



# Successful Models for Nano Outreach

April 26, 2013

The NACK Network was established at the Pennsylvania State College of Engineering, and is funded in part by a grant from the National Science Foundation.



# Welcome to NACK's Webinar



## **Maureen Devery**

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Moderator: Tracy Pixler-Anderson



**NETWORKS**





# Successful Models for Nano Outreach

Maureen Devery  
April 26, 2013

**SHINE:** Seattle's Hub for Industry-driven Nanotechnology  
Education  
North Seattle Community College



# How developed is your nano program?

- A. I don't have a nano program, I'm just trying to **fill some classes**.
- B. I have a program, but **have no idea** what to do for outreach.
- C. I have a program and an outreach plan, I'm just looking for some **new ideas**.

## North Seattle Community College Nanotechnology Program

Degrees offered:

AAS-T

Two year, 95 credits

Certificate program

One year, 35 credits

Transfer Options

- Training and education for technician jobs serving a variety of industrial, engineering, and scientific disciplines
- Emphasis on internships
- Five Nano specialty courses

NANO 101 (5-credit lab course)

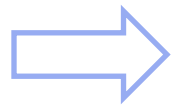


# Seattle's Hub for Industry-Driven Nanotechnology Education

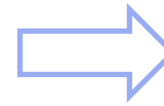
- 2009 NSF Project Grant
  - Puget Sound area
- 2012 NSF Regional Center
  - Washington
  - Idaho
  - Oregon



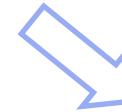
**Community &  
9-12 Schools**



**North Seattle  
Community  
College**



**Universities**



**Industry**

- To promote awareness of nanoscience among the public, veterans, high school students, and STEM educators
- To expand the diversity and number of trained nanotechnicians:
  - entering the regional workforce
  - and/or transferring to pursue further Nanotechnology education

# SHINE's Vision



# SHINE's Outreach Program

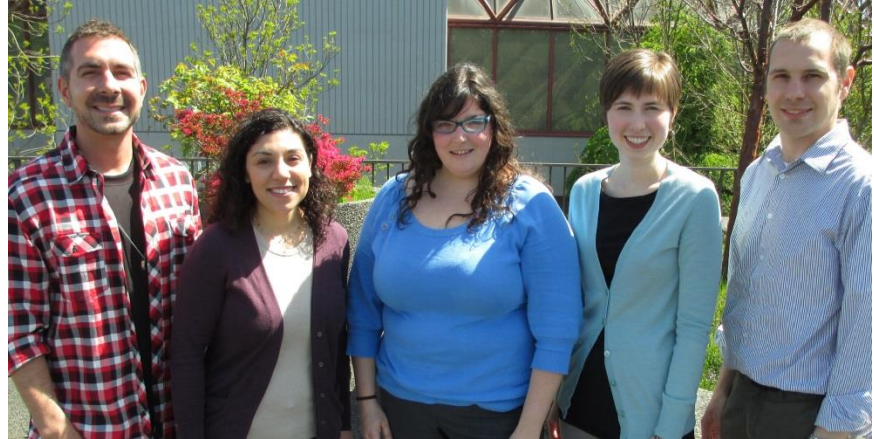
## Project Grant (2009-2012)

- School and Afterschool Programming
  - 2833 students
  - 120 program
- Community Programs and Booth Events
  - 7918 participants
  - 38 events
- Educator Professional Development
  - 93 participants
  - 5 events



# SHINE's Staff

- PI
- Center Director
- Lab Manager
- Outreach Manager
- Recruitment and Employment Specialist
- Program Coordinator



# Outreach Goals

What do you want to accomplish?

- Recruitment
- Marketing
- Education
- Networking
- Partnerships
- Satisfy Grant Goals



# Outreach Audience

- Students (K–12)
- Educators (Grade and Subject)
- College Students
- Veterans
- Displaced Workers
- Community
- Industry



## Who are you trying to reach?

- 9-12 grade
- WA, ID, and OR
- Likely to attend a career technical program
- Underrepresented in STEM careers

## What do you want them to come away with?

- Hands-on experience
- Understanding of nanotechnology
- Real world application of nanotechnology
- Career opportunities
- Education opportunities (NSCC program)

## Where will outreach take place?

- WA, ID, and OR
- Career and Technical Education (CTE) classes
- Schools or NSCC campus
  - Lab spaces
  - Classrooms
- Schools with a high percentage of students in underrepresented populations

## When can outreach be done?

- During school year
- Summer programs
- Afterschool programming
- Nights and weekends

# Defining Your Audience

# Programs for Your Audience?

## **K-12 Schools**

- Classroom programs
- College and career events
- Afterschool programming
- Job shadows
- Science fair assistance
- Science nights
- Summer camps

## **College Students**

- Networking opportunities
- Mock interviews
- Mentoring
- Internships
- University and Lab Tours
- Informational programs
- Research Experience for Undergraduates (REUs)



## Resources

# WHAT YOU HAVE, WHAT YOU NEED

# Resources

Are your goals in line with your available resources?

If not, who can you partner with to share resources?

- Curriculum
- Supplies
- Time
  - Program Creation
  - Marketing
  - Scheduling
  - Facilitating
- Manpower



# Curriculum

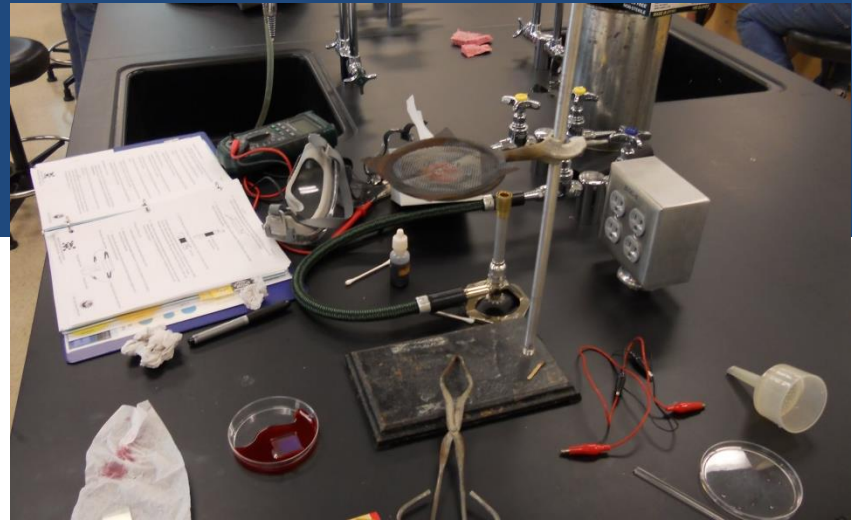
- Research what has been created – you do not need to reinvent the wheel
- Hands-on programming
- Examples apply to real world jobs and applications
- Connect to include local state standards
- Include background information and additional resources

# Curriculum

- Provide lab materials so they can be edited by teacher
- Be creative and flexible
- Consider your audience and time
  - Simplify or add content to a demo for audience understanding
  - Short demonstrations
  - Longer structured labs and programs
- Attempt to make a connection to what is already being taught in class or interest of the group
  - Connect energy unit to nanotechnology improvements in solar energy

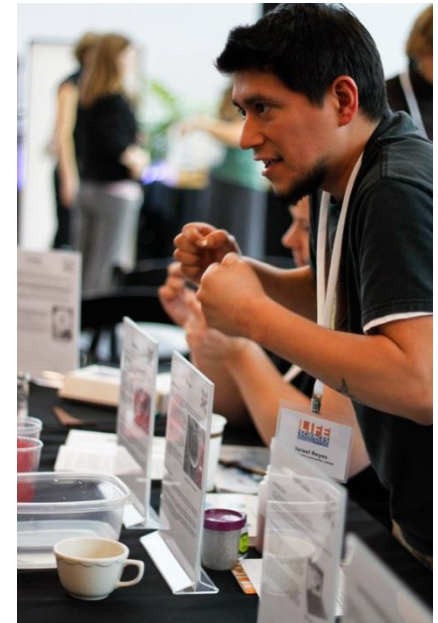
# Supplies

- What is your budget?
- Be creative
- What can be reused?
- What can be provided by location of outreach?
  - Hot plates, glassware etc.
- Labs that use supplies common to audience
- Are there partnerships or grants that can be used?
  - NISEnet
- Who will put together program supplies? How long will it take?



# Staffing and Time

- How much time can staff devote to outreach?
  - Think about the program in its entirety (creation, marketing, scheduling, facilitation, evaluation)
- Can you use volunteers/students?
  - Internship hours
  - Work-study
  - Scholarships
  - Resume builder
  - Extra credit
  - Club or classroom participation



# Staffing and Time

- Evaluation of staff and volunteers strengths and skills
- Are there community programs you can partner with?
- Are there programs on your campus you can partner with?
- Research organizations that have similar goals – be creative
  - Subject specific education goals
  - Age or population specific goals
  - Community engagement goals
  - Sponsorship goals
  - Industry

# Partnerships

- Take time and energy
- Spend time researching
- Join science-focused listservs
- How does working together benefit both groups



SHINE - Seattle's Hub for Industry-driven Nanotechnology Education shared a link.

April 1

Join us for Family Adventures in Nanotechnology at KidsQuest Museum this Friday, April 5th, 6-7:30pm! <http://ow.ly/jtP62>



**KidsQuest Children's Museum > Activities**  
[ow.ly](http://ow.ly)

Join scientists from SHINE (Seattle's Hub for Industry-Driven Nanotechnology Education) to learn about all things small

- Co-promote programs
- Share resources
  - Staff, marketing, space
- Networking
- Marketing

# Partnerships

- Schools
- Afterschool programs
- Universities and Community Colleges
- Museums
- NSF programs
- WorkSource and State Social Services
- Industry
- Other NSCC programs
- Community partnerships and nonprofits
  - Seattle College Access Network



# Marketing

- Direct emails
  - Database of contacts
- Listservs
- Through Partners
- Word of Mouth
- Community Programming
- Networking events
  - STEM conferences and events
  - WA Science Teacher Association Conference
- Website
- Social media





# Annual Train the NanoTeacher Summer Workshop

- **Marketing**
  - Emails to teachers
  - Website and social media
  - Listservs
- **Registration**
  - Online registration
  - Stipend for participation
  - Professional Development hours available
  - Lack of Registration Fee for teacher workshop
- **Schedule**
  - Roles of all staff
  - Intermix lectures and demos

# Annual Train the NanoTeacher Summer Workshop

- **Partnerships**
  - Held at other institutions
  - Helped promote workshop
  - Paid staff to gather supplies
- **Evaluation**
  - Daily short survey
  - Final workshop survey
  - Post-workshop survey – following May
- **Follow up Communication**
  - Follow up email with information
  - Holiday Card
  - Emails with upcoming events

# Teacher Workshop Materials



- Workshop Materials Binder
  - PowerPoint slides
  - Lab write-ups
  - MSDS and Safety Information
- Online Materials
- Supplies available
  - Demo bag
  - Lab supplies available by contacting SHINE
  - SHINE available to come to class

# Measuring Impact

## Evaluation

- Beyond counting numbers
- Finding the “So What” not just the what
- Follow up surveys
- Student enrollment and retention

# Lessons Learned

- Find advocates in the community
- Take the time to plan your goals
- Remember, it will take time
- Research community programs

# Contact Information

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# Webinar Recordings

To access this recording, slides  
and handout visit

[nano4me.org/webinars.php](http://nano4me.org/webinars.php)

# 2013 Events Calendar

**May 9:**  
*Webinar*

The National Nano Alumni Network Presents:  
*LinkedIn Profile Essentials: Building Your Professional Network*

**May 7-9:**  
*Workshop*

Hands-On Introduction to Nanotechnology  
for Educators

**May 16:**  
*Webinar*

(Three part series) Trends in Nano:  
Careers and Workforce Needs

Visit [www.nano4me.org/webinars](http://www.nano4me.org/webinars) for more details  
about these and other upcoming webinars.



**JOIN US IN MINNEAPOLIS, MN**

**May 21-23, 2013**



[www.mnt-conference.net](http://www.mnt-conference.net)

Thanks!

Thank you for attending the  
NACK Network webinar

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