

Student Learning Conference Agenda

8:00 – 8:45	Registration Continental Breakfast
8:50 – 9:25	Opening Session – Auditorium
9:30 – 9:55	Session One (Student Presentations)
10:00 – 10:25	Session Two (Student Presentations)
10:30 – 10:55	Session Three (Student Presentations)
11:00 – 11:20	Session Four (Visual Display Board Presentations)
11:25 – 12:00	Lunch
12:00 – 1:00	Session Five (Performing Arts in the Auditorium)
1:00 – 1:10	Conference Closing and Bus Departure

Student Learning Conference **April 24, 2009**

Session One

Sports Journalism: Reporting on Sporting Events

Room One

Dan Enders

Glenelg High School

How do you find out what is happening in sports every morning? Many people read the newspaper over their morning coffee or orange juice to obtain local, national and world news. As an intern at the *Carroll County Times*, this presenter writes sports articles for the paper that include local high school, college and state sporting events. Attending games and meeting the athletes are perks of being a student journalist. Come to this session and learn the ins and outs of covering a sporting event, as well as the process involved in writing an effective newspaper article.

Prefabricated Modular Construction: The New Standard of Architectural Efficiency

Room Two

Aaron Mick

Centennial High School

In emergency situations and disaster relief, buildings like schools, hospitals, and homes need to be constructed quickly and reliably. Only buildings that make use of modular, prefabricated design are able to achieve this efficiency in terms of materials, time, labor, and sustainability. Because modular units are created in specialized factories under ideal conditions, much like cars on an assembly line, construction of each unit is completed in far less time than it would take to build the same structure on-site, and the negative environmental effects of on-site construction are eliminated. This presentation will demonstrate the unparalleled speed and ease of building construction when prefabrication and modular design are incorporated, making it an ideal solution for disaster and emergency situations.

Geoengineering: Can Large Scale Iron Fertilization Bring Global Warming to a Halt?

Room Three

Nathan Lingafelter

Marriotts Ridge High School

Imagine if we could use the very earth that we harm to fix our environmental issues. This is the idea behind large scale iron fertilization. A phytoplankton bloom occurs when iron is added to parts of the ocean, which contain phytoplankton, but little or no dissolved iron. These phytoplankton then use photosynthesis to capture carbon dioxide from the earth's atmosphere; consequently, this lowering of carbon dioxide levels in the earth's atmosphere can mitigate the greenhouse effect. The presenter will examine the plausibility of iron fertilization as a method for mitigating global warming through the examination of a) past experiments, b) possible side effects, c) compliance with international maritime law, and d) scientific evidence.

Co-Occurring Disorders: The Fundamentals of Dual Diagnosis

Room Four

Alexandra Stidham
Glenn High School

Have you ever met someone suffering from a co-occurring disorder? A person suffering from both an alcohol or drug problem in conjunction with a mental disorder receives a dual diagnosis, classified as a co-occurring disorder. According to reports published in the *Journal of the American Medical Association* (JAMA), a surprising 37% of alcohol abusers and 53% of drug abusers have at least one serious mental illness. This session will assist in promoting the awareness of this common yet widely unrecognized disorder.

Entertainment Value: Virtual-Environment Simulations and Games in the Classroom

Room Five

Nikhil Karnik
Atholton High School

According to a recent study by the Pew Internet and American Life project, 34% of American teens have played a computer or a console game for school-related purposes. School districts across the state of Maryland are pushing to implement new ways to motivate students and strengthen interest in math and science. “Learning Games to Go” is the newest virtual-environment game designed to supply innovative approaches to bolstering student interest in learning. This intern from the Johns Hopkins University Applied Physics Laboratory will provide an overview of the unique advantages of simulation-based learning, as well as a demonstration of the game “Seahawk,” a virtual simulation currently implemented in Baltimore County Public Schools.

Fostering Appreciation: Incorporating Cultural Proficiency into the Elementary School Classroom

Room Six

Andrew Cahoon
Long Reach High School

When a group of individuals are “culturally proficient,” they embrace their group’s cultural diversity and sense of unity, as well as the difference between their culture and that of their peers. Recently, Howard County has incorporated aspects of cultural proficiency into the curriculum. As Howard County School System’s demographics include a more diverse population of students, the need for cultural proficiency inclusion within the curriculum becomes increasingly apparent. The topics addressed will include the importance of a culturally proficient school system, implementation techniques that can be used to incorporate cultural proficiency into a classroom, and how to modify an already established lesson plan to make it more “culturally proficient.”

Civil Rights in America: Was Plessy v. Ferguson Ever Overturned?

Room Seven

Tina Meng
River Hill High School

What ended segregation? Many would answer that the milestone Supreme Court ruling in *Brown v. Board of Education* was the original force that drove the nation to promote equality among races. However, was the Supreme Court’s decision meant to overturn the ruling in the 1896 case of *Plessy v. Ferguson*, or was it only to strike down segregation in the classroom? This session probes into the wording of the significant *Brown* opinion and analyzes the cause versus effect of the Supreme Court decision. In addition, it will review the historical context and legal implications of this case during the mid 20th century and help the audience better understand the role civil rights plays in society.

Destination: The Sun

Room Eight

Myles Jackson

Wilde Lake High School

One influence, above all others, has had the greatest impact on every person and the planet. Although the sun that rises above us every day has been known to cause many problems on earth, without it, there would be no life. While the sun affects us in many ways, much is still unknown. So far, scientists have only studied the sun from afar, providing limited information. Now, scientists have decided to send the first space probe to the sun where it will face a harsh environment. However, through careful research, preparation, and planning, this mission can yield vast amounts of information so scientists can better understand our closest star and others like it.

A Solution to Our Animal Overpopulation Problem: Spaying and Neutering Your Pets

Room Nine

Genova Holt

Hammond High School

If cats and dogs are man's best friends, then why are there over six million cats and dogs entering homeless shelters each year? An overpopulation of cats and dogs on the streets and in shelters leads to problems such as the spread of diseases, euthanizations due to lack of space, and increased breeding. Attend this session and learn how to take action before this problem gets out of control in Howard County.

Neonatal Intensive Care: Where the Tiniest Patients are the Most Important!

Room Ten

Elizabeth Mackey

Wilde Lake High School

Unknown to most of the public, there is a small, isolated unit in Howard County General Hospital where nurses and doctors constantly monitor their patients --- patients who happen to weigh about three pounds. The Neonatal Intensive Care Unit, or NICU, is a specialized unit in the hospital, dedicated to monitoring and caring for premature infants. Premature babies, or babies born before the normal 40 week term, are sent to the NICU where they are treated for various health problems due to underdeveloped organs. The babies stay there until they are eating and growing at a constant rate. Learning about the NICU exposes not only the difficult and specialized work of the nurses and doctors, but also their compassion as they help babies in their first days of life.

Lights, Camera, Action! What Does It Take to Grow a Countywide Film Festival?

Auditorium

River Hill High School

Discover the business and art behind the Howard County Film Festival. Audiences have loved the student-produced films so much that the festival has outgrown three locations and the budget has grown from \$250 to over \$5000. What are the funding sources? Who creates the graphics and trailers? How do you get filmmakers to share their films? There are so many questions, and after five years in the making, the HoCo organizational committee from high schools around the county has come up with a few answers.

Session Two

5, 6, 7, 8... Step, Kick

Room One

Christine Jenkins and Tracy Sanders

Mount Hebron High School

In Howard County each high school provides the opportunity for students to explore their inner rhythm and the art of dance. Through this session, participants will learn what it is like to be a high school dance director, including the daily routine, the county curriculum provided for each course, how to choreograph a dance, and the pros and cons of working with the dance students. All participants may feel the urge to take a dance class themselves by the end of this session!

Starting Your Own Magazine

Room Two

Alyssa Bailey and Vivian Lee

Centennial High School

Ever dream of working in the glamorous world of magazines? Ever wonder what LC and Whitney *really* did when they worked on *Teen Vogue* on *The Hills*? Session participants will learn the reality and responsibility of running their own publication. From the formulation of the first concept to uploading and sending the first issue to the printer, two members of Centennial's *The Wall* magazine give the dish on the step-by-step guide to starting a new publication—and keeping it running.

What's Your Worst Fear? Get into the Mind of Someone with Post-Traumatic Stress Disorder

Room Three

Sarah Gorman & Nadine Michel

Oakland Mills High School

Imagine waking up every morning and reliving the worst day of your life. People with Post-Traumatic Stress Disorder (PTSD) face this reality on a daily basis. PTSD affects children, teens, men, and women of all backgrounds. An estimated 7 out of 10 children will be exposed to a traumatic event before the age of 16. This session will equip the audience with knowledge about Combat-Related Illness and the Military Health Coverage Plan, as well as PTSD treatment information and strategies to help others who suffer from the disorder.

Atlantic Bottlenose Dolphins: Mapping Association Patterns

Room Four

Mary Kate Warner

Glenn High School

What would you do if you were torn from your current group of family and friends and arbitrarily placed into a group full of strangers? Would you isolate yourself or learn to socialize and adapt? Humans tend to gravitate more toward what we know and are accustomed to, but when put in a situation of isolation, we learn to adapt. Atlantic bottlenose dolphins are no exception. This researcher has investigated the association patterns that result from the mixing of social groups of captive Atlantic bottlenose dolphins at the National Aquarium in Baltimore. Session participants will learn about the changes and inner workings of Atlantic bottlenose dolphin social groups in a controlled environment.

Does Pain/Stress Affect the Development of a Neonate?

Room Five

Shana Kadavil

Marriotts Ridge High School

Picture yourself undergoing surgery with no anesthetics. Some doctors believe that when neonates, newborns less than four weeks old, arrive, their nerves are not fully developed, and they cannot feel any sensations. Other physicians are concerned about the possibility of overdose of an anesthetic/analgesic drug. This presentation explores whether or not neonates can feel pain and other environmental stimuli. The audience will learn about experiments on rats where a heat stimulus to the rats' paw measured their withdrawal latencies. This session will also include several pharmacological and non-pharmacological methods that are used to relieve neonates' pain today.

The Effect of Linguistic and Cultural Barriers on a Person's Experience in the Howard County Legal System

Room Six

Jamil Scott

Long Reach High School

In a census from 2000, 2.2% of Howard County residents indicated that they have little or no mastery of the English language. The complexity of the American legal system, compounded with language and cultural barriers, can place immigrants at a significant disadvantage. Since laws and customs vary from one country to another, the transition for many immigrants is difficult. Very few agencies are dedicated to enlightening immigrants about their constitutional rights and civic responsibilities. This presenter will discuss the difficulties that limited English speakers have in understanding the American legal system, their lack of faith in governmental program and organizations, and the steps that are being taken to address these problems.

Can Teens Influence Politics? Yes They Can!

Room Seven

Katherine McFee

River Hill High School

The 26th amendment of the United States Constitution reads that a citizen who is eighteen years old has the right to vote. While cynics may declare that only adults can influence politics, it was actually student activism against the Vietnam War that prompted the change of the voting age in the 70's. Adolescents need to be exposed to the world of government and politics, because they are our future world leaders. Getting involved in the community is a great way for adolescents to gain exposure to the workings of the political world. This presenter will introduce numerous ways high school students can influence politics, including volunteering with campaigns and drafting a piece of legislation for local government.

Programming the Real World

Room Eight

Jonah Scheinerman

Wilde Lake High School

How are commonly used computer programs made? The applications on modern computers use concepts from computer science to achieve their ends. The concept of object-oriented programming is to create objects within programs that emulate the real world. In programming, one can manipulate these objects to interact with each other in an understandable fashion. Object-oriented programming is one of the most widely used paradigms in modern programming and is implemented by most computer languages. The presenter will discuss the fundamentals of object-oriented programming and the methods of storing data.

Extend, Turn, Extend, Turn: Instructing Dancers with Cognitive and Multiple Disabilities

Room Nine

Leah Fuchs

Hammond High School

Internally, low-functioning of the cerebrum, tegmentum, and cerebellum establish a distinct difference between intellectually disabled dancers and their non-disabled peers. But what physically stands out between the two? Differences are detected through each individual's application of coordination, movement, memorization, and timing. This session will provide several ideas for interacting with and instructing dancers with cognitive or multiple disabilities. When appropriately applied, teachers can enhance and accelerate their rate of growth and cognitive development for dance related concepts in the dance classroom, and ultimately, in all learning environments.

Herbal Remedies: Myth or Medicine?

Room Ten

Anjana Rao

Howard High School

Herbal extracts add flavor to our food, but they also have medicinal properties. Although there are many claims made regarding the benefits of herbal remedies, few have been scientifically tested. Through experimentation, extracts of oregano, tea tree, and licorice were tested for fungicidal activity with some highly beneficial results. Using a bioluminescent compound from jellyfish and DNA micro array technology, experimental evidence was gathered and specific genes identified. This presenter will explain how these studies are aimed at understanding the cellular mechanism of antifungal compounds and may help formulate more effective drugs to combat deadly fungal infections.

A Style Richer Than Chocolate: Defining Beauty, Fashion, and Style

Auditorium

Leelend Clayton, Long Reach High School

Passion Hannah, Reservoir High School

Nicole Kim, Atholton High School

Models who represent the fashion industry are often viewed as glamorous, desirable, and thin. But were models always a size 00 with waistlines that continuously seem to shrink? What is "style," and which designer developed the most classic and elegant style? For the past two decades, an unhealthy, emaciated figure has been the focus of mass appeal. Coco Chanel, one of the influential fashion designers of the twentieth century, broke the conventional styling methods by bringing comfort and function to dressing. In this presentation, students will explore the influence of fashion on culture, investigate personal styling, and analyze the designer Coco Chanel's attitude to demonstrate an understanding of the dazzling fashion world and true style.

Session Three

Soccer Saves Lives in French West Africa: AIDS Prevention One Kick at a Time!

Room One

Kevin Sullivan

Oakland Mills High School

Have you ever wondered: How can I make a significant impact on the world? Can a high school student like me profoundly change the lives of people across the globe? The answer is an astounding... Yes! Approximately 24 million people have HIV and AIDS in Sub-Saharan Africa, and more than 11 million children have been orphaned by AIDS. With a lack of funding to help those in need, it is up to the next generation to provide aid. This presentation will chronicle the steps to organize a countywide charity soccer event for AIDS prevention, including the analysis of the initial problem and research process.

A New Approach in Prosthetics Control and Neuroscience

Room Two

Henry Zheng

Centennial High School

An important research goal is to be able to interpret neural signals accurately for a prosthesis. This presentation offers a new approach of applying mathematical techniques, collectively called multisensor decision fusion (MSDF), to prosthetics and will explain the world of computational neuroscience, using prosthetics as a focal point. It proposes a new mechanism of prosthetic control using MSDF, introduces a new technique designed for prosthetics, and evaluates the performance of three MSDF techniques. The presenter will share information on taking one's own research to the next level through statistics, computer simulations, writing papers, publishing, and competitions.

Problems of Olympic Proportion: A Comparison of the Intended and Unintended Effects of the Ancient and Modern Olympics on the Societies of the Times

Room Three

Christopher O'Malley

Howard High School

The image of the Olympics is one of sportsmanship and good will between nations, but both the Ancient Olympics and the Modern Olympics have historically been filled with politics, fights, murders, wars, and demonstrations of political dominance. In fact, many of the same problems that surround today's Olympics existed in the Ancient Olympics as well. The information in this presentation will shed new light on the Ancient Olympics, showing the connection between ancient and current games and the effects on their respective societies.

That's One Small Step for Man, One Giant Leap for Mankind

Room Four

Michael Mascaro

Glenelg High School

Man's first attempt to land on the moon was a dangerous and risky business. In fact, each Apollo landing had a different issue that nearly cost the lives of the astronauts involved, and the system used was highly inaccurate. In fact, one landing was over 4 miles off target. Today, engineers at the Johns Hopkins University Applied Physics Laboratory are designing a new landing system that will safely and reliably land man on the moon once more. This presentation will introduce the history and methodology of the Apollo missions, as well as the next generation of lunar landing systems.

Don't Drop Out of School. Drop into Leadership.

Room Five

Adejire Bademosi

Marriotts Ridge High School

Whether one is watching a congressional hearing on education or reading the notable report by the Children's Defense Fund, it is easy to conclude that there is a dropout problem in America. In this session, participants will gain insight into the complex issues surrounding dropout rates, as well as explore possible solutions. The presenter will share how the creation of a Leadership Academy provides an innovative, effective approach to addressing dropout rates through positive student engagement within the school. Come to this presentation and discover what you can do to help others make it to graduation.

Fact or Fiction? Dispelling the Myths behind Epilepsy

Room Six

Rebecca Budish

Long Reach High School

Despite years of research and continuous effort to inform the public about Epilepsy, many people continue to hold misconceptions about this disorder. When a person has an epileptic seizure, there are certain safety procedures that the people in the vicinity should follow. Many Americans, however, lack proper knowledge about this condition and can do more harm than good. This presenter has compiled her research into a documentary, which will give a general description of Epilepsy, dispell common myths, and inform the audience about the importance of following proper procedures in the event of a seizure.

Life's Hard! The Everyday Life Difficulties of Americans with Disabilities

Room Seven

Becky Mobley

Wilde Lake High School

According to a U.S. Bureau of the Census survey, approximately 20% of all Americans have a disability, and 10% are severe. The definition of disability, according to the United States Government, is a person who has a physical or mental impairment that substantially limits one or more major life activities. The goal of the Americans with Disabilities Act (ADA) of 1990 was to promote equality among those who fit the definition, and while progress has been made, America has yet to find a solution to the everyday troubles citizens with disabilities experience. After exploring ways Americans have been positively affected by the ADA, this session will brainstorm other ways to help citizens with disabilities in their everyday life.

Gum Disease and Implants: Why do Implants Fail?

Room Eight

David Hanna

Wilde Lake High School

According to the National Institutes of Health, 80% of men and women over the age of 30 have periodontal disease, and 70% of those mentioned will be in need of a dental implant. The popularity of dental implants has grown at an alarming rate over the past fifteen years because people neglect to floss. When gingivitis becomes severe, it is known as periodontal disease, which has many treatments. However, the most common and useful treatment is inserting a dental implant. These implants do not have a high success rate for reasons on which periodontists cannot agree. This research focuses on the many reasons why implants fail and the precautions that can be taken to avoid failure.

It Wasn't Me, I Swear! The Impact of Environmental Contexts on Heroin Relapse

Room Nine

Makeda Carroll
Long Reach High School

It is estimated that 70% of heroin addicts relapse within six months after formal initiation of abstinence. Current research tells us that contextual stimuli, including visual, olfactory, auditory, and circadian cues, play an enormous role, serving as “triggers” for the old behavior. While we know that environmental contexts previously associated with drug abuse elicit relapse in the heroin addict, there is little known about the neuronal mechanisms that mediate this behavior. In her research study, the presenter worked as part of a team to determine the functional connectivity of the dorsolateral striatum and nucleus accumbens shell, two brain regions implicated in heroin addiction and relapse. Come to this session and learn how this research could offer novel insight into heroin addiction and provide the basis for pharmacological treatments in the future.

A Cancerous Connection: Oral HPV and Its Connection to Head-and-Neck Cancers

Room Ten

Rohini Bhatia
Mount Hebron High School

The Human Papillomavirus (HPV) is increasingly recognized as a cause of cervical cancer worldwide. However, its connection to other cancers is not as well known by the public. HPV's association with head-and-neck cancers occurring in the oropharynx, the tonsils and the base of the tongue, is an important factor as this connection leads to the necessity of specific treatment and follow-up plans. By studying the prevalence of HPV infection in oral cells, we can gain a better understanding of the virus and its impact on various populations. This presentation will detail the connection between HPV and head-and-neck cancers, analyze the prevalence of oral HPV in healthy individuals, and examine the next steps for researchers and patients.

Females in Football

Room Eleven/Auditorium

Jacqueline Leake
Glenelg High School

When was the last time you saw the headline “Woman Coaches Football Team to Victory”? Chances are the football that they were highlighting was spelled fútbol and had nothing to do with field goals and touchdowns. This intern will discuss the journey of a young woman pursuing a career in coaching American football. Follow her expedition from little league football to Glenelg Varsity to the NFL's Washington Redskins. Experiences from each level of play will be shared, and basic linebacker drills, coaching strategies, and film breakdown will be explored.

Session Four

Room One—Science Research

It's Hot in Here! The Threat of Global Warming and Entering the Hydrogen Age

Ahsen Khaliq, Reservoir High School

Biometric Modalities: The Future of Security

Ali Ahmed, Atholton High School

Room Two—Applied Arts

You're Not Going to Wear That are You? Catering to Different Body Types in the Fashion World
Sarah Lewis, Reservoir High School

Scorpion Success: A Guide to being Successful in High School
Nathaniel Buechler, Oakland Mills High School

Room Three—Veterinary Medicine

What's in the Bag? Beaks, Feet and Organs
Kari Estes, River Hill High School

Investigating the Effects of Visitors on Captive Cheetahs
Maria Smith, Glenelg High School

Room Four—Behavior Science

Human Storks—A Look at Surrogacy, Family and Psychology
Caity Wallace, Hammond High School

Athletes Who Collapse Under Pressure
Brenna Doherty, Oakland Mills High School

Room Five—Behavioral Science

"Hearing as Healing" The Advantages of Music Therapy
Kelly Carrera, Reservoir High School

Nutritional Treatments for Stress Management
Christina Bagley, Wilde Lake High School

Room Six—Law/Science Research

Prayer in Public Schools: Establishment v. Free Exercise
Dillon Hagius, Atholton High School

Parkinson's Disease: Improving Balance Through Movement Therapy
Cheyenne Falat, Wilde Lake High School

Room Seven—Humanities

Way Down the Ol' Plank Road: The Evolution of American Roots Music
Michael Gregory, River Hill High School

Musical Form: A Journey through Music
Chelsea Feezel, Oakland Mills High School

Room Eight—Engineering/Computer Science

Wrestling With Computer Programming: A Practical Application for Java
Teodor Georgiev, Howard High School

Stang Software – How Do We Do It?
Thomas Conchie, Marriotts Ridge High School

Room Nine—Clinical Medicine

Gender Differences in Non-Contact Anterior Cruciate Ligament Injuries
Melanie Colgan, Centennial High School

Defeating Infant Mortality through Effective Prenatal and Newborn Care

Room Ten—Education

Art Education: More than Just Painting and Drawing

Danielle Imhoff, Mount Hebron High School

F.R.I.E.N.D.s: Finding Relationships in Every New Direction

Christina Fuji, Mount Hebron High School

Room Eleven/Auditorium—Business/Mass Communications

THREDS: Walking the High Wire World of Advertising and Marketing

Brooks Gabel, Kristin Mathe, Jake Hurley, and Michelle Patschke
Centennial & River Hill High Schools

Where Facebook Meets the New York Times: New Media Methods

Althea Lyness, Hammond High School