

**Characteristics of Successful Outreach
IGERT PI Meeting K-12 Workshop
May 19, 2008**

IGERT principal investigators and trainees participated in a K-12 workshop at the IGERT PI meeting to discuss how to conduct successful K-12 science, technology, engineering and mathematics (STEM) informal/formal outreach. During the workshop, participants learned about the importance of K-12 outreach to our nation's ability to sustain our global standing as a leader in STEM fields.

The first session of the workshop culminated in a list of characteristics that are demonstrated in successful STEM K-12 formal/informal outreach. This list was generated by IGERT PIs and trainees before a K-12 STEM expert panel discussed the qualities necessary for successful K-12 outreach. Thus it is evident that IGERT PIs and trainees are already participating in valuable K-12 outreach experiences and performing a valuable service to our nation!

The following is a summary of the suggestions made by IGERT PIs, trainees and K-12 facilitators of the characteristics necessary to conduct successful K-12 formal/informal outreach. It was also acknowledged during the workshop that many of these characteristics apply to all outreach. As one researcher defines it, outreach is any time one talks about one's research to someone who resides on a different floor of one's building at the university!

The characteristics recorded by the PIs and trainees have been coded into 17 different categories. The percentages are based on the percent of the 25 groups that listed the characteristic. The characteristics are presented from most frequently listed to least. Also given is the wording for each category from the participating groups for each type of characteristic.

Percentages of Characteristics of Successful K-12 Formal/Informal Outreach

Characteristic	Percents	Wording for Characteristic Categories
Engaging students	84%	Excite, motivate, inspire students
Appropriate to student	80%	Know your audience, discover prior knowledge of student, no jargon, use technical language appropriately
Goals	64%	Set goals, clear objectives for learning, clear and focused goals and outcomes
Activities	56%	Demonstrations, hands-on, minds-on, interactive
Communication	44%	Communicate with principals, teachers, parents, anyone involved in partnerships
Assessment	44%	Assess the outreach experience, ask for feedback from students, debrief and discuss the experience, invited back
Link to science	36%	Link outreach activities to science content, national and state standards, the processes of science, critical thinking skills and creativity
Real World Application	32%	Apply to real life, relate to real life, direct relevance to life experience
Planning	20%	Planning, preparation
Connect to curriculum	20%	Relate to national and state standards and district curriculum
Fun	16%	Have fun, use humor
Guidelines for outreach	16%	Keep it simple, flexibility, team work, presentation is important
All students	12%	Full participation, benefit all students, reaches everyone

Sustainability	12%	Continuity, more than one visit, multiple visits
Role models	12%	Use graduate and college students, establish relationships with K-12 students, have models for students
Technology	8%	Use science blogs, use technology
Leverage	4%	Leverage existing networks and K-12 relationships