SURF Outreach and Culture Scope

• Inclusion, Diversity, Equity and Access (IDEA) Office
  • Supporting a welcoming work environment in collaboration with HR office.
  • Coordinating communication and relationship with Tribal Nations.

• K-12 Education and Outreach
  • Providing STEM education experiences for K-12 students and teachers.
  • Supporting the transition to post-secondary.

• Public Outreach / Communications
  • Public outreach, media relations and marketing.
  • Local community outreach (includes significant senior leadership involvement).

• Sanford Lab Homestake Visitor Center (SLHVC)
  • SURF’s face in the local community.
  • Connecting to broader community with opportunities for inter-generational learning.

• SURF Artist in Residence Program
  • Summer residency program. Sharing the wonder of SURF’s science and ops through art.
Tribal Nations within South Dakota
• **The Black Hills are sacred to the Tribes of the region** ("Paha Sapa" or "hills that are black").

• U.S. Federal requirements
  • National Historic Preservation Act
  • Impacts of U.S. Gov’t investments must be assessed. Tribes consulted.

• Beyond legal requirements, SURF has placed high priority on Tribal relations and building strong partnerships from the start.

• SURF’s efforts include:
  • Commitment to treat sacred lands with respect.
  • Regular interactions with Tribes—with staff dedicated to this purpose.
  • Public outreach efforts focusing on Native culture and history.
  • K-12 STEM education outreach efforts with Tribal schools in region.
SURF Commitments to Tribes

- Impacts on the land are minimized. No new areas will be disturbed.
- Rock extracted (800,000 tons) for LBNF Project will remain in the Black Hills.
- Any artifacts found will be properly managed and preserved.
- SURF Wastewater Treatment Plant instrumental in improving water quality of local streams.
- SURF adheres to strict recycling procedures.
Isna Wica Owayawa (Loneman School)
Isna Wica Owayawa (Loneman School)

• Several teachers from Loneman participated in 2021 professional development.
• Three teachers were accepted into Cohort 5 SD Math SD Sci program.
  • Previously, only one Native teacher applied.
• SURF E&O staff have visited Loneman for E&O programming.
  • Scheduling was a challenge. Patience was key.
• Holiday backpacks distributed at Loneman.
  • School supplies, snacks, personal hygiene, and one STEM item.
• We aim to replicate this work at other tribal schools in the region.
Cultural Advisory Committee

- Established in 2010, meets at least three times annually.
- CAC receives laboratory updates and advises on cultural efforts.
- SURF staff and community members maintain a cultural strategic plan.
Sacred Circle Garden (Cangleska Wakan)

• The SURF Foundation is raising funds to create an ethnobotanical garden on Yates Complex at SURF.

• Focus is a Native American medicine wheel with native plants.

• Vision is to increase understanding and respect for indigenous cultures of the Black Hills.

• It will be a place that protects our environment, our rich history, and the values that connect us.

• An array of activities planned and integration with Visitor Center tours.

   www.sanfordlab.org/garden
### K-12 Education and Outreach Scope

<table>
<thead>
<tr>
<th>Presentations &amp; Field Trips</th>
<th>Curriculum Units and Resources</th>
<th>Career Exploration and Development</th>
<th>Supporting Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• K12 presentations</td>
<td>• 5-15 hours of fully designed and resourced science curriculum</td>
<td>• Davis-Bahcall Scholars Program</td>
<td>• Professional development offerings</td>
</tr>
<tr>
<td>• Face to face</td>
<td>• 17 unique curriculum units available for checkout</td>
<td>• Summer internship opportunities</td>
<td>• Curriculum resources</td>
</tr>
<tr>
<td>• Virtual options</td>
<td></td>
<td>• Pre-service educator program support</td>
<td>• Science content support</td>
</tr>
<tr>
<td>• Field trips in spring and fall</td>
<td></td>
<td></td>
<td>• Just-in-time support</td>
</tr>
</tbody>
</table>

![Image of students and teachers engaged in activities related to science education.]
**Why:** Every student deserves high-quality, engaging, relevant, equitable and rigorous science learning opportunities.

Direct work with students far exceeded goals for 2021-22.

Summer teacher professional development in process.


Post-Secondary
- Davis-Bahcall Scholars Program
- Summer Internships (Incl. slots for underrepresented groups)

Work with University Teacher Education Programs Across the State
- Black Hills State University
- Northern State University
- Dakota State University
- University of South Dakota
- Augustana University
- South Dakota State University

Snowmass CSS – July 2022
Education and Outreach: By the Numbers

Educator Professional Development

<table>
<thead>
<tr>
<th>School Year</th>
<th>2015-16</th>
<th>2016-17</th>
<th>2017-18</th>
<th>2018-19</th>
<th>2019-20</th>
<th>2020-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Events</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Total Teachers</td>
<td>40</td>
<td>54</td>
<td>102</td>
<td>142</td>
<td>723</td>
<td>709</td>
</tr>
</tbody>
</table>
# Education and Outreach: By the Numbers

<table>
<thead>
<tr>
<th>School Year</th>
<th>2018-2019 (pre-COVID)</th>
<th>2019 – 2020 (COVID begins)</th>
<th>2020-2021 (during COVID)</th>
<th>2021-2022*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Trips</td>
<td>1,117</td>
<td>254</td>
<td>58</td>
<td>419</td>
</tr>
<tr>
<td>Classroom Presentations</td>
<td>6,704</td>
<td>3,704</td>
<td>2,005</td>
<td>14,037</td>
</tr>
<tr>
<td>Curriculum Units</td>
<td>3,598</td>
<td>3,236</td>
<td>3,384</td>
<td>3,683</td>
</tr>
<tr>
<td>Other</td>
<td>1,055</td>
<td>918</td>
<td>298</td>
<td>1,468</td>
</tr>
<tr>
<td>Total Student Contacts</td>
<td>12,474</td>
<td>8,112</td>
<td>5,745</td>
<td>19,607</td>
</tr>
</tbody>
</table>

*As of May 31, 2022
Local Community Coordination

- SDSTA has built a strong relationship with local community over 15 years.
- Monthly coordination meetings held with SDSTA, Lead City officials, local Fermilab management, and major LBNF subcontractors.
- As a non-profit, investment in community activities has been challenging.
  - Recently, leaning in more in this area. Generating a positive response.
- Generally, public meetings have been held as needed (rock dust issues).
Artist in Residence Program (AiR)

- Funded by the SDSTA. Inspired by the science at SURF.
- Program is in the third year of existence.
- Each artist contributes one piece to the SURF permanent collection.
- Year one AiR, Gina Gibson, held recent virtual show at Fermilab. Show planned for U. of Michigan.
- Year three AiR features artist Gary Sczerbaniewicz.
Lessons Learned Along the Way

- Cultural outreach
  - Persistence is key. Interactions can’t be seen as transactional. Work at the “speed of trust.”
  - When mistakes are made, be humble, willing to learn, and willing to change.

- Community engagement
  - Our community has little patience for bureaucracy and slowly delivered solutions.
  - Transparency is essential when communicating with the public to build trust.
  - Bring the right people to the conversation to address questions immediately.
  - Participation in community activities and initiatives is well received.
  - Demonstrate a commitment to the health and safety of our neighbors.
Thank You
**Education and Outreach: Professional Development**

**SURF E&O Offerings**
- Powerful and Productive Mathematical Discourse (hybrid)
- Supporting and Sustain 3D Science Instruction (hybrid)
- The Power of Place-Based Learning (F2F)
- Implementing 3D Instruction (Virtual)
- Enhancing Mathematics with Application (F2F)

**In Partnership with SD EPSCoR**
- Fundamentals of 3D Instruction & Biofilms (Virtual)
- Making Thinking Visible (F2F and Virtual)
- Supporting Implementation of Biofilm Curriculum Modules (Virtual)

**In Partnership with Black Hills State University**
- Computational Thinking in STEM (F2F with 4th Grade Teachers)
- Computational Thinking in STEM (F2F with 5th Grade Teachers)

**In Partnership with the SD Department of Education**
- SDMath/SDSci Teacher Leadership Program