

ED51B-3436 Sampling in the Snow: High School Winter Field Experiences Provide Relevant, Real World Connections Between Scientific Practices and Disciplinary Core Ideas

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[Elizabeth Burakowski](#)

Friday, December 19, 2014 08:00 AM - 12:20 PM

*Moscone South
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For much of the northern United States, the months surrounding the winter solstice are times of increased darkness, low temperatures, and frozen landscapes. It's a time when many high school science educators, who otherwise would venture outside with their classes, hunker down and are wary of the outdoors. However, a plethora of learning opportunities lies just beyond the classroom. Working collaboratively, a high school science teacher and a snow scientist have developed multiple activities to engage students in the scientific process of collecting, analyzing and interpreting the winter world using snow data to (1) learn about the insulative properties of snow, and (2) to learn about the role of snow cover on winter climate through its reflective properties while participating in a volunteer network that collects snow depth, albedo (reflectivity), and density data. These outdoor field-based snow investigations incorporate Next Generation Science Standards (NGSS) and disciplinary core ideas, including *ESS2.C: The roles of water in Earth's surface processes* and *ESS2.D: Weather and Climate*. Additionally, the lesson plans presented address Common Core State Standards (CCSS) in Mathematics, including the creation and analysis of bar graphs and time series plots (*CCSS.Math.HSS-ID.A.1*) and xy scatter plots (*CCSS.Math.HSS-ID.B.6*). High school students participating in the 2013/2014 snow sampling season described their outdoor learning experience as "authentic" and "hands-on" as compared to traditional class indoors. They emphasized that learning outdoors was essential to their understanding of underlying content and concepts because they "learn through actual experience."

Authors

[Elizabeth Burakowski](#)

University of New Hampshire

[Eric Hanson](#)

Windham High School

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