

Seattle



*A day of career exploration
in science, technology, engineering,
and math through hands-on
workshops for 6th-8th grade girls*

Saturday
March 13, 2010
8.00 am to 1.30 pm
Seattle University

Seattle Expanding Your Horizons
24 Roy Street, # 447
Seattle, WA 98109-4018



sponsored by
Expanding Your Horizons Network



Conference Mission

Our mission is to increase girls' interest and achievement in science, technology, engineering, and math.


Important Notice!

Adult identification will be required when picking up girls after the conference. Drop-off and pick-up instructions will be included in your registration confirmation.

Maps and driving directions will be included in the registration confirmation letter.

Please watch for this confirmation letter.

If you have not received a confirmation by March 5th, please check the website for instructions (www.seattleu.edu/seyh), or email info@seyh.org.

Seattle University is wheelchair accessible. 
There is no secure facility for storing personal belongings.

Volunteers onsite will direct girls to their workshops.

To request information, contact SEYH
Email: info@seyh.org
Website: www.seattleu.edu/seyh
Voicemail: 206-296-2117



SEYH T-shirts will be available for
\$10 on conference day.



Conference Information

The conference will be held at Seattle University on
Saturday, March 13th, 2010.

Registration Deadline:
Wednesday, February 17

Registration Fee:
\$15 per person (non-refundable)

The conference is limited to 410 girls on a first-come, first-served basis. The conference fills quickly, please register early. Scholarships are available to girls experiencing financial hardship.

Conference Schedule

Pre-registration is required. The girls' workshop schedule will be available at check-in on conference day.

Check-in:

Check-in takes place in Pigott Atrium from 8:00 to 8:30 a.m. The girls attend an opening assembly and three workshops, starting at 8:30am. A pizza lunch and raffle follow the third workshop, and the girls are finished at 1:30 pm.

For parents and other adults (FREE):

Join other teachers, parents, interested adults, and local experts from 8:45 to 12:00 to discuss the importance of involving girls in science, technology, engineering, and mathematics. Practice strategies for engaging girls in science, and leave equipped with information and resources. Light refreshments will be provided. The workshop will end at noon to allow time for lunch before picking up SEYH participants. (Lunch is not provided.)

Check-in takes place at 8:15-8:45 am in Room 160 of the Student Center. Please pre-register using the attached form to help us with capacity planning.

Seattle

Workshops for Girls

Expanding Your Horizons 2010

Biology

[1] Become a CSI

(Community Structure Investigator)

Come learn about critters living in sand, mud of bays, and rivers. Learn what tools biologists use to describe the types of critters living together in a community structure. Look at saltwater and freshwater critters under a microscope!

*Helle Andersen, Environmental Scientist,
Windward Environmental LLC*

[2] Bacteria in Nature:

Friends or Enemies?

We think of bacteria as "germs", or critters that make us sick. But our planet is literally crawling with these microscopic organisms, and most of them can be beneficial to us and to the environment. Come see a bacterium that makes light, find out what bacteria can be found everywhere from your mouth to the soil on your shoes, and conduct an experiment on bacteria that can turn water into ice.

*Brook Peterson, Microbiologist/Senior Fellow,
University of Washington*

[3] Baby Fish & Mutant

Worms: What Animals Tell Us About Being Human

Newly hatched zebrafish babies look similar to human embryos at the very beginning of their lives and have a lot to teach us about how our brains, hearts and other organs develop. Worms still have stomachs like ours, allowing them to eat and poop, and they have muscles that help them move around. We will also look at normal worms and compare them to constipated mutants.

*Hilary Kemp, Staff Scientist, Fred Hutchinson
Cancer Research Center*

Seattle Expanding Your Horizons 2010

Workshops for Girls

[4] Find Willie's Whale Pod!

Investigate DNA sequences and morphology of dolphins and whales to determine their "family trees." This information can be used to determine whether a population is endangered, and is useful in helping conservation geneticists manage threatened species. *Margaret Mills, Graduate Student, University of Washington*

[5] Have a Heart!

Learn about the structure and function of the sheep heart, which is very similar to the human heart. Preserved specimens will be explored to find the four chambers of the heart, the incoming and outgoing vessels, and the heart valves. We will make drawings to illustrate the routes of blood flow through the body. *Kristina Ieronimakis, Laboratory Manager, Seattle University*

[6] How Do Orange and Black Cats Differ?

Using techniques employed by researchers in genomics and biotechnology, look at DNA sequences from cats and learn how to predict the coat color from the genetic information. *Dina Kovarik, Research Assistant, University of Washington*

[7] Proteins, in Color!

Living cells contain thousands of types of tiny proteins, each doing a specific job. How can we study something so small? Using dyes, color-changing liquid and glowing cells, we will learn the techniques molecular biologists use to find out where proteins are and what they do. *Michelle Oeser, Graduate Student, University of Washington*

[8] Purification: Separating the Medicine from the Mix

Do you pick the red jellybeans out of the bag because those are your favorites or pick the mushrooms off of your pizza because you're not a fan? Congratulations, you've performed a separation! When we produce a medicine we use a purification equipment called a column to separate impurities. Come shake down our giant model column to learn how we separate medicines from the mix. As a purification expert, you'll use your own small column to discover grape Kool Aid's hidden secret. *Allison Bianchi, Sr. Scientist, Amgen Inc.*

[9] Super, Natural

There is a miraculous green world all around us. In this workshop, you will get a chance to think like a plant. You will also touch, taste, and discover the secrets of plant molecules we use every day for food, fashion, and medicine. *Jennifer Nemhauser, Biology Lab, University of Washington*

[10] The Reign of Pain Falls Mainly in the Brain

Ever had a broken heart and actually felt real physical pain? That's because emotional and physical pain are actually connected. Using sheep brains as models, you will dissect and identify structures of the brain that are responsible for people feeling pain. We will talk about how pain is affected by both biological and emotional factors, and demonstrate a new technology that measures this connection between the mind and the body. *Hilary Wilson, Research Scientist, University of Washington Medical Center*

Chemistry

[11] Explore Labels, Investigate Ingredients and Make a Lotion!

Labels will often say "natural" or "not tested on animals." When can these phrases be used by companies and what exactly do they mean? Come find out the truth behind labels. Learn how ingredients are developed and tested. Create your own homemade lotion with kitchen ready recipes you can take home! *Reitha Weeks, Ph.D., Resident Scientist and Program Manager, Northwest Association for Biomedical Research*

[12] French Fries to Fuel

Ever smell French fries coming from a car? Biodiesel is a renewable diesel fuel alternative made from plants and algae produced by separating glycerin from the oil. Let's talk about the chemical reaction of producing biodiesel and then get our hands dirty (or should I say oily?) and see the fun in making our own biodiesel. *Liz Kohl, Research Scientist, Targeted Growth, Inc*

[13] Kitchen Table Chemistry and Junk Drawer Physics

Make "gak", Martian handprints, and other science toys to impress your friends, family, and teachers. Use ordinary things from around the house to make funny and messy science projects to take home. *Kathy Burrows, National Trainer, Giant Campus*

[14] Lotion and Lip Balm Chemistry

Be introduced to the science and chemistry behind lotions and lip balms, then make them yourself! We'll learn about emulsions and how to make oil and water solutions mix. We will also discuss other uses for this chemistry, beyond the cosmetics industry. *Rachael Oldinski, Faculty/Senior Postdoctoral Fellow, University of Washington*

[15] The Many Faces of pH: "pHun" with Everyday Acids and Bases

What does cabbage juice have to do with chemistry? We will examine familiar household products to find that acids and bases exist in our everyday lives. You'll learn why pH is focused on in academics and how it connects with real world environments such as water quality, wildlife habitats and ecosystems. *Laurel James, Graduate Student, University of Washington*

Computer Technology

[16] Computer Autopsy!

Ever wondered what's inside that box? Ever want to see inside your laptop? Dissect a computer and discover how it works! *Rebeca Florez, IT Consultant*

[17] Computer Brains!

Ever wonder how computers make decisions so quickly...without brains? The secret is to break problems down into simple rules and steps we call algorithms. Come for a fun and interactive exploration of how algorithms are used in everything from phones to Facebook. *Layla Driscoll, Program Manager, Microsoft*

[18] Computer Graphics Fun: Games and Movies

Tell a story! Learn to design and build your own animated movie or computer game! Using Alice, a free graphical software language with many built-in icons, we will explore problem-solving techniques used to manipulate, resize, move and animate icons. You will take home a CD with samples and many ideas that will help you continue to create. *Adair Dingle, Ph.D., Professor of Computer Science, Seattle Univ.*

[19] Create Your Own Computer Animation

Learn how to make your very own computer games, animated stories and interactive art that can be shared with others on the Internet! *Karen Lowe, Senior Associate IT Advisory, KPMG LLP*

[20] Design of a Tea Party

Design isn't just about making something pretty. Learn how making something work and making something beautiful are important parts of software development. We will experiment with these ideas over tea and snacks as we learn about designing the perfect tea party. *Lilia Gutnik, Program Manager, Microsoft*

[21] I'm Feeling Lucky: How Google Really Works

When you do a Google search, what really happens? Here's a hint: it's not all luck! Come learn about the science and engineering behind Google and create your own search engine! *Amanda Camp, Software Engineer, Google*

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February 17, 2010 at the latest!

Please register early as
the conference fills quickly!

[22] OMG! iPods! ☺

Oh my gosh, the science and law behind texting and iPods. *Hayley J. Stevens, Patent and Trademark Attorney, Seed Intellectual Property Law Group PLLC*

[23] Programming Snazzy Fractals

What's a fractal? A cool geometric shape! Yes, but delving behind the graphical display, we'll look at software for the generation of fractals. Using a step-by-step process, we'll explore how to write code to produce an enchanting geometric figure that repeats itself indefinitely with ever decreasing dimensions. *Roshanak Roshandel, Ph.D., Assistant Professor, Seattle University*

Earth &
Environmental Sciences

[24] Adventures with Nematodes

What is microscopic, lives in dirt and moves like a snake? NEMATODES! Come and get dirty while collecting your own little microscopic animals from genuine Washington State soil. Under a microscope, you can watch them slither and turn as they enjoy a feast of delicious fungi and bacteria (yuck!) *Catherine Reardon, Microbiologist, US Department of Agriculture*

[25] Dig This:

Discovering Past Environments

Learn about the science of paleoecology! Examine animal bones and plant remains to sharpen your skills of observation, identification, and interpretation, and then come to a conclusion about Ice Age climates. *Heidi A. Lennstrom, Ph.D. Archaeologist & Science Program Manager, Girls Scouts of Western Washington*

[26] Swimming in Toxic Streams

When it rains, it pours. Where does all that water go? Learn how stormwater brings pollution to streams and rivers, and why coho Salmon are dying in our urban streams. *Casey Ralston, Education Coordinator, NOAA's Northwest Fisheries Science Center*

[27] The Art and Science of Flowering Plants

Learn how botanists collect, identify, press and preserve flowering plants by creating herbarium specimens. Learn scientific methods of plant identification and use artistic means for creating beautiful plant specimens. *Katie Murphy, Hyde Herbarium Collections Manager, UW Botanic Gardens Center for Urban Horticulture*

[28] Tsunamis!

Tsunamis are a natural disaster that can happen in Washington. Come learn about why tsunamis occur and what to do to survive a tsunami. We'll make our own tsunamis and learn how to protect a virtual village from tsunamis. *Bre MacInnes, Earth and Space Sciences Department, University of Washington*

[29] Watersheds: Snow to Sea

What lives in your watershed? This workshop investigates the diversity of plant and wildlife within watersheds. We'll play a game showing how our actions can affect a watershed. You will also get to see and touch some of the animals and plants that live in northwest watersheds. *Annika Fain, Environmental Scientist, ESA*

[30] What's Lurking in Your Water?

Become an environmental engineer for a day! In this workshop we will learn about how environmental engineers clean our drinking water by designing and building a bench-top water treatment process. *Anne Conklin, Engineer, Carollo Engineers*

Engineering & Math

[31] Designing Your Dream Home

Where do you want to live? Design and draft your dream house and learn what it takes to become an architect. We'll talk about what a home is and the process to design a house. *Peggy Heim, Architectural Designer, Schemata Workshop*

[32] Robots and Sensors

Learn how to build and/or program a simple robot. We will explore different sensors that can be used to direct the robot, like light, sound, or touch. *Melissa McQueen, Mechanical Engineer, Boeing*

[33] Wings!

How do airplanes stay up in the air? Build and launch your own gliders. Explore the aerodynamics of airplane design and some of the things aeronautical engineers do. *Peg Curtin, Aeronautical Engineer, Boeing*

Geology

[34] Going with the Ice Flow

What do the Cascades, Montana, New York City, Greenland, and Seattle all have in common? They have been heavily influenced by the presence of glaciers. Make your own glacier to see how they move, and learn how they have shaped the land in Washington state and beyond. *Rachel Headley, Earth and Space Sciences Department, University of Washington*

[35] Volcanoes in Your Backyard

Come learn about volcanoes and volcanic hazards right here in the Pacific Northwest. In this workshop you will do hands-on experiments to learn about lava, hot ash flows, and gas-driven eruptions, including making your own small eruption! *Theresa Kayzar, Earth and Space Sciences Department, University of Washington*

Health Sciences

[36] Say Ahhh... Diagnosing Diseases

Have you ever wondered what all those instruments in the doctor's office are for? Come learn about how these tools are used to diagnose people when they are sick, and how Nurse Practitioners care for patients. *Adrienne Woike, Nurse Practitioner, The Everett Clinic*

[37] The Makings of a Flu Pandemic

Scared of swine flu? We will learn about the influenza virus and how the virus changes to cause new outbreaks. Additionally, you will model a viral epidemic and discover how to track emerging virus strains. *Courtney Wilkins, PhD, Postdoctoral fellow, University of Washington, Department of Immunology*

Physics

[38] Arcs 'n Sparks

Have you ever looked up at a thundercloud and wondered, "What is lightning?" Learn about natural electricity and create homemade lightning in this zapping workshop. *Diane Heidelbaugh, Electromagnetic Effects Technology, Boeing*

[39] It's Electric

Learn what it takes to light up your world. See a pickle glow. Explore ways to light up the night with stuff from home. *Viki Mirgon, Physics, University of Washington*

[40] Tiny Bubbles

Everyone loves bubbles... but few know all the science involved in understanding those pretty bubbles. Come and investigate soap bubbles, soap films, surface tension, and find out why rain drops are round. Find out how these fragile bubbles are stronger than you think! *Nancy Ruzycki, Research Associate, University of Washington*

Zoology

[41] A Rat's Tale

Experience hands-on how laboratory animal veterinarians train researchers and animal care staff to comfort and work with rats. Learn how we house and care for the rats. *Kari Kozdin, Veterinary Medical Officer, UW and Veterans Affairs Puget Sound Health Care System*

[42] Imagine Becoming a Veterinarian

Explore the mysteries of being a veterinarian. Learn about diagnosing and treating animal illness, including the use of x-rays, surgery, laboratory tests, parasite identification, and more. *Sherrie Crow, DVM, Veterinarian, Elliott Bay Animal Hospital*



Seattle Expanding Your Horizons



Spring 2010 Registration Form

Complete one form for each attendee (form may be copied as needed) and mail with registration fee to:

Seattle Expanding Your Horizons
24 Roy Street, #447
Seattle, WA 98109-4018

Registration forms must be postmarked no later than **Wednesday, February 17th**. The conference fills quickly, so send in your registration as soon as possible!

For groups of 5 or more, complete the group attendance form on the SEYH website: <http://www.seattleu.edu/seyh> - look for the "Group Information" link on the left menu.

This registration is for one: 6th grader 7th grader 8th grader Adult (Free)

First Name _____ Last Name _____
Confirmation letter should be sent to: (please print clearly)
Address _____ City _____ Zip Code _____
Home Phone _____ Parent E-mail Address _____

School _____ This is my: 1st EYH 2nd EYH 3rd EYH

Workshop Selections:
In the boxes below, write the numbers of your first six workshop choices in order of preference. Three workshops will be assigned to each girl on a first-come, first-served basis.

1.	2.	3.
4.	5.	6.


Registration Fee:

Registration fee \$15 (includes lunch/materials) \$ _____
 I want to make a donation \$ _____
(Each \$15 dollar donation sponsors a girl for the conference)
 Please consider me for a scholarship
Enclosed is a check for \$ _____

[Make checks payable to Seattle University - SEYH.](#)

If my preferred workshops are not available, I am interested in the following subjects: (check all that apply)

<input type="checkbox"/> Biology	<input type="checkbox"/> Health Sciences
<input type="checkbox"/> Chemistry	<input type="checkbox"/> Physics
<input type="checkbox"/> Computer Technology	<input type="checkbox"/> Zoology
<input type="checkbox"/> Engineering	<input type="checkbox"/> Environmental & Earth Sciences
<input type="checkbox"/> Geology	

 Short-sleeved SEYH T-shirts will be available for \$10 on conference day.

Please tell us how you heard about the SEYH conference:
 Friend Teacher Website
 Other: _____

Parental Consent:

I give my consent for my child to receive emergency medical treatment by qualified personnel. I give my consent for SEYH to use any photos, videos, and audio tape that include my daughter for SEYH and its associated programs' publicity and promotion.

If your daughter has any special needs, please check this box and include them on the back of this form.

Printed Name of Parent/Legal Guardian

Signature of Parent/Legal Guardian

Emergency Phone Contact (in case of an emergency during event)

Note : Registrations received without parent/guardian signature cannot be processed and will not be returned.

<http://www.seattleu.edu/seyh>

Special Thanks to our Supporters in 2009

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