

CREATING AND DEVELOPING ENGAGING ROCKS AND MINERALS PROJECT BASED CURRICULUM THROUGH FIELD TRIPS FOR EARTH SCIENCE STUDENTS

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The New York State Earth Science curriculum provides a robust and diverse selection of topics for students to learn and experience. Although plentiful, the curriculum lacks experiential learning methods and connections. These extensions to classroom learning directly correlate to increases in student engagement, motivation, and future interests in the field over time.

At the Manhattan International High School, the student population is 100% ELL's (English language learners). Due to the language barrier, presenting content instruction via conventional teaching methods can be difficult for many students. Supplementing this material with field trips related to the topics taught allows for students to experience and understand the material in a much more direct way, and at their own pace.

With regards to rocks and minerals, New York City students have access to a wide variety of examples within a few blocks from their schools. Aside from parks and natural spaces, students are encouraged to take pictures of examples on building facades, subway tiles, and flooring.

Project based learning provides students with a deeper understanding of the material being taught in the classroom. Using Book Creator, pictures acquired in the field are organized, analyzed, and discussed as part of a larger student centered piece; a local guidebook for rocks and minerals. All guidebooks include a list of coordinates which provide the location of each example found (via Google Maps). Lists are then combined into a database and turned into KML files (via Google Earth), which can be shared with other schools, institutions, or organizations interested in seeing examples of rocks and minerals in a particular part of the city.

Both the field trip and guidebooks serve as a means to demonstrate student's understanding of traditional rocks and minerals content, while providing a deeper and truer understanding of content through experiential learning.