

2005 EYH Committee Members

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Vera Vigil



Special Acknowledgments

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"Physics in Your Future" was donated by the American Physical Society's Committee on the Status of Women in Physics.

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Thanks to the Immaculate Heart of Mary Catholic Church for the use of the Parish Hall and Educational Building.

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Special thanks to these LANL organizations and individuals

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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 31, 2005
Los Alamos, New Mexico
<http://nmnwse.org/lawis/eyh>

Student Schedule

| | |
|-------------|--|
| 8:00-8:30 | Registration, Welcome, and Morning Snack |
| 8:30-8:40 | LAHS NJROTC color guard, and Welcome |
| 8:45-9:45 | Team Activity |
| 10:00-11:15 | Student Workshop One |
| 11:30-12:45 | Lunch |
| 1:00-2:15 | Student Workshop Two |
| 2:25-2:30 | Afternoon Snack |
| 2:30-3:25 | Keynote Speaker Abigail M. Sussman, Wilderness Ranger |
| 3:30 | Departure |

EYH Teacher Conference

| | |
|-------------|--|
| 8:00-8:30 | Registration, Welcome, and Morning Snack |
| 8:30-11:15 | Speakers and / or Demonstrations |
| 11:15-12:15 | Lunch |
| 12:15-2:30 | Speakers and / or Demonstrations |
| 2:30-3:25 | Join students for EYH05 keynote speaker Abigail M. Sussman, Wilderness Ranger |
| 3:30 | Departure |

Student Workshops

- 1. 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.
- 2. Designing Patterns using Programming Logic and Mobile Robots - Jan Frigo and Rose DesGeorges**
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.
- 3. Computers and Steganography
Meghan Quist and Scott Bucholtz**
Participants will define and explore steganography. Students will generate images with secret messages, get secret messages out of images, and use forensics techniques to try and determine if a given image has a secret message included.
- 4. 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.
- 5. 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.
- 6. 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.
- 7. Workplace Wellness: A Look at Careers in Physical Therapy, Fitness and Nutrition
Marta Gentry Munger and Gina Kohler**
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.
- 8. Fingerprints
Kathy Boerigter**
Students will explore techniques for taking and characterizing fingerprints, from each other, and from common items in the room. It's not as easy as it looks on TV!

Student Workshops (continued)

- 9. 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.
- 10. Adventures in Uncertainty
Joanne Wendelberger and Lisa Moore**
Participants will be introduced to the concept of variation and topics in probability and statistics, which will include distributions, sampling strategies, data analysis, and experiment design.
- 11. DNA: The miracle that makes us UNIQUE
Harshini Mukundan**
Students will explore the theory and concepts of DNA and will be able to do hands on activities.
- 12. Aquifer in a box
Kay Birdsell**
This demonstration shows how water and contaminants move through a subsurface, modeled by various materials in a plexiglass box
- 13. Dynamic Behavior of Materials
Ellen Cerreta and Clarissa Yablinsky**
Students will have a chance to test two different materials at high and low deformation rates and at cold room temperatures to understand the effects of temperature and deformation rate on behavior of materials.
- 14. Inventing Architecture: Expressive Buildings and Design with Nature
Julie Pearson**
Provide historical and social framework for architectural innovation, with emphasis on historic design based upon natural and organic structures which has led the way to amazing structural feats, and contemporary architectural design with expressive and innovative envelopes.
- 15. Deformation Nation: Geology in America
Aviva J. Sussman**
By using the United States as a backdrop, students will explore the various ways in which rocks and regions respond to stress. Students interested in mountains, silly putty, and tootsie rolls will probably enjoy this workshop.
- 16. Introduction to Archaeobotany and Ethnobotany
Theresa Fresquez**
Students will learn how to analyze and identify archaeological remains. They will have a better understanding of the use of plants for food of native peoples.