SAN JOSÉ STATE UNIVERSITY
EYH 2004
26TH ANNUAL CONFERENCE

EXPANDING YOUR HORIZONS IN SCIENCE AND MATHEMATICS

Saturday, March 13, 2004
www.expandingyourhorizons.org

For 6th to 9th grade young women and interested adults, presented by SAN JOSÉ STATE UNIVERSITY and the MATH/SCIENCE NETWORK
The conference begins promptly at 9:15 am Saturday, March 13. Please pick up your conference information packet (containing your workshop assignment) between 8:15 am and 9:15 am on the day of the conference at Morris Dailey Auditorium in Tower Hall, San José State University. Groups should arrive before 8:30 am.

8:15  Registration begins in Morris Dailey Auditorium, Tower Hall
9:15  Welcome:  Dr Jane Day
       Professor
       Department of Mathematics
       San José State University
9:20  The Brainiacs
       Lawrence Hall of Science
10:10 Snack
10:25-11:30  Morning Workshop I
11:45-12:50  Morning Workshop II
12:50 Lunch
1:40-2:45  Afternoon Workshop
3:00  Closing Remarks, Door Prizes, Conference Evaluation
3:30 End of Conference

Participants are expected to remain on campus and attend all scheduled activities.

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CONFEREE SPONSORS

**Math/Science Network**
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**San Jose Conference**
- Abbott Laboratories
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- Math/Science Network
- Offices of Education: Monterey, San Benito, Santa Clara, and Santa Cruz Counties
- San Jose State University - College of Engineering & College of Science
- Society of Women Engineers, Santa Clara Valley Chapter
- Women in Science and Engineering, SJSU Chapter
EXPANDING YOUR HORIZONS™
Saturday, March 13, 2004
San José State University

STUDENT REGISTRATION FORM

PRINT CLEARLY. USE ONE FORM PER STUDENT. INCLUDE A SELF-ADDRESSED STAMPED ENVELOPE AND A CHECK TO COVER $15 PER STUDENT (INCLUDES LUNCH).

NAME _______________________________________________________

MAILING ADDRESS ___________________________________________

CITY ____________________________ ZIP ________________

PHONE ____________________________ GRADE ________________

SCHOOL & SCHOOL DISTRICT _____________________________________

☐ Check if you want a VEGAN lunch.
☐ Check for fee waiver (school lunch program, girls only).
If you have other special needs, please enclose details so we can help you during the conference (e.g., signer or interpreter).

Please read the Student Responsibility section opposite. A photographer may take pictures of you or your child. These photos may appear on our web site or in publications. If you register yourself or your child, you have given us permission to use your/her photos.

☐ No ☐ Yes I grant permission for my child to receive emergency medical care, while attending the EYH Conference at SJSU.

_____________________________________________
Parent/Guardian signature

STUDENT WORKSHOP CHOICES
Write the number of your first 10 choices. You will be assigned 3 workshops.

1st 2nd 3rd 4th 5th

6th 7th 8th 9th 10th

ADULT REGISTRATION FORM

PRINT CLEARLY, INCLUDE A SELF-ADDRESSED STAMPED ENVELOPE AND A CHECK TO COVER $15 FOR EACH ADULT. THIS INCLUDES LUNCH.

NAME _______________________________________________________

MAILING ADDRESS ___________________________________________

CITY ____________________________ ZIP ________________

PHONE ____________________________ ☐ PARENT ☐ TEACHER

You may silently observe student sessions your students/daughters are not currently attending. If you wish to attend any adult workshops, please circle your choices below (up to three).

A1 A2 A3 A4 A5 A6
EXPANDING YOUR HORIZONS™

WHY SHOULD YOU COME?

• Discover how interesting and fun math and science can be
• Learn about career opportunities for women in mathematics, engineering, and science
• Form personal contacts with women working in traditionally male occupations
• Meet other young women interested in science and math

Who is invited?

• Young women in grades 6-9
• Interested adults

What will we do?

The conference begins with an opening welcome and presentation. The rest of the day is devoted to workshops. Each workshop is a small class or discussion led by women who have careers in math, science or engineering. Hands-on workshops provide an opportunity for you to experiment in a specific area such as computer science or medicine. Career workshops are small group discussions about women in scientific careers. You will attend three workshops. We will provide lunch.

Student Responsibility

If you attend this conference you must be mature enough to follow instructions and directions provided by signs and guides on campus. Also, you must attend all the events scheduled for you, including lunch, and remain on the SJSU campus from 9 a.m. until the conference ends at 3:30 p.m.

REGISTER EARLY!

Only 800 students can be accepted, and often the conference is full several weeks before the actual conference date. Also, popular workshops fill up quickly and early registration will help you get your top choices. If your choices are full, we will place you in other workshops. We think they are all terrific, and you may discover some great careers you had not considered before.

Registration Fee

The fee of $15.00 (which applies to both students and adults) includes lunch. Mail your form, a check (made out to EYH-SJSU), and a self-addressed, stamped envelope to:

EYH Coordinator
Department of Biological Sciences
San José State University
San Jose, CA  95192-0100

INFORMATION ABOUT GROUPS, FEE WAIVERS, CANCELLATIONS, ETC.

Groups: If you wish to bring a group of 10-40 students, call (408) 924-4917 between Jan 26 and Feb 6, 2004. Send the registration forms and checks for your students all together and indicate you have a reservation. These must be postmarked by Monday, Feb 9. We reserve the right to limit the size and number of groups.

To request fee waivers and cancellations: (408) 924-4917
A student's application fee may be waived if the student is in a school lunch program. Please check the appropriate box on the student application form.

Refunds: Fees will be refunded if you call (408) 924-4917 before 5:00 p.m. on March 1, and cancel; or if your application arrives after the conference is full.

All other information (such as whether conference is full): (408) 924-4917
ENGINEERING WORKSHOPS

1 ELECTRICITY IN THE WORLD AROUND YOU
We will discuss how electronics impacts industries such as entertainment, utilities, communications, etc. Demonstrations include hands-on experiments in transmitting and receiving voice over various media.
Maria Guerra, president, Guerra Technologies Inc.

2 INNOVATION AND PLAY
Launch it, push it, fling it, drop it! Join the fun as we design and create contraptions that use potential and kinetic energy to propel a ball toward a target. Can your ball hit the target every time? Be an innovator as you work in teams to build a solution to our playful challenge.
Melissa McAlexander, community learning specialist, The Tech Museum of Innovation

3 MATERIALS MADNESS
How do you make a flower shatter like glass? Ever met a metal with a memory? Why does aluminum foil bend while china plates break? Can we really turn copper pennies into gold? Come be a contestant on Materials Madness and discover how materials shape the world around you!
Materials Science and Engineering graduate students, Stanford University

4 WHAT IS ELECTRICAL ENGINEERING?
We’ll discuss simple, everyday problems and also some “far out” scientific phenomena that you can understand. Interested in a career in electrical engineering?! Sounds challenging and exciting, and maybe tough? Come find out! You may love it and find out you can do it!
Lili He, electrical engineering professor, San Jose State University

PHYSICAL SCIENCE WORKSHOPS

5 LASERS, LENSES, AND LIGHT
Experiment with light and lasers, learn how a TV uses color, and learn how fiber optics is used to transmit your phone call.
Lisa Windover, Annette Grot, engineering project managers; Shalini Venkatesh, engineer; Annette Grot, engineer, Agilent Technologies

6 FOOD ON FIRE: MEASURING CALORIES
Build a calorimeter and use it to determine the number of calories stored in common foods.
Clare Lawson, senior systems engineering manager, Apple Computers

7 EXPLORE THE NIGHT SKY: FROM A PRACTICAL AND HISTORICAL PERSPECTIVE
Using the unique environment of a portable and inflatable planetarium, get an introduction to the night sky and how it has been used as a clock and calendar and how modern astronomers navigate it with the same ease that they walk around their neighborhood without getting lost.
Suzanne Chippendale, astronomy education manager, Astronomical Society of the Pacific

8 POLYMER PLAYGROUND
Learn what polymers are, make an ooey-gooey polymer (Gak), and discover the secret of disposable diapers.
Ann Reisenauer, research scientist, Stanford University; Susan Bernhard, manager, Elan Corp.; Yvonne Freund, consultant
9 STRANGE LIQUIDS
Have you ever heard of a liquid you can cut with scissors? Come learn about strange liquids, how liquids flow, and the difference between a polymer liquid and other liquids. You will make your own polymer liquid that you can take home.
Shirley J. Johnson, Ph.D., chemical engineer, Applied Biosystems; Wendy B. Levine, Ph.D., manager, Perlegen Sciences

10 CAN A CARDBOARD BOAT FLOAT? YOU DECIDE!
Split into teams, design and build a mini-cardboard boat. Test it and learn why it worked or did not work.
Ceal Craig, project management and educational consultant, Druai Consulting

11 MAGIC OF CHEMISTRY
Have you ever wanted to change the world? Come and change a liquid into a solid, change a solid into a gas, make a liquid that is a solid. Come change the world.
Michaelle Havenhill, director quality control; Amber Martinez, quality control analyst; Karen York, document control; Kristal Ball, director manufacturing, HemoSense, Inc.; Joyce Norell, marketing operations manager; Carla Ratliff, sr. engineer, technical ops., Beckman Coulter, Inc.

12 FASCINATING FUNGI
Explore the interesting world of fungi. Observe the beautiful forms under the microscope and learn about the good and bad fungi.
Zubeda Ziva Abraham, microbiology consultant, Microrite, Inc.

13 POLYMER PANACEA
Enter the bouncing, oozing, rubbery world of polymers. From your pajamas, chewing gum, toothbrush to bike tires, polymers are everywhere! How are they the same? How are the different? Get your fingers dirty making, testing, and comparing polymers. Why do some bounce and some splat? Learn what gives polymers their amazing range of properties.
Linda De Young, Ph.D., VP development, Threshold Pharmaceuticals

14 LIFE IN A VACUUM
Learn about silicon wafers and how a vacuum is used to make integrated circuits. Coat surfaces with metal films in our plasma chamber and learn how these are used to make such things as mirrors. Find out how water, steam and ice can exist at the same time when we perform experiments in a vacuum.
Senzi Li, Ph.D., senior process engineer; Wenhong Yan, Ph.D., process engineer Novellus Systems, Inc.; Cara Weitzacker, Ph.D., scientist, Bayer HealthCare LLC; Kathryn Arnold, Ph.D., program manager, Wolfe Engineering

15 FUN WITH MAGICAL MEDICAL MATERIALS
You wouldn't believe what a doctor is willing to put in your body! Dip metal into "smoke", wad it up and watch it return to its original shape by just breathing on it!!
Michelle Bartning, Process Development Engineer, Nitinol Devices and Components (Johnson & Johnson)

16 SINK OR SWIM
Surf's up! Explore the properties of density and surface tension while setting up the "Sink or Swim Surf School".
Pin-Pin Wei and other Stanford graduate students
17 LET THERE BE LIGHT!
Come and see how our houses light up with electricity. Why do light bulbs burn faster in winter? What is the difference between regular light bulbs and halogen bulbs? Find out the answers to these questions and more.
Fatima Saleh, manufacturing engineer, Thermo Electron Corporation

ENVIRONMENTAL SCIENCE WORKSHOPS

18 MAGIC OF WATER
Come see a magical water presentation that will keep you spellbound with a whiz-bang performance of the water cycle, non-point pollution, water quality, stream stewardship and watershed awareness. The “Water Wizard” will demonstrate the critical importance of this resource and show you how their behaviors affect the supply. See it with your own eyes. You won’t believe it. Who knew water could be so much fun!
Kathy Machado, education outreach coordinator

19 THE SAN ANDREAS - IT’S NOT OUR ONLY FAULT
Discover the what, why, where, when and so what of Bay Area earthquakes.
Heidi Stauffer, Dept. of Geology, San Jose State University

20 JEOPARDY – AND THE CATEGORY IS “WATER”!
How much water do we have? Where does water go? Why is it important to help protect water from pollution? What is a watershed and how do I affect it? If you’re interested in finding out the answers to these questions and more, join us for some hands-on fun and test your skills with a game of Jeopardy! An interesting workshop for folks with lots of questions about water and our watershed.
Joanna DeSa, Analyst II, Environmental Services Dept., City of San Jose

COMPUTER/MATHEMATICS WORKSHOPS

21 KALEIDOCYCLES AND SYMMETRY
Come explore rotational symmetry through a 3-dimensional art form.
Nedra Shunk, mathematics professor, Santa Clara University; Betty Weiss, mathematics professor, West Valley College; Phuong Lam, mathematics professor, Foothill College

22 HOW UNUSUAL!?!?
Have you ever experienced events that were so unlikely that it seemed they could not have been due to a coincidence alone? We will make some guesses, play some games and use mathematics to investigate the odds of strange events happening.
Helen Moore, mathematician, Associate Director of American Institute of Mathematics Research Conference Center

23 COMPUTERS: LOVE AT FIRST BYTE
Write a computer program in BASIC! Debug (fix) an Adventure game program. Play with other games on the computer.
Adrienne Jardetzky, senior director, Network Appliance

24 PUT PIZZAZZ IN YOUR PERSONAL PAGE!
Make your website rock and roll with JavaScript! (Try it on your own – see the website http://elstad.com/workshop/javascript/)
Alta Elstad, technical writer, Sun Microsystems; Mary Nguyen, software consultant
25 STRING ART
Make a beautiful string art design and watch straight lines create curves.  
Hope Jukl, mathematics instructor, Gavilan College

26 PROGRAMMING SIMPLE ANIMATION
Learn how to make a butterfly fly through simple programming on a PC. (Prior experience with Windows strongly recommended; no programming experience required.)
Marilyn Schneider Hollinger, director, Ease-of-Use Architecture, Oracle Corporation; Val Langmuir, network design manager, Triton Container

27 THE HUMAN INTERNET GAME
Join in an interactive game in which the contestants play the roles of the routers, switches and packets that form the Internet. You will work together to direct human packets (e-mails) through the Web/Internet.  
Darlene Wong; Wendy Gustafson; Juhee Garg; Priya Bathija, software engineers, Cisco Systems

28 WHICH HEALTH CLUB IS RIGHT FOR YOU?
We will use mathematics (tables, graphs, equations and the graphing calculator) to determine which health club is the "best buy".  
Christina Centeno, mathematics teacher, John Muir Middle School;  
Cheryl Roddick, mathematics and computer science professor, San Jose State University

BIOLOGICAL/MEDICAL WORKSHOPS

29 MEDICAL DETECTIVES
Learn how scientists use epidemiology and solve medical mysteries like disease outbreaks and how they spread. We’ll follow clues and solve the mysteries – prizes at the end!
Candra Abraham, MPH biologist/health educator

30 EPHALUMPS AND WUZZLES
“Doc says you have what?” Learn about common eye conditions and see what they really look like (eyeball dissection).
Wani Wynne, optometrist, Kaiser Permanente Medical Center

31 DNA FINGERPRINTING
We will load DNA samples on a gel and run them in an electric field, talk about how DNA is separated in this way, and see what we can learn from the banding patterns we see.  
Muh-ching Yee, Ph.D., research assistant and lab manager; Sharon Barr, Ph.D., post-doctoral researcher, Stanford University School of Medicine; Beverley Smolich, Ph.D., biotechnology drug development.

32 NURSING - PREPARING FOR HEALTH CARE OF THE FUTURE
Find out about the positive aspects of nursing on the health care system we all use. Discover nursing as a profession for lifelong practice.  
Katherine Abriam-Yago, associate professor, San Jose State University

33 VETERAMA – VETERINARY WORKSHOP
See the instruments used by veterinarians and find out about the many facts of veterinary medicine for women.  
Ann Gratzek, veterinarian, owner of Ophthalmology for Animals
34 BERRY FULL OF DNA
Join us for a lesson in molecular biology! Learn how to extract DNA from strawberries and use a microscope to see where DNA resides in the cell.
Liz Alter; Kerri Skurka, graduate students, Stanford University Biosciences

35 SCIENCE INVESTIGATIONS IN YOUR KITCHEN
Did you know that you don’t need a science lab to investigate the properties of different compounds? Using only supplies from your kitchen, we’ll show you how to test and identify different mystery substances.
Stanford Cancer Biology Students

36 WHOSE ‘ZYME IS IT ANYWAY?
Enzymes – find out what they are, what they do and how we identify them.
Robin L. Daskin, scientist II and colleagues, Genencor International, Inc.

37 UNRAVELING THE MYSTERY OF GENES
Ever wonder why Sally has blue eyes but her parents have brown eyes? Don’t you inherit your eye color through genes? Yes, you do, but genes can be deceiving. Come use microscopes to find out why even small creatures sometimes look like their parents and other times don’t.
Jami L. M. Dantzker, postdoctoral fellow, University of California, San Francisco; Karen Menuz; Brigitte Bogert, graduate students, University of California San Francisco

38 NOVEL DRUG DELIVERY – A BETTER TOMORROW
You mean I don’t have to take a tablet every three hours to get rid of my pain? Join us and learn how drugs are developed and delivered in the body to cure specific ailments. Learn about tablets vs. patches. We will do some simple experiments and learn how these drugs are identified.
Aruna Datla, sr. chemist; Nancy Shi, research scientist; Elvira Raquinio, chemist II; Salma Siraj, chemist II, ALZA Corporation

39 DISCOVERING DNA
Every wonder what DNA is all about? What does it look like? Where do you find it? What is so great about it? Come to this workshop and find out! Explore the world of DNA through games and crafts. Learn how to make your own DNA jewelry! See for yourself how we can extract DNA from cow tissue! Door prizes will be awarded.
Honey Dedhia; Corrine Lardy, Biology Graduate Students, San Jose State University

40 MICROBE HUNTERS
Come and streak petri plates, make smears and stain them for infectious microbes. Learn how medical microbiologists detect and identify blood parasites like malaria, groundworms, and tapeworms. See what molds look like under the microscope.
Manjula Mudambi, sr. clinical lab scientist; Judy Beatty, sr. clinical lab scientist; Laleh Ghafghaichi, clinical lab scientist, Stanford Hospital and Clinics

41 START YOUR OWN HIGH-TECH BUSINESS!
Imagine you have a terrific idea to build the perfect mousetrap or a recipe to solve world hunger. Or maybe you know the best way to turn recycled garbage into athletic shoes? How would you begin? We’ll find some answers and write a business plan.
Dr. Laura Mazzola, CEO, Excellin Life Science
DISEASE DETECTIVES
Isolate and touch your own sample of DNA and characterize DNA samples from a “crime scene” to find out who is the perpetrator.
Christine Jesser, MS; Joyce Chung, Ph.D., epidemiologists, Santa Clara County Public Health Department

MALADIES AND MICROBES
Learn how to isolate and identify bacteria that are bioterror agents or pathogens. Also, using real patient specimens, learn how to identify blood cells and diagnose leukemia.
Mara Williams, M.S. Director, Clinical Laboratory Science Training Program, San Jose State University

WORKSHOPS FOR ADULTS

A1 COLLEGE CHOICES
How can your daughter choose a college or university to meet her educational goals? Learn about various programs that are available. Find out about application procedures.
Admissions officers from local area colleges and universities

A2 EXPLORE THE NIGHT SKY: FROM A PRACTICAL AND HISTORICAL PERSPECTIVE
Using the unique environment of a portable and inflatable planetarium, get an introduction to the night sky and how it has been used as a clock calendar and how modern astronomers navigate it with the same ease that they walk around their neighborhood without getting lost.
Suzanne Chippendale, astronomy education manager, Astronomical Society of the Pacific

A3 PREPARING FOR THE COLLEGE ADMISSIONS PROCESS
This session will guide your daughter (or son) through the admission process. Information will be organized by grade and begin with what to do in eighth grade to prepare your child. Tips on the admission process, the dreaded college essay and the SAT-I and ACT examinations will be provided.
John Jaffee, Associate Dean of Admissions, Mills College

A4 FINANCIAL AID - MEETING COLLEGE COSTS
Information on the types of financial aid available.
Coleeta E. McElroy, assistant directory-Financial Aid and Scholarship Office, San Jose State University

A5 CAN A CARDBOARD BOAT FLOAT? LEARN HOW TO RUN THIS WORKSHOP IN YOUR SCHOOL!
Learn how to run your own cardboard boat activity day. Handouts on teamwork, fluid mechanics items to review (depth will vary by grade level taught), worksheets, opportunity to do the workshop and understand how to run it back home or at school.
Ceal Craig, project management and educational consultant, Druai Consulting

A6 STARTING POINT: DISCOVERING THE RIGHT CAREER
This workshop explores career opportunities and presents a starting point for the process of finding a career that is meaningful and exciting for your child.
Andrew Lee, career consultant, San Jose State University Career Center; Anita Manuel, graduate intern, San Jose State University Career Center
San José State University is bordered by San Fernando and San Salvador streets on the north and south, and 4th and 10th Streets on the west and east. Parking is free at the city garage on 4th Street at San Fernando.

From U.S. 101: Take Interstate 280, exit at Seventh Street, proceed north to the main campus.

From Interstate 880 South: Take 101 to Interstate 280, exit at Seventh Street, proceed north to the main campus.

From Interstate 680 South: Interstate 680 becomes Interstate 280 (at U.S. 101), exit at Seventh Street, proceed north to the main campus.