

# **CREATING AND DEVELOPING ROCKS AND MINERALS FIELD TRIP GUIDES FOR EARTH SCIENCE EDUCATORS IN AN URBAN SETTING**

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In an effort to encourage active engagement with both geology and the local community we are compiling resources to investigate geology through walking trips that highlight rocks used as building stones in New York City. Although this may seem unusual in that these building stones are no longer in their geologic context, it allows students in urban environments the ability to see a wide range of geology without having to travel large distances. It also allows discussion of the role of geology in society and makes connections to other people-based or cultural content areas. It also strengthens the connection between science, education, and local communities.

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.

With an ever changing student demographic, educators in many of the larger cities across the country are being asked to find additional ways to ensure that their classroom content material continues to be understood by all students. According to the New York City department of education, during the 2020-2021 school year, over 147,000 students classified as ELL's (English language learners) were enrolled within schools across the five boroughs. This increasing trend is forcing educators to rely less on traditional pedagogical methods alone. Supplementing traditional teaching techniques with experiential based learning allows for students to experience and better understand the material at their own pace.

Earth science educators teaching in large cities typically have access to numerous parks and natural structures that provide a wide variety of examples connecting to their content of choice. However, with regards to rocks and minerals, many excellent examples can be found along one's commute to work or school, simply by looking upon building facades and subway tiling.

This presentation serves as an update on our ongoing project to establish an online resource of walking trips and their locations that will be available to teachers and the public. We are currently working with the Department of Education at the American Museum of Natural to create and maintain a digital online library of potential trips and student activities. This site will initially include 2 trips, one centered near 2<sup>nd</sup> Ave between 63 and 68<sup>th</sup> Streets and one along 5<sup>th</sup> Ave between 59<sup>th</sup> and 45<sup>th</sup> streets in Manhattan. Additional trips and locations will be added as we grow the library

Educators are encouraged to develop inquiry based learning projects that are differentiated and targeted to outcomes best suited for their student's needs. The building stone field trip guides will provide an opportunity for teachers to create a rigorous end of unit assessment that is both meaningful and flexible for students of all learning types. Overall, field trip guides can 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.