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New Mexico Network for Women in Science and Engineering and Los Alamos National Laboratory present:

Expanding Your Horizons™

Technical Career Workshops for Young Women

Thursday, March 11, 2004
Los Alamos National Laboratory
Los Alamos, New Mexico
**Student Schedule**

- **8:00-8:30** Registration, Welcome, and Morning Snack
- **8:30-8:45** LAHS NJ ROTC color guard, and Welcome
- **8:45-9:15** Team Activity
- **10:00-11:15** Student Workshop One
- **11:30-12:15** Lunch
- **1:00-2:15** Student Workshop Two
- **2:25-2:30** Afternoon Snack
- **2:30-3:25** Keynote Speaker

  Dr. Jill Tarter, Director, Center for SETI Research

- **3:30** Departure

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**Student Workshops**

1. **Acids and Bases in the World Around Us**  
   **Roberta Mulford**  
   We will use indicators to determine pH of foods and soaps and learn a bit about acidity, basicity, and pH.

2. **The Low-Down on Climate Change**  
   **Janet Lynch, Andrea Maestas, and Margo Bachman**  
   Discuss the difference between climate and weather, roles of cloud in climate, hydrologic cycle, El Niño, and climate change around the world.

3. **Secret and Hidden Writing: Survey of Cryptology and Steganography - Sarah Lownes**  
   A survey of methods used to protect information, from Roman times to the computer age. Practical hands-on exercises are part of the workshop.

4. **Designing Patterns using Programming Logic and Mobile Robots - Jan Frigo and Maya Gokhale**  
   We will illustrate the concept of sequential programming by using the Mindstorm Robot system. The students will write their own programs to control a two motor mobile robot. They will send their programs via an IR link to a Robot that has three pens mounted to its base. The programs will execute the logic creating a unique pattern.

5. **Explore the Roles of Pharmacists at Walgreens Pharmacy - Debra Candelaria and Jacky Casto**  
   Interactive learning about Walgreens Pharmacy and the roles of pharmacists and pharmacy techs in a large pharmacy.

6. **Fractals: Math Made That Picture!**  
   **Meghan Quist and Scott Bucholtz**  
   Participants will explore fractals, learning about the math behind them and the computers that generate them. Students will then have the opportunity to create a fractal of their own!

7. **Tools for Studying the Past: Petroglyphs**  
   **Beth Sanchez**  
   We will use GPS units to show how we map the areas of petroglyphs and discuss with you the need to record and characterize the artwork of the past.

8. **The Wonders of Polymers**  
   **Debra Wroblewski and Cindy Welch**  
   Hands-on learning of the properties of polymers through exploring cross-linking reactions and examining water absorbing polymers.

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**Student Workshops (continued)**

9. **The Many Exciting Career Opportunities for Women in Dentistry - Haley Ritchey**  
   I plan to talk about all the specialties in dentistry and have 2 to 3 stations where the girls can do some hands-on simulations of different procedures I perform each day. Examples: Pouring up a plaster model, fabricating temporary teeth, waxing up a gold crown.

10. **Radiation and Radioactivity**  
    **J. Margo Clark**  
    The students will develop a better understanding of radiation and radioactive materials. Hands-on activities include using radiation detection instruments to detect small amounts of radioactivity in demonstration materials.

    We will demonstrate the use of SEM and allow the young women a chance to operate the equipment.

12. **Spills, Ripples, and other Fun Properties of Fluids**  
    **Cindy Zoldi, Karen Fisher, Melissa Douglas, and Cherie Goodenough**  
    We will introduce the various properties of fluids, such as pressure, surface tension, and density. We use a hands-on, experimental style to determine how these properties affect the behavior of fluids. All of the techniques that we use can be taken home and repeated for friends and family.

13. **Web Design**  
    **Vera Vigil**  
    This workshop will expose students to computer technical terms, software and networks. It will also provide students with hands-on experience in designing a web page.

14. **Workplace Wellness: A Look at Careers in Physical Therapy, Fitness and Nutrition**  
    **Marta Gentry Munger, Gail Fox, and Cindy Lawton**  
    Tour of Wellness Center, Nutrition/Dietetic Career Opportunities; Physical Therapy. The students will learn the various specializations within physical therapy; various setting which one can work, and establish a good understanding of the responsibilities of a Physical Therapist.

15. **Light and Lasers: Interaction with Matter**  
    **Darla Graff Thompson**  
    We will talk about visible light as electromagnetic energy and learn specifically about infrared spectroscopy as it relates to the vibrational energies of molecules.