Science and Engineering Festivals: Ignite the Global Passion for STEM

Monday, November 14th, 2011
10:45-12:00pm – Michigan League – Ann Arbor, MI
Michigan Tech
Center for Pre-College Outreach

- Established in 1972
- On-campus K-12 outreach clearinghouse
- Summer programs utilize facilities, research, students and faculty to help middle/high school students to explore their interests
- College access programs (i.e. GEAR UP)
- MIND TREKKERS
Rising Above the Gathering Storm
*Rapidly Approaching Category 5*

Among developed industrialized nations...

- Proportion of college students receiving undergraduate degrees in STEM
  - United States ranks 27th
- High school completion rate
  - United States ranks 29th
- College completion rate
  - United States ranks 16th

Youth between the ages of 8 and 18 spend an average of 7.5 hours/day playing video games, watching television, and on the computer, often multitasking.
Solution: Science Festivals
What is a Science Festival?

A science festival is an open, public event featuring a variety of science, technology, engineering, and math related activities, all with the aim of involving the public in explorations of the different facets of science.
What is a Science Festival?

- Dedicated to celebrate the STEM fields
- Generally offered for a limited amount of time
- Distinctive from a traditional science fair
- Focus: more on fun and propelling interest, less on traditional learning
- Shock & awe
The Evolution of Science Festivals

- Early predecessors include the 1831 “Festival of Science” (British Association for the Advancement of Science)
- World’s Fair & Expositions kicked off in 1851 (London)
- Traditional science fairs in K-12 school setting
The Evolution of Science Festivals

- 1988: The modern concept can be traced to Edinburgh
- 2002: The arrival of the European Science event Association
- 2004: Domestic festivals begin gaining traction in Pittsburgh, PA
Domestic Science Festival Boom

- World Science Festival
- San Diego Science Festival
- Cambridge Science Festival
- Philadelphia Science Festival
- Las Vegas Science Festival
- Bay Area Science Festival
- Seattle Science Festival
- Austin Science Festival
- Wisconsin Science Festival
- Saint Louis SciFest
- New Hampshire TechFest
- Celebrate Science Indiana
- North Carolina Science Festival
- Colorado Springs Science Festival
- USA Science & Engineering Festival
Science Festivals Abroad

- British Science Festival
- Tokyo International Science Festival
- Singapore Science Festival
- SciFest Africa
- Cheltenham Science Festival
- International Science Festival Gothenburg
- Festival della Scienza
- Egy Science Festival
- SciFest India
- Edinburgh International Science Festival
- Korea Science Festival
Science Festival Experts

- Japan Science & Technology Agency
  - Established in 1960
- China Research for Science Popularization
  - Established in 1980
- European Science Events Association
  - Established in 2001
- Science Festival Alliance
  - Established in 2010
Recognized Benefits of Science Festivals

- Broad reach in terms of number and demographics of people engaged, with documented shifts in audience awareness and interest

- By bringing science education into surprising places in surprising ways, festivals can reach audiences that are not typically served by other efforts

- Provides many opportunities for face-to-face interactions between STEM professionals and the public
Recognized Benefits of Science Festivals

- Show that science is alive and local, highlighting a region's interesting, fun, and available career paths
- Builds connections among science organizations in a city or region, unifying stakeholders
- Encourages participation among STEM professionals not otherwise engaged in outreach
- Festivals are good for tourism and direct economic development
Audience Participation: Activity!
Documentary: “The Moment”
Michigan Tech
MIND TREKKERS
- Established in 2010
What is the Mission of MIND TREKKERS?

- Focus on hands-on activities that bring the “WOW” of science, technology, engineering, and mathematics to life for K-12 students!
What is the Goal?

- Excite students and communities about innovative STEM learning by doing it
- Participants can meet STEM professionals
- Allow students to explore their post-high school options
- Illustrate the importance of STEM education to the community
1. Engaging hands-on STEM based activities. Lot’s of them.
   - Conducted by undergraduate & graduate students and faculty from Michigan Tech
   - Each activity takes between 30 seconds and 3 minutes to complete
   - Students will learn the science behind the mystery
How We Do It.

- Local businesses, manufacturers, and corporations set up tables to describe their operations/what they produce
  - Professionals in STEM related fields at tables describing what they do
  - May have activities or products they produce that students can touch and discuss how they are made or services they produce
How We Do It.

3. Colleges, universities, and other outreach programs oversee activities and Admissions tables

- Showcase their programs
- Answer questions about preparing for college, major available, what classes to take, etc.
Science & Engineering Festival Checklist

AT-A-GLANCE

- Decide you want to do it
- Determine operational costs
- Seek collaborative partners
- Identify funding sources
- Establish operational structure
- Execute
- Breathe

IN-DEPTH REVIEW
Michigan Tech
MIND TREKKERS Student Organization

http://www.involvement.mtu.edu/organization/mindtrekkers
MIND TREKKERS | Leadership Team
- The President
- The Vice President
- The Secretary
- The Treasurer
- The Vice President of Recruitment and Retention
- The Vice President of Public Relations and Media
- The Vice President of Travel
- The Vice President of Science
- The VP of Innovation and Growth
Welcome to MIND TREKKERS!

Youth Programs is a division of the Center for Pre-College Outreach at Michigan Technological University. For more than thirty-five years, we have offered students an opportunity to experience a mini-version of college life. Students live in our full-service residence hall, eat in the dining hall, and participate in their chosen exploration.
# What’s Next in 2012?

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<thead>
<tr>
<th>Date</th>
<th>Name of the Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>January 13-14</td>
<td>Einstein Science Expo</td>
<td>Green Bay, WI</td>
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<tr>
<td>February 22-24</td>
<td>Southwestern Michigan College Festival</td>
<td>Dowagiac, MI</td>
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<tr>
<td>March 12-15</td>
<td>Oak Ridge Associated Universities (ORAU)</td>
<td>Oak Ridge, TN</td>
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<tr>
<td>April 13-14</td>
<td>Sheboygan Science and Engineering Festival</td>
<td>Sheboygan, WI</td>
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<td>April 25-30</td>
<td>USA Science and Engineering Festival (USASEF)</td>
<td>Washington, D.C.</td>
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<td>May 4-5</td>
<td>Lake Superior State University (LSSU)</td>
<td>Sault Ste Marie, MI</td>
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<td>May 22-26</td>
<td>Destination Imagination Global Finals (DI)</td>
<td>Knoxville, TN</td>
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<td>June 18-19</td>
<td>Girl Scout Jamboree (Regional)</td>
<td>Green Bay, WI</td>
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<td>July 12-14</td>
<td>Cherry Festival</td>
<td>Traverse City, MI</td>
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<td>August 16-18</td>
<td>Upper Peninsula State Fair</td>
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