Outline

- Summary of the organization
- History
- Classes
- Programs
- Opportunities
- Questions/ideas please!
Brief History

Up until this year, Engineering Advisory Committee

- 2006, a couple of us felt a need to introduce engineering at the High School level (NPR broadcast)
- Needed a champion at the High School who we found in the physics teacher (Carl Sandness)– he needed a lab/ we built it

- 2014 determined a need for a nonprofit
  - Increase funding options for STEM activities
  - Formalize the organization
  - Become more regional
Summary

• Current board (looking to add 2-3 additional members)
  • Hibbing High School, ALI, UMD, CliffsNR, USS, BARR Engineering, Jasper Engineering
  • Roy Smith, Moe Benda, Christie Kearney, Julie Varichak, Tom Jamar, AJ Abate, Carl Sandness

• Collaborative effort between public/private sector

• Purpose is to support and facilitate educational programs and activities on the Range that promote awareness of and encourage participation in STEM.
Classes at HHS

- 2007: First class was Intro to Engineering (Pro E based):
  - juniors and seniors: taught with the Hibbing Community college.
  - 2014/15 is a combined class of Intro to Eng. with Information Technology

- 2008: FIDEARS (Fundamentals of industrial design engineering applications, robotics and sustainability studies)
  - hands on class with physics instructor/college instructor/Industrial Technology teacher/robotics/solar/wind power/circuits/hands on.
  - 3D modeling–with 3D printer

- 2012: Information technology: programming class taught in conjunction with the Hibbing community college.

- 2014/15: applied physics
Programs

- Mentoring night
  - Started Fall 2008
  - Evening program
  - 12-22 mostly young practicing engineers
    - One on one with students
    - Representing major disciplines in our area
    - 2012 invited representatives from 5-6 colleges
  - 9-12 grade students from the Iron Range
  - Parents invited
  - Found mid November the best time
  - Open to the whole area– 30-50 students attend
Mentoring Night

Student participants

- 2008/09
- 2009/10
- 2010/11
- 2011/12
- 2012/13
- 2013/14
Engineering cool

- 6th grade
- 58 students (30 in Hibbing/28 in Virginia)
- 26 engineering professionals involved plus one teacher to help keep them focused
- Started 2009 in Hibbing
- Second class now in Virginia
- 13 unique sessions after school
- Final day is a field trip to Duluth Children’s Museum
- Note that the first class will be in 10th grade 2013/14
Engineering cool
Job Shadowing day

- 11-12 grade students spend ½ day on site with a local company
- 10-12 students/year
- Spring: April/May
- Started: 2010
- 6-8 companies participate
  (Mining/Power/Aerospace/engineering)
FIRST Lego league

- 7-9 the grade students
- Project based/ after school
- Teacher advisor and FIRST advisor
- 2014: team advanced to state
- We provide the following to the Hibbing team
  - Financial support
  - “design” review
FIRST Robotics teams

Provided financial support for Hibbing's team

Regional competition: Duluth
Science and Engineering Festival
1200 7th grade students
Location: Minnesota Discovery center

Al Lipke– Tower/Sudan Lab  Raptor Center
Science and Engineering Festival

Science Museum

CLiffsNR mining
Science and engineering festival
Mind Trekkers

- October 2/3, 2014 in Virginia
- 6th grades for first day/open to public second day
- Video
Future opportunities

• Regionalize:
  • mentoring night
  • Engineering cool
  • Other programs

• Grow grade 5-12 in class opportunities throughout the school districts
Random Thoughts

- Key: 6-8th grades (maybe younger?) – 11/12 have mostly made decisions
- Mystique of how difficult the curriculum is
- Parents involved
- It is a win/win to have the partnership between public – private sector
- It is a challenge to have the partnership between public- private sector
- Helps to have a champion
Thank You

Questions?

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