

Science and Stories

With the help of some Alaska EPSCoR funding, students at a Native Alaskan K-12 magnet school have been learning about scientific fields like dendrochronology and taxonomy in an artistic context.

In fall 2013, eighth-graders in Fairbanks' Effie Kokrine Middle School took part in a "StoryTelling" class that blended lessons in tree ring identification and animal taxonomy with artistic content and personal reflection. University of Alaska Fairbanks instructional designer Zachary Meyers and local artist Klara Maisch taught the 80-plus hour class, which was funded through an EPSCoR Alaska Native Engagement Grant.

The class consisted of five segments: papermaking, dendrochronology, taxonomy, animal tracks, and personal narratives. First, students constructed journals out of homemade paper, learning about pulp, binding agents, and papermaking history. In the dendrochronology unit, students learned about tree anatomy, the overall growth process of a typical tree, and how trees can serve as a proxy for climate records. Tree cross-sections were brought in for a hands-on demonstration, and students also learned about their own history in relation to the tree samples (i.e., what years they were born?) then created analogous cross-sections in their journals.

In the taxonomy lessons, students learned about the history and use of binominal nomenclature. They were given resources to integrate the scientific, common, and Native names for an animal into their journals, then created distribution maps with unique facts about each species. In two more lessons, students learned about animal tracks and trophic levels, then incorporated artistic renderings of tracks into their journal along with handprints that served as their own. In a



A student's StoryTelling journal.

final lesson, students were prompted to reflect on their own stories and on what community means to them.

The overall effect of the class was to synthesize scientific and artistic aims with introspection about identity, community, and students' relationships with the natural world. "This emphasized that there is more than one way to represent and share a story," Meyers said. "We wanted to accommodate a broader sense of place by incorporating observational skills, botanical terminology and introspective thinking."

All the journals were digitized and will be hosted online to serve as a portal for sharing ideas, and students also presented their work to an assembly of parents and teachers in December 2013. The class was a step toward a larger goal: the Pierce Park Living Lab Project will create a place near the Effie Kokrine School to serve as an outdoor living lab for citizen science, offering opportunities to learn and apply science, technology, engineering, math and the arts in a natural setting.



Effie Kokrine students work on their journals.



Alaska EPSCoR is
funded through NSF
award #01A-1208927
& the State of Alaska

