

  
**UW-Madison SCIENCE EXPEDITIONS**



**APRIL 5, 6 & 7, 2013**

**Exploration Stations Saturday, April 6  
10am-2pm at WI Institutes for Discovery**

- ⊕ **A Squid that Glows in the Night:** Learn about a symbiotic relationship between squid and bacteria in which light is fundamental.
- ⊕ **Alcohol Causes Birth Defects:** Fetal Alcohol Syndrome is one of the leading known causes of mental retardation in the United States. Using the chicken embryo model system, we will demonstrate the effects of alcohol on fetal development.
- ⊕ **Berry, Berry ExtraorDNAiry: DNA and the Code of Life:** Graduate students from the Integrated Program in Biochemistry will lead students through DNA exploration by extracting, visualizing in different ways, and understanding how DNA makes us who we are.
- ⊕ **Biodiversity in Action:** The UW-Madison Arboretum is a place with many different types of ecosystems. Practice how researchers measure the diversity of plant species in these ecosystems. Which ecosystem do you predict has the highest and lowest biodiversity and why?
- ⊕ **Brain Power!** How exactly does the brain work? See and touch a real human brain while learning about perception and the senses, then make a neuron to take home!
- ⊕ **Cotton Candy: Liquid or Solid?** Discuss what distinguishes liquids and solids, question whether cotton candy, a sugar glass, is a liquid or solid, and then explore cotton candy through tasting.
- ⊕ **Counterfactual Drawing Jam:** Come help us see into the future by making drawings of what the university campus of the future will look like. What will classrooms be like in one hundred years? What will desks be like?
- ⊕ **Cows Turn Grass into Milk:** Taste grassfed and conventional cheese - can you tell the difference? Design your own grazing farm! Make a grazing fortune teller. Draw a cow. Information about pasture-raised meat and dairy products, including recipes, will be available for kids and their parents.
- ⊕ **Cranberries: the Native American Fruit:** Did you know that Wisconsin is the largest producer of cranberries in the United States and the world? At our planting station, plant and then take home a cranberry plant.
- ⊕ **Different Ways of Seeing:** Wearing specially prepared goggles and masks to simulate how a person with impaired vision might see the world, adults and children can perform simple tasks (writing, reading, telling time, etc)
- ⊕ **Discovery Walk:** Discovery Walk is a brochure for a self-guided tour around the CALS campus that highlights some of the historic contributions of several departments and their unique buildings.
- ⊕ **Engineering EXPO:** Penny Barges: Get a sneak peak at what is to come at this year's Engineering EXPO. Be an engineer to design a boat out of aluminum foil which holds as many pennies as it can before it sinks!
- ⊕ **Exotic Plasmas of the Universe!** See and Touch the fourth state of matter, Plasma, and learn about its role in fusion energy.
- ⊕ **Explore South Pole Science:** Visit the colorful LED model that shows how the remnants of neutrino interactions are tracked as they travel through the ice at the speed of light. Explore models and activities including LED programming and neutrino event classification with IceCube researchers and technical staff and hear about what it is like to work in the South Pole.
- ⊕ **Explore Toxicology:** Explore toxicology through hands-on activities and games that demonstrate how chemicals interact with you and the environment. Learn about toxic household items, how chemicals are taken up by plants, and play a game called ToxLand.
- ⊕ **Exploring Hidden Sugars in your Food:** Test your knowledge on the amount of hidden sugars contained in frequently eaten foods and learn about how these hidden sugars have an adverse impact on dental health.
- ⊕ **Fields of Fuel:** Play a web-based game to learn about sustainable bioenergy cropping systems created by the Department of Curriculum and Instruction, the Great Lakes Bioenergy Research Center, and the Wisconsin Institute for Discovery.
- ⊕ **Genetics & You: How much do you know about DNA?** Learn more about DNA by using microscopes and extracting DNA glop from wheat germ while finding out DNA affects you
- ⊕ **Growing Axons & Dendrites in Xenopus:** Join Scientists in the Dept. of Neuroscience in learning more about Xenopus and how it learns.

- ⊕ **Heartland Farm Sanctuary:** Meet just a few of the homeless farm animals who have been rescued and are now used in animal-assisted therapeutic activities.
- ⊕ **How Human Are You?** Society has a negative misconception of, yet what so many people don't realize is that our lives simply would not be possible without bacteria! Use Glo Germ™ to see that you are made of bacteria too!
- ⊕ **Human Factors and You:** This exploration station will contain hands-on tools and activities focusing on inclusive design tools, ergonomics, human systems and emergency preparedness.
- ⊕ **Insect Ambassadors:** Insect Ambassadors bring science, insects and kids together. We have display cases with amazing insects from all over the world as well as live specimens to touch and hold.
- ⊕ **Interactive Demonstration on Temperature and Volume Expansion:** Through a combination of figures and fun, interactive models we will answer the questions “what is a thermometer and how does it work?” and “what is temperature?”.
- ⊕ **Make your own “Seed Bomb”:** **Exploding into Native Plant Gardening:** Create your own “seed bomb” by molding together seeds from native plants with clay, you will be equipped to create an “explosion” of the natural and resilient plants that are so highly valued in the state of Wisconsin.
- ⊕ **Making Mild Cheddar Cheese:** Cheese making is both a science and an art. We will show you how to make a curd using ingredients obtained from your local supermarket and equipment commonly found in the kitchen.
- ⊕ **Nanogold Sensors:** Gatorade vs. Powerade vs. pickle juice vs. Pedialyte: what should I drink to stay hydrated? We explore the possibilities by measuring the level of electrolytes found in sports drinks--using nanoparticles made of gold.
- ⊕ **Plants & Bacteria: Perfect Partners:** Did you know that in the soil, plants and bacteria work together to help each other survive? Learn more about the symbiotic relationship through a role-playing game and win a prize.
- ⊕ **Reptiles and Amphibians:** MAHS educates enthusiasts and the general public about frequently misunderstood reptiles and amphibians.
- ⊕ **Species Hybridization:** Play games as you learn about species hybridization, see how it is used in research, see hybrid animals, and a commonly eaten hybrid fruit!
- ⊕ **Spell your Name in Genetic Code!** Each participant will transcribe the letters of their name into genetic code then translate the genetic code into colorful beads.
- ⊕ **Take a Guided Tour through a Specimen:** Make a cell using fun craft supplies. Then take a test drive with WI State Laboratory of Hygiene scientists looking at real cells using a microscope or a computer while learning about what they do.
- ⊕ **Take the Hypothermia Challenge:** Waves on the Great Lakes can sink big ships into the ice cold water; come learn about safety on the Great Lakes.
- ⊕ **The Body's Super Heroes: Pluripotent Stem Cells:** Be a scientist and explore stem cells with microscope for viewing stem cells and an opportunity to use the tools that scientists use to feed stem cells.
- ⊕ **The Immune System & Infections: A Cellular Viewpoint in Zebrafish:** Learn how studying zebrafish helps teach scientists about the Human Immune system and view healthy cells respond to a mild infection.
- ⊕ **The Incredible Surface of Water:** Stand inside a giant bubble, make a soap-propelled boat or a lava lamp, learn about the shapes of soap films and bubbles, and find out how many drops of water can fit on top of a penny.
- ⊕ **UW Soil Science: Dig It!** Get your hands dirty while exploring soils from around the GREAT state of Wisconsin! Activities will include soil texture analysis, color determination, and much more. Learn about the importance of soil conservation, soil management, and soils in agricultural production. Leave with a greater appreciation for soil beneath your feet.
- ⊕ **What is More Sustainable? Finding Meaning in Sustainability:** Think about what makes something more sustainable and how something might appear sustainable on the outside, but might actually be the less sustainable option.
- ⊕ **What's all the Buzz About?** Learn about insect pollinators and why they are so important for plant species and much more!
- ⊕ **Where the Wild Things Are:** Can you imagine a time when French fries were unheard of in France? Find out where the wild ancestors of our fruits and vegetables are found, and discover how their domesticated descendants traveled throughout the globe to enrich our lives.
- ⊕ **WI geology in the news – You have questions? We have answers:** Have you been reading about mining and frac sand? Do you wonder where your drinking water comes from or if it is safe to drink? The Wisconsin Geological and Natural History Survey provides answers to these kinds of questions.
- ⊕ **Wisconsin Archaeology: Artifacts from Our State & a Chance to Hunt a Mastodon!** See and touch real artifacts from Wisconsin archaeological excavations then try your hand at hunting a mastodon, by using an atlatl.
- ⊕ **Wisconsin Robotics:** Check out our current robot, Singularity, and drive our team-designed and team-made mini-bots. Depending on their current state, some of our new team-designed robots may also be making an appearance.

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**APRIL 5, 6 & 7, 2013**

**Exploration Stations Sunday, April 7  
10am-2pm at Health Sciences Learning Center**

- ⊕ **Anatomic Radiology Correlations & Anatomy Browser: Become an Anatomist:** Be junior radiologists and explore some medical imaging studies and test your amazing voyage skills when you navigate through the gastrointestinal tract in an iPad game created by the Department of Radiology.
- ⊕ **Arias, Acrobatics, and the Airway: The Super Larynx:** Watch videos of the human body during voice and swallowing and participate in hands-on activities and games to learn about the larynx during swallowing and voicing.
- ⊕ **Ask the Doctor:** Have questions about your health and wellness? Dr. Jacqueline Gerhart will provide general health and wellness information and answer your questions.
- ⊕ **Carbon Footprints & Deforestation:** See how deforestation and agriculture affect soil and how big of a carbon footprint you are leaving in the tropical rainforests.
- ⊕ **Child Emotion Research Lab:** The Child Emotion Research Lab studies children's emotional development. Stop by our exploration station to learn about and experience some of the activities we use in actual research studies.
- ⊕ **Ebling Library for Health Sciences:** This exploration station will present games, quizzes, and handouts that demonstrate the resources and range of activities that health sciences libraries use to support scientific research.
- ⊕ **Electric Ears & How We Hear:** Learn how science and hearing go together, then listen to demonstrations of hearing loss and electronic hearing. This hands-on exhibit will demonstrate how the sense of hearing works; from the development of cells that form the inner ear to the electrical impulses that the brain "hears."
- ⊕ **Electrocardiograms:** Explore the electrical nature of the heart beat! Record the electrical activity of your own heart and produce an ECG with Medical Students to find out what all those squiggles mean! See you there!
- ⊕ **Fallout: The Mixed Blessing of Radiation & the Public Health:** Visit the historical exhibit and meet the curator, Micaela Sullivan-Fowler, on the 3rd floor of Ebling Library
- ⊕ **Genetics & You: How Much Do You Know About DNA?** Learn more about DNA by using microscopes and extracting DNA glop from wheat germ. What do we inherit from our Mom and our Dad? What kind of genetic differences can run through a family tree? How do Wisconsin State Laboratory of Hygiene scientists use genetic testing to help patients and doctors?
- ⊕ **Growing Axons & Dendrites in Xenopus:** Join Scientists in the Dept. of Neuroscience in learning more about Xenopus and how it learns.
- ⊕ **Interactive Demonstration on Temperature and Volume Expansion:** Through a combination of figures and fun, interactive models we will answer the questions "what is a thermometer and how does it work?" and "what is temperature?"
- ⊕ **Madison College's Stem Cell Technology Certificate Program:** Be a stem cell technician as you practice plating and feeding stem cells then look at real fixed stem cells under the microscope.
- ⊕ **Microbial Communities:** View the microbial members of your dental plaque, make slides for viewing under a microscope, and use a black light to illuminate plaque. We will also have a research display from Dr. David Andes' lab, which investigates biofilms formed by the fungus *Candida albicans*.

- ⊕ **Nanogold Sensors:** Gatorade vs. Powerade vs. pickle juice vs. Pedialyte: what should I drink to stay hydrated? We explore the possibilities by measuring the level of electrolytes found in sports drinks--using nanoparticles made of gold. Through this activity we will discover that materials at the nanoscale behave differently than what we might expect.
- ⊕ **Neurological Anatomy:** Learn about the anatomy of the Brain and Spinal Cord then build a spinal cord from clay and construct a helmet and put it to a crash test!
- ⊕ **Passaging Stem Cells:** With this hands-on activity, get a feel for how scientists maintain stem cells in a lab dish.
- ⊕ **Plant Cell Microscopy: Extraordinary Views of Ordinary Plants:** Observe common plant material (potatoes, raw cotton, onions, leaves, celery, and roots) collected from the garden, grown in petri plates, or on prepared slides through many different microscopes!
- ⊕ **Take a Guided Tour Through a Specimen:** Make a cell using fun craft supplies. Then take a test drive with WI State Laboratory of Hygiene scientists looking at real cells using a microscope or a computer. Learn how cytotechnologists, pathologists, and other laboratory scientists use this technology to evaluate cells to determine whether the specimen is normal; an infection is present; or if the cells represent a precancerous or cancerous disease.
- ⊕ **The Connection Between Anatomy & Physical Examination:** First year medical students at the UW School of Medicine & Public Health will be on hand to showcase cadaver organs, such as a heart, lungs or brain and demonstrate physical exam techniques. Come see our clinical teaching center - where students learn to become doctors!
- ⊕ **The Health Benefits of Chocolate:** Not all chocolate is equal come learn about and taste the difference! Dr. Jacqueline Gerhart, Family Physician and Wisconsin State Journal Columnist will discuss how chocolate is made, the differences between dark, milk, and white chocolate, and the health benefits of each.
- ⊕ **The Swallowing Challenge:** Get hands-on experience learning about swallowing and swallowing disorders. They will WATCH how scientists and clinicians evaluate swallowing disorders, HEAR about different treatments that help people with difficulty swallowing, and DISCOVER for themselves how they can swallow safely when eating or drinking.
- ⊕ **Use of Ultrasound for Cardiovascular Risk Assessment-UW AIRP:** Demonstrate simple ultrasound physics using a tissue mimicking phantom, also scanning a brachial/carotid artery to demonstrate anatomy and hemodynamics.
- ⊕ **UW Health Clinical Simulation:** Participants will tour the brand new, state-of-the-art Clinical Simulation Program. During the tour, participants will have the opportunity for some hands-on experiences in simulated healthcare rooms as well as interacting with high-fidelity human patient simulators.
- ⊕ **UW Med Flight: High Tech Life-Saving Equipment!** Come see some of the state of art life-saving equipment that UW Med Flight uses every day. Learn how these medical professionals use this equipment to help save lives. Check out the slide show!
- ⊕ **What is More Sustainable? Finding meaning in Sustainability:** Think about what makes something more sustainable and how something might appear sustainable on the outside, but once you did deeper it is the less sustainable option.