



Engaging Youth in Climate Change Issues with Family Science Day Activities



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Family Science Days:

Dickinson State University organizes four Family Science Day events each fall, focused on elementary-aged children, to increase student engagement in the sciences. Offered on Saturday afternoons, each event focuses on a different science-related theme. Families can attend these events free of charge, and the kids participate in a large variety of hands-on activities which center around the event's theme.

November Theme – Climate Change and Soils:

This year, the November event focused on climate change and the roles soil plays in the climate system. The timing of this topic was carefully chosen. 2015 was declared **the International Year of Soil** by the **United Nations**, and the **Soil Science Society of America** theme for the month of November was **Soils and Climate**. This public outreach event was an amazing opportunity to help the youth in our community learn about climate change in a fun, interactive environment. Climate changes in the past, present, and future were emphasized. The activities helped the children learn how science is a process of discovery that allows them to better understand the world they live in. In addition to the hands-on activities, a planetarium show focused on climate change was also offered during the event. Surrounding the kids and their parents in a fully immersive, 360-degree show allowed them to personally observe phenomena that are otherwise difficult to visualize.

Event Details:

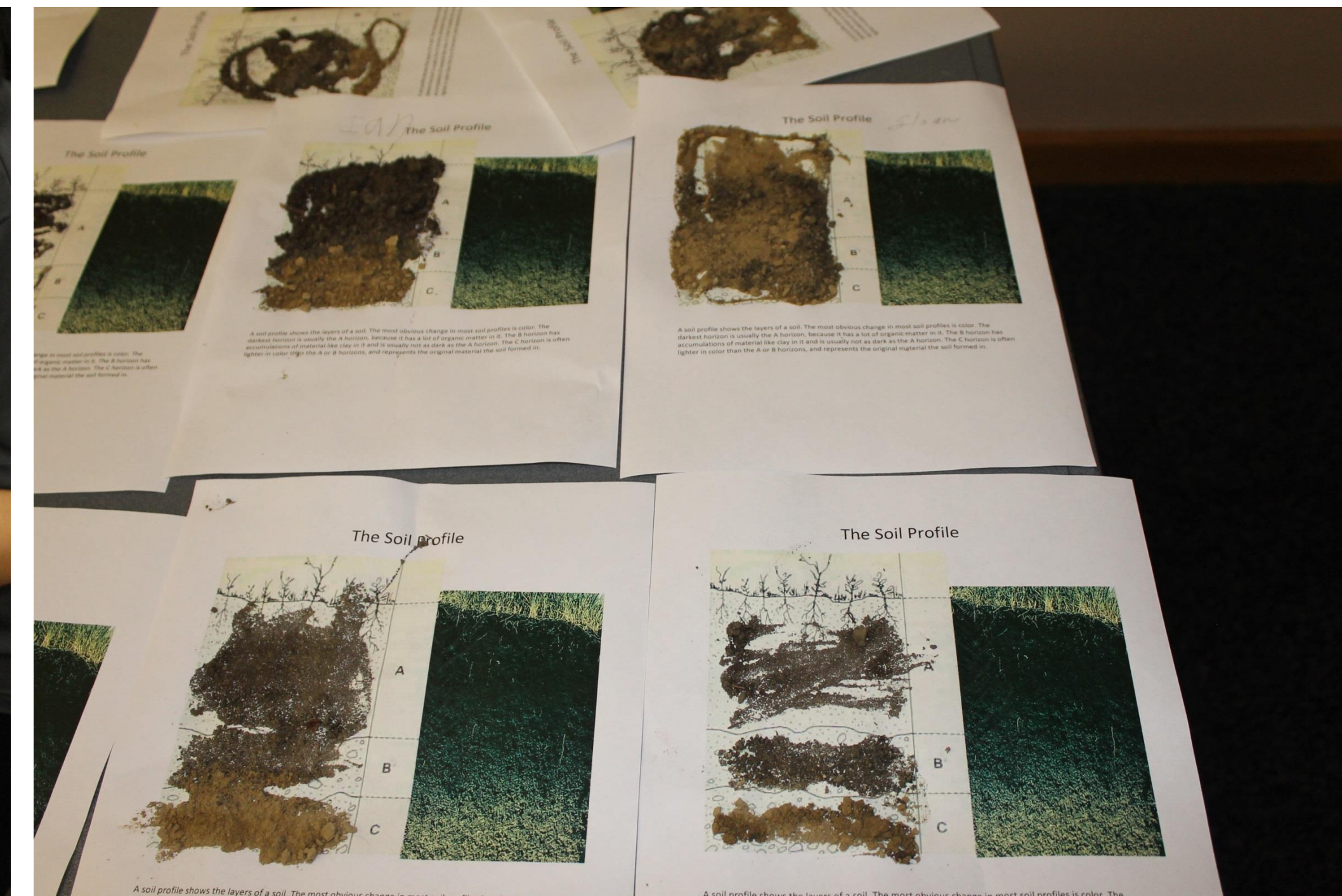
- Local parents and kids were invited free of charge
- Target audience = kids ages 4-12
- Demonstrations and experiments related to climate change:
 - Understanding soil properties (horizons, color, texture, water movement)
 - “Farming game” to learn how management influences soil greenhouse gas emissions
 - Taking cores in Jell-O layered in different colors
 - Observations of flubber glaciers
 - Understanding density differences in salt water versus fresh water
 - Erupting volcanoes...and more!
- A climate change digital Discovery Dome show was offered simultaneously

Event Staff:

- These events are organized by the faculty in the Natural Sciences Department at Dickinson State University.
- Hands-on activities are run by university students – science majors, education majors, and other students taking science courses.
- The Discovery Dome is operated by a trained university student.

Dickinson State University:

- Public, liberal arts university located in Southwest North Dakota, USA
- Enrollment ~ 1500 students
- Science majors offered include biology, chemistry, environmental science, environmental health, & science education.
- Dickinson, ND is a town of ~30,000 residents.



Pictures taken during the November 2015 Family Science Day Event at Dickinson State University. Hands-on activities focused on climate change related topics, with an emphasis on soils and climate.

Goals of the Event:

Many of the surrounding communities in our region have few science resources. As a result, students in the elementary schools often do not get many hands-on, interactive science experiences.

The goals of the November 2015 Family Science Day were to:

- Expose kids and their parents to the key concepts related to climate change
- Allow kids to explore factors which can influence climate change
- Help kids understand how scientists gather climate data

The goal of Family Science Day events series are to:

- Show kids how much fun science can be.
- Illustrate that science is meant to be interactive and engaging.
- Help kids use science to understand the world around them.
- Encourage kids to consider science as a future career.

Advantages for Kids:

- >100 kids and parents attended the Climate Change event
- Helps kids connect the topic of climate change to their everyday world.
- Kids get very excited about this hands-on science experience, and often the same families return to multiple events over multiple months.
- Great opportunity to show kids that science can be fun and interesting.
- Offers a hands-on approach to science that is often missing in the classroom.
- Allows students to learn the process skills associated with science. An emphasis is placed on making observations, developing a hypothesis, connecting ideas, comparing and contrasting, etc.
- Connects younger members of the community to the university.

Advantages for University Students:

- ~30 students volunteered to assist with the event.
- Science students get an opportunity to use the science they are learning in their college classes.
- Science majors gain experience communicating complicated science concepts in simpler terms that kids can understand.
- Some science majors learn that they might enjoy being teachers.
- Education majors add to their repertoire of hands-on science activities and get practice doing simple science experiments with kids.
- Some non-science majors discover that they enjoying “doing” science.
- Students get to share their joy of science with others and have the opportunity to positively influence the youth in our community.

Challenges:

- Limited number of university students from which to recruit volunteers
- Large number of activities to organize each month
- Always need to be prepared for an unknown number of attendees

Funding:

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