and having ownership in their education. Each year, these lessons and projects are re-evaluated in order to further develop student-centered learning and to integrate more technology. Many students find the geosciences boring and uninteresting, therefore, the curriculum is continuously evolving in order capture their attention all year-long. Students participate in activities such as simulating fossilization processes, excavating and identifying fossils, constructing and analyzing stratigraphic columns to better understand geologic history, simulating rock cycle processes and analyzing samples from across the world, making a model of the earth's interior and investigating the physical properties of the crust and asthenosphere, and many, many more similar labs and activities.

During each unit, these activities and research projects are part of the scaffolding of the course that help students learn and retain the information. In regards to the projects assigned, these include: Paleontology project during which students apply knowledge of geologic time, the fossil record, and fossilization process; a project in which students design their own home and apply knowledge of rocks, minerals, and mining; a multi-media presentation for their virtual field trip exploring evidence of tectonic activity across the world; an earthquake and volcano project tracking historical and current activity and the technology used to organize and track this information; a video natural disaster survival guide. Students are required to work cooperatively and constantly communicate in order to thoroughly complete their tasks.

By the end of the year, students report a better understand of geology and the geosciences by completing these activities and projects. Students have also done a great job recruiting their friends and other students to take the course next year. Word-of-mouth and firsthand experience has been invaluable for improving and maintaining enrollment. Students have also demonstrated an appreciation for the real-world application of material. Many report back pictures and samples of geological features and processes they observe while on vacation or traveling. It is very clear that they are proud to be able to apply the knowledge gained while taking Earth and Space Science.