
Education and Outreach



Teach our Children By Lorraine A. Manz

An important element of the mission of the North Dakota Geological Survey is educational outreach. This is a duty that we take seriously, but with a sense of challenge and excitement. Geological Survey staff know that they have an obligation to communicate the results of their research, not only to colleagues and other geoscientists, but to all “clients” - governmental agencies, industrial partners, municipalities, school students of all ages, geology enthusiasts, legislators, or any citizen. Examples of just some of the educational efforts of the NDGS staff are found in this issue of the *Newsletter*.

NDGS staff members love their work and are enthused about conveying what they do and the results of their research, but sometimes they need a little assistance. One of the greatest challenges in educational outreach is in translating somewhat arcane scientific information into terms and concepts that are understandable and usable by all interested parties, young and not-so-young; first grade to PhD and beyond. Beth Karsky is an elementary/special education major at the University of Mary. Earlier this year she took on the daunting task of translating North Dakota’s geology into words and pictures that even the very youngest of readers can understand. With the help of Survey staff, Beth plans to use her artistic and educational skills to produce this publication in the form of a poster that will no doubt prove to be a valuable addition to NDGS’s growing supply of educational resources on North Dakota geology.



The Underground By Kent Ellis Special Projects Coordinator for Bismarck Public Schools

resource\ n **1:** a new or a reserve source of supply or support. **2:** North Dakota Geological Survey

Everything in this world comes from two and only two sources: it’s either grown on top of the ground or mined from underneath. Resources growing above ground become obvious each spring; those that are mined can be easily overlooked. Let us consider for a minute the resources being consumed for the light you are currently using to read this article. As you probably already know, our nation’s single largest source of energy used to generate electricity for your light bulb is coal, a plentiful resource in North Dakota. What may be overlooked in classrooms are the minerals used to produce a light bulb. The soft and hard glasses used are produced from silica, trona, lime, coal, salt and lead. The filament is usually made of tungsten, lead-in-wires from copper and nickel, the tie and support wires from molybdenum, the fuse from nickel, manganese, copper and/or silicon alloys, the base from copper and zinc, the heat deflector from aluminum. As you can see, because of the light, you are reading an article about an underground activity in the United States. The pencils students chew exhibit even greater diversity than the light bulb. From on top of the ground comes cedar, soybean oil and latex, the underground activity provides the graphite, clay, pumice, sulfur, calcium, barium, aluminum and brass. That’s a pretty impressive list of resources for something completely devoid of any moving parts.

As a teacher I am continually searching for materials and additional sources of information for my classroom. Unfortunately, the resources available to our classrooms can be as easily overlooked as those resources needed for a light bulb or pencil. Last year I was in contact with over 4000 students across North Dakota with the ND Energy Education and Career Awareness program and this year will be even busier. My primary resource of information about fossils, minerals, core samples, oil samples and literature for classroom presentations is the North Dakota Geological Survey. This agency is truly one of the greatest resources for classroom information and materials in North Dakota. It has been instrumental in creating a geologic timeline appropriate for students in grades 3 through 10 that would benefit every science classroom in the state. It has outstanding maps for North Dakota studies and current events as well as amazing posters that will interest all students. The NDGS has developed traveling trunks of science/geological resources that can be sent to schools in North Dakota for classroom use. Although the NDGS cannot be considered an underground organization, it remains the greatest source of underground activities for classroom teachers in North Dakota.

NDGS Publications - Maps and More By Linda Hagen

The North Dakota Geological Survey Publications Department is a treasure trove of information for educators and students of earth science at every level. You do not need a degree in geology to understand or appreciate many of the excellent publications the department has available — an interest in the world around you is enough.

The NDGS stocks maps of all sizes: Large-Scale Map Series (1:24,000), Intermediate-Scale Map Series (1:100,000); Small-Scale Map Series (1:250,000); and 15-Minute Map Series (1:62,500).

We have a variety of selected US Forest Service, Bureau of Land Management, Army Corps of Engineers and Soil Conservation Service maps for North Dakota. There are Miscellaneous Maps of 1:500,000 scale and 1:1,000,000 scale, 4° X 6° Quads of Dakotas-Quaternary Geology, as well as US Base Maps, US Sectional Maps and World Maps. Other maps include Lewis & Clark: A Legacy of Science and the Lewis & Clark Expedition; Ecoregions of North and South Dakota; Theodore Roosevelt National Park; the Sheyenne, Little Missouri, and Grand-Cedar River Grasslands; Boating and Recreation maps. We also have maps of North America as well as other areas of the world, such as Baghdad, Iraq and the Middle East, that are currently in the public eye. There is even a map of the original US Territories. Orders can be placed by mail, fax, phone, web site or e-mail, and if you are not sure of the map name or scale, a map index is available free of charge.

As I said earlier, not all the maps and publications that the NDGS keeps in stock are used only by geologists. A teacher came to purchase maps and other material for her class and noticed the Educational Series 28 publication *North Dakota Through Geologic Time*. She purchased one for herself and one to send to her sister who lives in Montana. A couple of weeks later the lady was back for more because her sister requested more copies. Another lady moved here from out of state and requested information to “learn what North Dakota has to offer” and she was very impressed. She could not believe all the neat places to visit and, by getting information from the NDGS, she was able to “dig up” information she thoroughly enjoyed. She continues to order publications. In the fall, hunters come to purchase maps to help them plan their strategies for the upcoming season. What about you? If you want to know more about what you really have “in your own back yard”, visit our web site at www.state.nd.us/ndgs or, next time you are in Bismarck, come see the fascinating displays at our offices — from a triceratops skull to sparkling mineral specimens, to maps of all kinds!