

Quality Management Conference 3/1/07

MENTORING FROM PIPELINE TO THE BOTTOMLINE FOR YOUR ORGANIZATION



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OVERVIEW

- **Introduce Sandia National Laboratories**
- **Purpose for today...**
- **What is a STAR for our company?**
- **The planning and selection process**
- **Building a future for math & science**
- **By the numbers...**
- **Lessons learned**
- **Wrap-up**

ABOUT SANDIA

- Z Division created in 1945, then renamed to Sandia Laboratory in 1948
- In 1949, President Harry Truman letter to AT&T to manage Sandia
- First became National Laboratory in 1979
- About 8,000 employees





PURPOSE for TODAY

- It's all about building the pipeline
- Provide template for you
- Ideal Mentors
- Share lessons learned



“Summer internships and research opportunities provide especially valuable laboratory experience for both mid-school and high school students”

- Rising Above the Gathering Storm (2005)



WHAT IS A STAR?

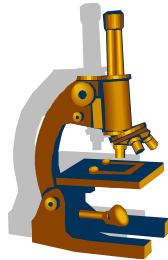
- **Highly motivated and performing high school students**
- **To work with world class engineers and scientists in a research based summer program**
- **Gain work experience in technology at one of nation's premier laboratories**





TO PROMOTE TECHNOLOGY!

- **Economic studies have shown that nearly 85% of measured growth in U.S. income has been due to innovative technological change (NAS).**



Technology: The practical application of knowledge especially in a particular area (e.g. engineering, medicine)

- Merriam Webster



AN EFFECTIVE MENTOR?

- **One of the greatest joys is to have a student succeed and eventually become a friend and colleague.**
- **High caliber students can better help produce high quality research, papers, and grant proposals.**
- **The results of mentoring is your LEGACY.**



WHAT IS THE BEST WAY TO CONNECT?

- Be committed
- Establish protected time *
- Provide introductions
- Build a sense of community *
- Provide focused seminars
- LISTEN patiently...





A TRUE MENTOR

“They are good listeners, observers, and problem-solvers. In the end, they establish an environment in which the student’s accomplishment is limited only by the extent of their talent.”

- National Academy of Science

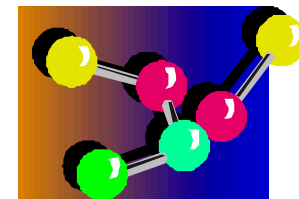


TYPES OF RESEARCH

- **Meaningful (Not busywork!)**
- **Productive**
- **Appropriate match with skills**
- **Current science and technology**

*“The proof that you know something is that
you are able to teach it.”*

- Aristotle



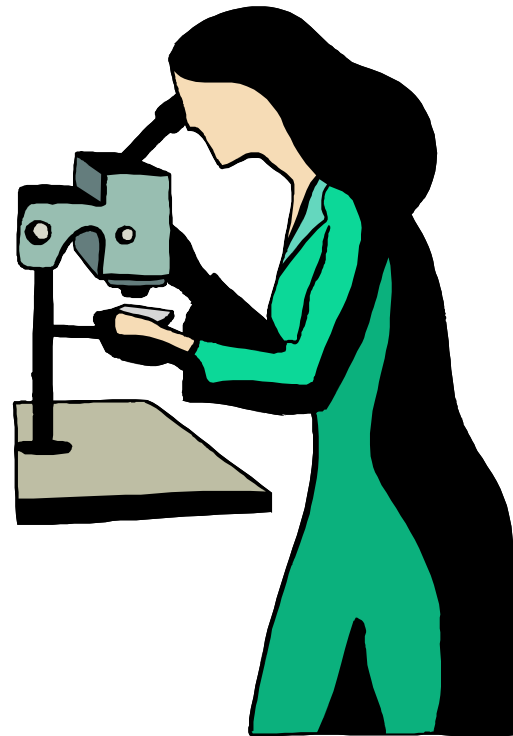
SAMPLE RESEARCH

- **Ion Transport Through Sulfonated Membranes**
- **The Effect of pH on the Doubling Time of *Pseudomonas fluorescens* Bacteria**
- **Mini Retro Commissioning of Six Institutional Plant Project Buildings**
- **Synthesis and Characterization of Novel Gallium Alkoxides and Nanoparticles for Use in Photovoltaics**



MEANS OF COMMUNICATION

- **Establish Email distribution list**
- **Maintain regular exchange of information ***
- **Be proactive!**
- **Regular newsletters**
- **Site tours ***
- **Give aways**
- **Celebration gatherings**





BY THE NUMBERS...

8,000 Approximate employees for Sandia Corporation

3,840 Hours technical work by STAR students

40 Workdays completed for each summer

20 Isotopes baseball evening game tickets

12 Technical presentations completed

9 Team celebrations for progress

5 years running the program

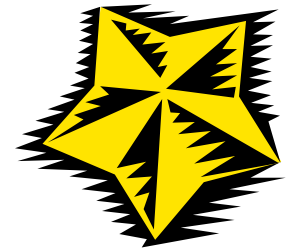
53 Successful STAR's

25 Stay at SNL!





PERFORMANCE RESULTS



- ✓ **Earned a 2005 AMIGO Award from Sandia National Laboratories**
- ✓ **January 2006 noted for strong program by the NM Senate Education Committee**
- ✓ **March 2006 received Nomination for ERA for the Sandia Mentor Team**
- ✓ **July 2006 received recognition for students from one of their U.S. Senators**



CUSTOMER SURVEY DATA

- **Overall Experience and Value? Score: 5**
- **Would highly recommend? Score: 4.8**
- **Do you plan for a college program in a technical field?**
- **Result: 100% replied YES**





KEY LESSONS LEARNED

- **Provide necessary training quickly ***
- **Do not create undue burden to the research and development activities of your organization**
- **CHALLENGE** interns to provide feedback
- **Watch for students who are struggling, and**
- **Just because you sent one email, doesn't mean they "got the message"**



WRAP-UP



- **It's all about the PIPELINE!**
- **Knowledgeable mentors raise the performance for both students and the company**
- **Our Quality journey continues for the continuous improvement of the STAR intern program**
- **If you can imagine an activity, you can make it REAL for your students**



MUCHISIMOS GRACIAS!

- **THANK YOU** for your participation
- **Questions?**
- **Best of luck on your program!**





PROJECT MANAGEMENT

STAR Selection Schedule		
Milestone	Task	Target date
1	Send out request for STAR applicants to Albuquerque area Public High Schools	January 15
2	Begin discussions with Sandia mentors to see who has research opportunities and available work space Finalists for STAR are selected	February 28
3	Students are notified of acceptance	March 30
4	Meetings held with Sandia mentors to finalize the areas of research that would best fit the students skills and interests	April 30
5	Student and family welcome party STAR students begin work	May 20 First week of June