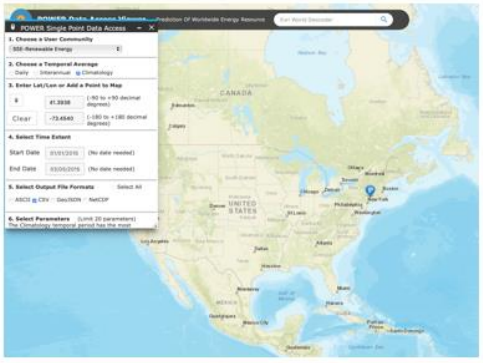
Examples of Leveraging Home-Community Science Knowledge
Susan Meabh Kelly, CSDE and UCONN

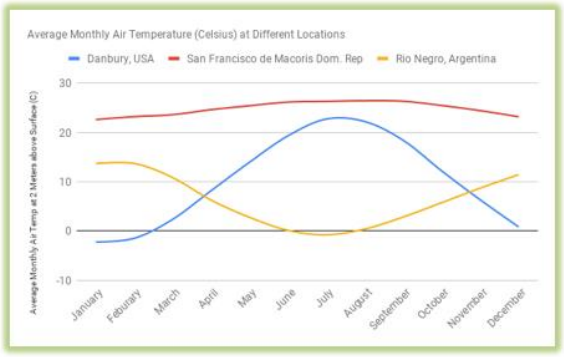
An easy first step towards identifying and leveraging home-community science knowledge is to design periodic opportunities for students to solicit and share home-community members' insights and experiences. In this way, you can gradually develop knowledge of home-community science assets that will broaden conventional school-based activities and establish complementary streams of science knowledge. Below are some examples:

Climate

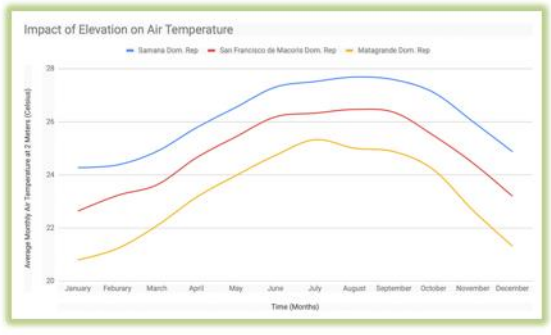
This activity was designed to solicit and integrate science insights and experiences from new community members.

After students had exchanged evidence that latitude impacts climate, new questions emerged after the class observed that locations with similar latitudes have different climate patterns. Students proposed other factors that may impact a location's climate, and solicited home members' insights and experiences. Students who have family in distant locations contributed to the subsequent class discussion and investigation. For example, Diego Luna shared his family's experience visiting different relatives in the Dominican Republic. His family attributed the cooler temperature to the elevation of grandmother's home location. Knowing to anticipate this, his family gathers at grandmother's home during summer vacation visits. The family's account was complemented by Diego's construction of a graph, and elicited complementary accounts from classmates.





(NASA, 2019; Luna, 2019)



(Google Map 2019; Luna, 2019)

Environmental Change

This activity was designed to solicit and integrate science insights and experiences from long-established community members.

As part of an investigation as to how the local land surface had changed over time, we leveraged a multi-decade repository of state aerial images (Connecticut Department of Energy and Environmental Protection, 2019). Students who are from families that have lived in the area for generations contributed information as to why observed surface changes had occurred, as well associated impacts. This surfaced family members' insights, including the health and environmental impacts of the shift from an agricultural to a manufacturing (millinery) community, construction of a shopping mall on a former agricultural fair site, and the flooding of a river valley community to support the local hydroelectric plant. The sharing of these insights surfaced science knowledge associated with family members' occupations and historically framed our environmental investigation. In this way we connected the home and community to class activities.

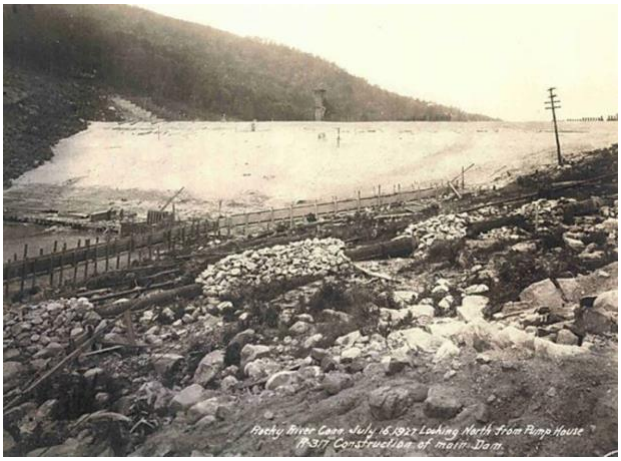


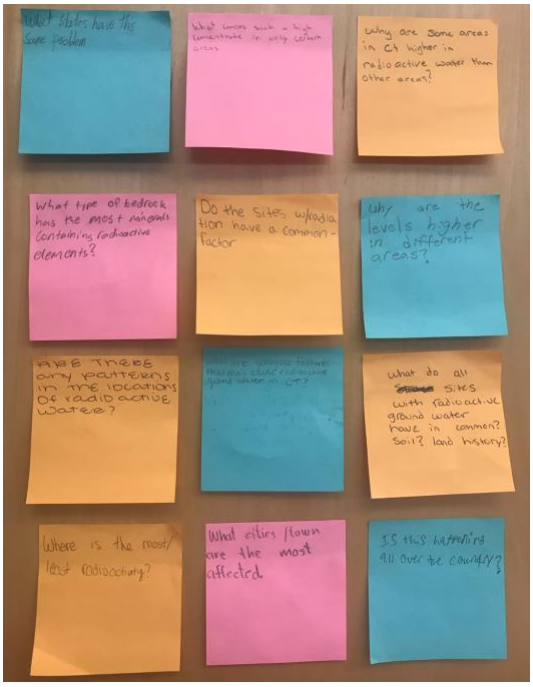
Photo of main dam construction, 1927 (Candlewood Lake Authority, 2019)


Photo of Danbury, Connecticut, 1934 (Connecticut Department of Energy and Environmental Protection, 2019)

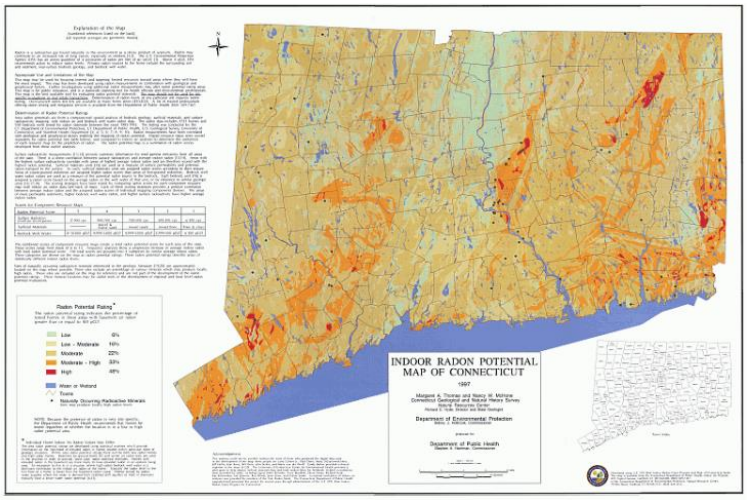
Radiation and Plate Tectonics

This activity was designed to solicit and integrate science insights and experiences that stem from community members' occupations and familiarity with local geography.

In the course of selecting an anchoring phenomenon to study in a vocational high school science class, I privileged opportunity to elicit and leverage students' and their family members' science knowledge and experiences associated with construction and health technology expertise. We explored a scientific phenomenon that is perplexing to residents, tradespeople, and scientists alike – why is there a dangerous concentration of radiation in some community members' well water? In order to become more familiar with construction and health science knowledge, I located and reviewed instructional publications in trades such as plumbing, HVAC (heating, ventilation, and air conditioning), and health technology. As the investigation unfolded, we tapped into science knowledge associated with each career, as well as posed questions to home-community members, regional geoscientists, and GIS specialists.



Some of many initial questions posed by Class of 2020 students at Henry Abbott Technical High School



Sample resource to guide study (Thomas et al., 1997)

References

Candlewood Lake Authority (2019). *History of Candlewood Lake*. Retrieved from: https://www.candlewoodlakeauthority.org/lakehistory

Connecticut Department of Energy and Environmental Protection (2019). *Connecticut Environmental Conditions Online*. Retrieved from: http://cteco.uconn.edu

Luna, D. (2019). *How do geographic characteristics of a location impact its climate?* [Individual investigation]. Retrieved from: Google Classroom.

NASA (2019). Prediction of Worldwide Energy Resources (POWER). Retrieved from: https://power.larc.nasa.gov

Thomas, M., McHone, N., Hyde, R., & Holbrook, S. (1997). *Indoor radon potential map of Connecticut*. Hartford, Connecticut: Department of Public Health. Retrieved from: https://www.ct.gov/deep/lib/deep/geology/radon/RadonPotential.pdf