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and South Bend, Indiana
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7¢
Complimentary

Informing, Enhancing, Showcasing, Promoting and Educating Michiana -- Southwest Michigan and Northern Indiana

"Expect Amazing"

2013 BEST Early Research Symposium
Friday, April 26, 2013
Andrews University, Berrien Springs, MI

"Reading, writing and counting are servants of curiosity and are a means to its ends, including our inner hunger for learning about ourselves and our world." That goal, as Dr. Desmond H. Murray observes on page 5, is the driving idea of the Symposium -- to promote an interest in science and technology among young people, and encourage them to explore the world around them, to change it for the better. Join us in this 24-page special edition, as we explore what that ideal means, and see what happens when that inner curiosity is unleashed in the lab.

All this curiosity will be on display for the BEST Early Research Symposium, Friday, April 26, 2013, from 12 noon to 2 p.m., at Andrews University, in Berrien Springs, MI. which will feature the best scientific work of Berrien RESA students from around the county. Unleash your inner scientist and discover the wonder of nature.

EXPECT AMAZING!

We hope that you enjoy this special edition of the *Benton-Michiana Spirit Community Newspaper.*

EXPECT AMAZING

2013 BEST Early Research Symposium

12 noon, 26 April 2013 | Andrews University, Berrien Springs, MI

Department of Chemistry & Biochemistry

4270 Administration Drive

A-107 Chemistry Lecture Hall, Halenz Hall

Berrien RESA Math-Science Students

Using modern instrumentation

Presenting real cutting-edge research

Demonstrating college-level lab techniques

GRADE 12 STUDENTS FROM

Berrien Springs, Brandywine,

Bridgman, Buchanan, Coloma,

Edwardsburg, Niles

TOPICS:

Dyes, Forensics, Fragrances, Hybrid Drugs, Molecular Switches, Multiphasic Surfactants, Photographic Stabilizers, Polymers, Sensors, Sunscreens, Surface Chemistry

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EARLY RESEARCH PROGRAM

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BEST EARLY People First Innovate Early

You Are Invited

Friday, April 26

—

12 Noon to 2 p.m.

—

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Amazing Students

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INVESTING IN EARLY RESEARCH is an INVESTMENT IN THE FUTURE

By Princella Tobias, Founding Publisher

I welcome you to our Early Research Special Issue. I hope within these words and images you find inspiration.

The *Benton Spirit Community Newspaper* is proud of our Public Science partnership with Building Excellence in Science and Technology (BEST Early). This Special Issue is another milestone. But, it is more. It is further evidence of our commitment to inform, enhance, showcase, promote and educate our community. It is further evidence of our pledge to uplift and build our community through positive news.

When we began over 10 years ago, we mainly had dreams, little publishing experience but convinced that the words and images that too often dominated how the media portrayed us was at best incomplete. We set out to give the rest of the story. Part of that story has been about our students excelling early. Excelling in service, excelling in science, excelling in school. Over the years, we have brought you LabTales, articles written by high school students engaged in hands-on research.

Other projects in which we have actively involved our youth early in media technology and journalism include Generation NX, Future Leaders Journaling Our Past, Aspiring Young Journalists, Taking it to the Streets and the Read the Labels campaign. This track record of achievements and service have lead to awards, recognitions and endorsements. These include: Andrews University Martin Luther King Jr. Award, Northside Business Association Award, WCA Woman of the Year Award, and endorsement by the State of Michigan's former Governor Jennifer Granholm's Benton Harbor Task Force as the number one communication media for renewing the community.

So, this Special Issue is part of an ongoing tradition of the *Benton Spirit Community Newspaper*. We invite you to read and become a seed of change that would make early participation not the exception but the norm for our youth.

Princella Tobias is Founder, Publisher and Chief Executive Officer of the award-winning Benton Spirit Community Newspaper. Tobias has uniquely brought together her heart for activism with her mind for business in service to her community of Southwest Michigan and Northern Indiana. She also serves as Community Outreach Director for the Building Excellence in Science and Technology (BEST Early) nonprofit organization.

"Investments we make today in the STEM fields and STEM education are indeed going to pay off tremendous dividends as we work to create jobs and compete with countries all around the globe."

— U.S. Congressman Fred Upton, R-MI 6th District

Benton-Michiana Spirit Community Newspaper

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Freedom of Speech. Note: editorials and letters to the editor are not the opinion and/or view of the *Benton Spirit*, but the viewpoint of the author.

LMC Announces Fall 2012 President's List and Dean's List

Lake Michigan College (LMC) students who made their President's List and Dean's List for the fall 2012 semester.

To be named to the President's List, a student must achieve a 4.0 G.P.A. and have full-time student statusad to be named to the Dean's List, a student must achieve a 3.5 – 3.99 G.P.A. and have full-time student status. the following is a partial list of fulll-time students. For the complete list, including part-time students, please visit our website at: www.bentonspiritnews.com.

President's List

Benton Harbor: Archie Mae Bowers, Jonathan Lawrence Coburn, David O Curry, Sarah Marie Dowell, Ida May Furgeson, Karissa A Isom, Loren Lavell Johnson, Willie Lee Johnson, Brian L Matheny, Victoria White

Berrien Springs: Steven Andrew Camacho, Mubanga Chisulo, Izamar Esmeralda Contreras Alvarado, Kyle Hausmann, Timothy Alan King, Shin Jeong Oh, Alexander Rybachek, Jung Suk Seo, John Benjamin Weakley, Joseph Kenneth Zahrn

Buchanan: Tara Nicole Baker, Brandi Lynn Bomberger, Meagan Kathleen Bybee, Magdalina L Hildebrandt, Kourtney Ann Krumrie, Joseph Charles Lindamood, Julie Nichole Oblak, Melanie P Owen

Coloma: Morgan A Brink, Rachael Marie Davis, Adrianna Marie Fickett, Rebecca Kay Hays, William B LeBeau, Sarah Kirsten Miller, Melissa Joy Pascoe, Samantha Marie Smith,

Niles: Michelle E Briand, Richard Charles Briand, Ruth DePas, Zachary A Durm, Holli Anne Evans, Joseph Franc, Erica D Haimbaugh, Rachel Host, Syed Imran Husain, Pepper Jean Inman, Meghan B.G. Koglin, Ashlynn N Loenser, Fnu Nimazhaxi, Nathaniel Norris, Farrin Pasifakis, Meghan A Phillips, Andrew Ryan Sarratore, Lukas Stephan Strang

St Joseph: Linnea Jean Bergman, Greg Earl Binger, Amanda Christine Mary Favorite, Joshua Barry-Andre Favorite, Nickolas Theodore Gast, Abby Elizabeth Haynes, Courtney Lynn Mason, Jon Lawrence Miceli, Nichole Marie Rosenthal, Hillary Rae Seleski, Richard Alex Weir, Sarah Ann-McConnell Wirth

Stevensville: Alex J Conrad, Olivia Katherine Fox, Axucillia Kagande, Katelyn E Luongo, Jordyn Leaye Newman, Judith E Sykora, Rebecca A. Walker, Kurt Joseph Wendland, Diane Lynn Zelmer

Dean's List

Benton Harbor: Rogelio Alexander Campillo, Oleacha Fleming, Stacey L Heard, Alma Hurst, Timothy Dale Mahler, Chico Lamont Parks, Anthony A Reed, Christopher Dwayne Rice, Christopher Ray Ruether, Candace Sue Wilson, Bernice Rene Wright, Justin Daniel Zak

Berrien Springs: Stefani Anne Camacho, Anizbeth Edith Contreras, Kayla Marie Foster, Robert Jontz Kerr, Joshua Hansol Kim, Lilian Jatina Lopez, Chase Stephen Murray, Charles E Neumann, Faith S Nico

Buchanan: Whitney Marie Aalfs, Amanda Summer Anglero, Deborah Dee Bosler, Simona M Davis, Ryan Edwin Hollingshead, Cheryl Helen Pelley, Andrew J Warner, Kyle I Zelmer

Coloma: Norman Daniel, Catherine Jane Garcia, Brittany Marie Hicks, Jacob Charles Lenz, Kyle William Milliken, Sutton Renee Needham, Jocelyn Elizabeth Sarno

Eau Claire: Shannon Nicole Arndt, David Robert Bartz, Tyler Scott Burks, Samantha Marie Napier, William Skibbe

Edwardsburg: Renee Marie Bays

Niles: Taylor Clingaman, Aaron DeLand, Roxanna Lin Hand, Aiya A. M. Jweihan, Rebecca Renee Kennedy, Holly A Lant, Sarah E Lighthart, Patience J.S. Newman, Andrea Lynn Rackley, Mariah C Srmek, Jiaxin Teng, Eldra Lee Thomas

Sodus: Chelsey Amanda-Rochelle Sobralski

St Joseph: Katherine Marie Andrews, Brandi Lynn Austin, Vincent Charles Ball, Patrick John Elzinga, Samuel Thomas Fowler, Alexa Rachel Klemm, Brian Knapp, Joshua Michael Lange, Eric Michael Loewen, Mitchell Joseph Lumley, Cindy Mambwe Lupiya, Vanessa Martin, Mihail Mascov, Catherine Ada Milligan, Stephania Faraja Ngonyani, Jordan A O'Hearn, Meghan Rae Pelkey, Stephen L Polley, Chase Robert Samuelson, Elisabeth Anika Shane, Ryan Paul Shimanek, Aaron C Soule, Grace Elizabeth Stockman, Megan Marie Trumbley, Clarissa Madaline Wright

Stevensville

Nicole M Brasier, Kelsey Marie Brenk, Nathan Thomas Dumminger, Jarrod James Hasse, James Matthew Kavanagh, Mykala

Fifth Third Bank and Lincoln Township to Host Money Smart Week Seminars

Fifth Third Bank and the Lincoln Township Public Library will offer a series of seminars for Money Smart Week, April 22-26.

The seminars will address hot financial topics, such as identity theft and protection, how to teach children saving habits and investing 101. All are open to the public and will be hosted at the Lincoln Township Library at the following times:

• Tuesday, April 23, 2:00 - 3:00 p.m. – Identity Theft Solutions

• Wednesday, April 24, 4:15 - 5:00 p.m. – Teach A Child To Save

• Thursday, April 25, 2:00 - 3:00 p.m. – Investing 101

"Money Smart Week is designed to educate our community on some key financial issues in our world today," said Brian Johnston, Adult Services Librarian at the Lincoln Township Library. "Being informed on the topics addressed – investing, identity theft and teaching children to save – can set individuals up for financial success. Fifth Third's team encounters these topics every day, and we're excited to partner for Money Smart Week."

For more information on times and dates, visit www.lincolntownshiplibrary.org/events.html.

Workshop to Start a Cottage Food Business in Michigan

Michigan State University (MSU) Extension will present a workshop for Michigan entrepreneurs entitled How to Start a Successful Cottage Food Law Business in Michigan at different locations in Berrien, Cass, and Van Buren counties.

The workshops will be held April 23, 2013 from 10:00 to Noon in Niles; April 23, 2013 from 3:00-5:00 in Benton Harbor; April 24, 2013 from 10 to Noon in Cassopolis; and April 24, 2013 from 2 – 4 in Lawrence.

The presentation by MSUE Instructors Rita Klavinski, Extension Educator in Food Safety, Joanne Davidhizar, Product Center Innovation Counselor and Mark Thomas, Extension Educator, will focus on The Cottage Food Law guidelines including making your business profitable, foods permitted to sell, food safety procedures for a safe product production, labeling, packaging and storing as well as safely transporting your products.

The cost is for this training is $20.00 and includes a certificate of participation available upon completion of training for display at your booth. Register online for the Lawrence location at: http://events.anr.msu.edu/cflawrence/.

Register online for the Benton Harbor location at: http://events.anr.msu.edu/cflbentonharbor/ Register online for the Cassopolis location: http://events.anr.msu.edu/cflcass/.

For more information, contact Mark Thomas at (269) 445-4471.

Persons with disabilities may request accommodations by calling (269) 944-4126 by April 19, to ensure sufficient time to make arrangements. Requests received after this date will be met when possible. For the Niles workshop: Please make checks payable to Niles Main Street, and mail to 333 N 2nd Street Suite 303, Niles, MI 49120 by April 19, 2013.

For more information, contact Lisa Croteau at 269-687-4332. The cost for this training is $25.00 and includes a certificate of participation available upon completion of training for display at your booth.

"Expect Amazing"

2013 BEST Early Research Symposium on April 26

I am a teacher. I am a teacher because I stand on the shoulders of others. I learn from their successes and their failings. My highest calling is to inspire, not simply to inform; my mission is to produce thinkers and innovators not simply to give passing grades. My goal is to tear down the walls of dogma and orthodoxy that has, in part, been responsible for the significant attrition rate of students in science, technology, engineering and mathematics (STEM). To the gatekeepers and overlords of STEM, it is we who often stand in the way of students being fully engaged in this greatest of human adventures. It is time for change: real, lasting and early.

The most virulent dogma, sic excuse, is the misguided notion that students must first learn to proficiently read, write and count – the three R's - before they are "allowed" to do research. The accumulated evidence from human experience and scientific research indicates we got it wrong – upside down wrong. In fact, the opposite is true: curiosity, the heart of research, is innate, genetically inscribed, dopamine driven and the primal force that leads us to read, write and count. Reading, writing and counting are servants of curiosity and are a means to its ends, including our inner hunger for learning about ourselves and our world.

One of the latest published works on this topic is: *Scientific Thinking in Young Children: Theoretical Advances, Empirical Research*, and *Policy Implications*, Science 337, 1623, 2012. It summarizes decades of insight and research that demonstrates what mothers and child caregivers have known all along -- that every child is a scientist and, in fact, that children think and act like scientists long BEFORE they can read, write or count proficiently. In some aspects they are even better than adult scientists. Yet, our system of education routinely shuts down their curiosity.

Dr. Desmond Murray

But, it didn't have to be this way. We didn't have to wait this long for insight. Over four hundred years ago, Sir Francis Bacon, often referred to as the "Father of the Scientific Method" and to whom the famous quote, "Knowledge is Power" is attributed, also wrote these words, "We must become as little children to enter the kingdom of science." Yet, here we are, postmodern sophisticates and all, routinely delaying full entry and access to students into real experimentation, research and discovery. Ironic, unfortunate and upside down.

Given what we know both from our everyday lived experiences and from the interdisciplinary sciences of human development, it is irresponsible to continue as we have – delaying student engagement in research until after four years of high school and four years of college. It is educational malpractice of the most consequential order to continue as we have. Furthermore, every paying college student should expect to have opportunities to conduct research at their chosen institution, two-year or four-year, as a right of passage. Research is the fourth and indispensible R. Early research is not only smart educational practice but it is also a sustainable economic and workforce development policy.

My dream is the universal adoption of early research. It is that all high school students do research. In all 867 Michigan high schools. All 500,433 Michigan high school students. All 16 million U.S. high school students. We do not need more papers written on the subject as a prerequisite for action. We have reports, papers, books and studies from here to the moon! We need to act now. We need to act urgently. We need to act early. Research should not be a reward set aside for the "brightest" among us, it is rather within each of us eager to explore, discover and innovate. Our task, as teachers and gatekeepers, is to nurture. Our role is to make it happen. No one rises to the call of low expectations. Expect Amazing.

Desmond H Murray, a PhD synthetic organic chemist, has been teaching both college and high school chemistry for the last 17 years. He is Associate Professor of Chemistry in the Department of Chemistry and Biochemistry at Andrews University and has received several recognitions, including 2012 College Science Teacher of the Year from the Michigan Science Teachers Association, for his ongoing contributions to early research participation (ERP).

Tonya Snyder

As the Berrien County Mathematics and Science Center Coordinator, I have had the privilege of observing young researchers throughout the nation at all different levels. I have attended research symposiums, International Science & Engineering Fairs and local school and university science fairs. What I enjoy most is having the opportunity to speak with these young researchers about their areas of interest.

Through these conversations with various early researchers, I have realized there are two universal truths that translate into everyday life. First, is failure. When a student fails because their project does not work exactly as it should, they focus on the negative outcome rather than the effort it took to achieve the failure. They seem to disregard the fact that they just endured an intensive process regardless of the outcome. In essence, they "forget" the journey of what has brought them to this result. Students need to take time to appreciate the knowledge they have gained on the way to their failure. This is true of real life as well in that we are all researchers, studying ourselves. We chose a path that we believe will help us accomplish our goal, ultimately leading us to personal "success."

The second concept that emerges from my conversations with these student researchers is the fact that perseverance is alive and well. After suffering a failure, these students are already planning their next research experience. They are invested, practiced and dedicated to continuing on in what might prove to be a lifetime pursuit of the elusive "supported hypothesis." This dedication is mirrored in life. If we do not reach our desired destination on our journey, rarely do we just stop. We try alternative paths until, finally, we reach our goal. This is what early research allows our students to do.

Tonya Snyder is the Student Activities and Berrien County Mathematics & Science Center Coordinator for Berrien RESA. She has proudly been planning science research experiences for Berrien County students for more than a decade. Tonya has a bachelor's degree in Public Relations from Andrews University and a master's degree in Public Administration from Western Michigan University.

Message from U.S. Education Secretary Arne Duncan

Arne Duncan

TO THE PARTICIPANTS IN THE "EXPECT AMAZING"
2013 BEST EARLY RESEARCH SYMPOSIUM
Andrews University
Berrien Springs, Michigan
April 26, 2013

I am pleased to send greetings to the participants in "Expect Amazing," the 2013 Building Excellence in Science & Technology Early Research Symposium at Andrews University.

As President Barack Obama has said, "The future belongs to the nation that best educates its citizens…we have everything we need to be that nation. We have the best universities, the most renowned scholars. We have innovative principals and passionate teachers and gifted students, and we have parents whose only priority is their child's education. We have a legacy of excellence, and an unwavering belief that our children should climb higher than we did."

I commend all of you for your interest in and dedication to learning in the STEM fields – science, technology, engineering, and math – and for the interest and initiative that have led you to participate in a symposium such as this. We recognize how important it is for our country's economic security to increase STEM literacy so all students can think critically, to ensure we have a high quality of teaching, to foster innovation, and to expand career opportunities for all students. I encourage you to take part in the learning and networking opportunities at this symposium that will support your educational and professional achievements, and I know you can look to a future of great opportunity and possibility.

Best wishes for an enjoyable and productive gathering.

Arne Duncan

EXPECT AMAZING...Messages from Science Professionals

Mary Kirchhoff

The American Chemical Society (ACS) strongly supports research opportunities in the chemical sciences. Research provides exceptional opportunities for students to learn how to be scientists by posing questions, designing experiments, and analyzing data. The American Chemical Society's Science Education Policy statement advocates for "…opportunities for sustained undergraduate research, including support for summer, academic-year, and international projects." The ACS Petroleum Research Fund (PRF) supports fundamental research related to petroleum and fossil fuels, and numerous students gain invaluable research experience through PRF grants.

At the high school level, ACS has been offering since 1968 the opportunity for students from economically disadvantaged backgrounds to engage in summer research through Project SEED. This program partners ACS volunteer mentors with these high school students as they explore their interest in science. This early research experience gives students the confidence to pursue higher education: 90 percent go on to college, with 70 percent majoring in the STEM (Science, Technology, Engineering, and Mathematics) disciplines.

Becoming a scientist requires the ability to communicate research results, and ACS National and Regional Meetings are a perfect venue for high school students, undergraduates, and graduate students to share their science. Approximately 1,000 undergraduates annually present posters on their research during the Spring ACS National Meeting. The Society's journals, which cover a wide range of chemistry-related fields, enable widespread dissemination of research results.

Research experiences play an important role in helping students decide if science is the best career choice for them as it immerses students in the process of science. The programs of the American Chemical Society support research conducted by high school students through postdoctoral scholars, thereby contributing to scientific excellence and a diverse talent pool in the chemical sciences.

Mary Kirchhoff is Director of the American Chemical Society Education Division, which serves learners and educators by building communities and providing effective chemistry education products, services, and information. She holds a Ph.D. in organic chemistry from the University of New Hampshire.

Dr. Joseph Dunbar

Many high school students don't realize the vast opportunities available to them in science and research areas. Research experience provides students with higher quality, hands-on and meaningful educational experiences. It broadens their knowledge base by giving access to leading-edge knowledge and methods, and critical thinking skills such as analysis, synthesis, and evaluation of quality of information. In addition, it prepares students to be competitive in a knowledge-based economy, it provides a foundation for further education, and places learning in a context that connects theory in the classroom with practice. Research gives students an opportunity to apply their knowledge, problem solve and participate in teams.

In line with its mission as an urban research university, Wayne State University (WSU), in Detroit, Michigan, has a long tradition of offering research opportunities to underrepresented students who may never have considered a career in research. WSU's Initiative for Maximizing Student Development (IMSD), established in 1978 as the Minority Biomedical Research Support program with support from the National Institutes of Health, provides undergraduate and graduate students with a more personalized experience to foster career development while enhancing persistence and success in science majors. The program provides undergraduates with opportunities to maximize academic and research skills, and helps graduate students gain experience in teaching, mentoring and course development.

The IMSD program allows students to be more proactive, and paves the pathway for noteworthy careers. One particular student at WSU was involved in research on heart failure, and is now a U.S. Army major in charge of a large biomedical research program. The IMSD program takes underrepresented individuals with challenges in their lives and gets them into a program in which they can thrive and begin to establish their future.

Participating in early research as an undergraduate fosters and enriches the learning environment for students, and provides them with a solid pathway to future careers in the sciences.

Joseph Dunbar, PhD, Associate Vice President for research and director of WSU's Initiative for Maximizing Student Development program. Dr. Dunbar received a BS in biology from Alcorn College, an MS in zoology from Texas Southern University and a PhD in physiology and pharmacology from Wayne State University. He joined the School of Medicine at Wayne State University in 1972.

EXPECT AMAZING...Messages from Science Professionals

Dr. Sherine Obare

Many agree that a child is a product of the environment in which they live. So, what does it say that post-1960s America struggles to maintain leadership at the high school level in the fields of science, technology, engineering and mathematics (STEM)? Countries like China, Finland, and South Korea have already figured out how to establish STEM leadership amongst their students. So what is holding us behind and how can we regain global leadership in student performance?

As a University Professor, I have had the pleasure of working closely with several high school students from my local area. I find that many of the students who seek out research opportunities while in high school are those that attend unique high schools that concentrate on Mathematics and Sciences. These students have to demonstrate early success in Math and Science and a majority of them have strong parental support from home. They are full of energy and bursting with potential.

But what about students who do not have the opportunity to attend such schools? Will they continue to miss out on opportunities that could help them excel in STEM fields? If indeed a student is the product of the environment in which they live in, then we need to create an environment that allows students to excel in the STEM fields. Giving students an opportunity to participate in early research helps them determine if science is for them or if it is not. It gives them the ability to decide if they can major in a scientific field. It builds their confidence and lets them know that they can be successful. They develop problem solving skills that they do not often get at that age through jobs that they often acquire.

As scientists, it is our moral obligation to create an environment in which our students can flourish in the STEM fields. We can do this through various avenues but we must start by providing parents and teachers with diverse educational, economic and ethnic backgrounds with the support and tools needed to inspire their students – our future - in the STEM fields.

Sherine O. Obare, Ph.D., is Associate Professor of Inorganic Chemistry and Associate Chair in the Chemistry Department at Western Michigan University, Kalamazoo, MI. In 2013, she was named one of the top 25 Women College Professors in Michigan. She is the Associate Editor for the J*ournal of Nanomaterials*; and Chair of the National Organization of Black Chemists & Chemical Engineers (NOBCChE) Science Bowl and Science Fair Program.

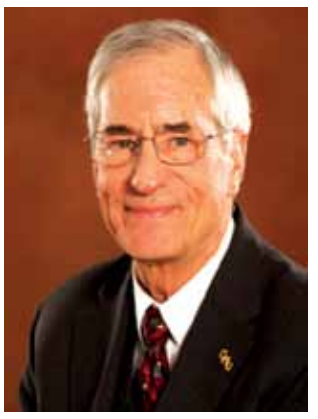
Dr. David Nowack

The Andrews University Department of Chemistry and Biochemistry enthusiastically encourages young students to explore their world through the eyes of a chemist. But this is not just "seeing" but "doing" as well. As one of our faculty, Dr. Desmond Murray's pioneering work to bring original research experiences to young students is strongly supported by the Department. His passion to open the minds of the young students to the excitement and motivation of discovery has lead him to do award-winning work in the area of early-research. We have seen the positive benefits of his work on early research through new majors that have joined our department and through publications and presentations by the early researchers that reflect well on our program.

Dr. Murray's work is not the only outreach our Department has to the young student. Dr. Lisa Ahlberg provided several days of hands-on science experiences for fifth and sixth graders at a local elementary school. Dr. Ahlberg's experiments were hand-picked by her to demonstrate fundamental physical and chemical principles at a level that could be absorbed and recalled by her young students. The response from the students and their teachers was uniformly positive. Dr. Ahlberg's dedication and passion for her young students is supported and encouraged by our Department.

The future of our nation and our world rests in our young students. Enthusiastic and engaged students at all ages learn more and learn more effectively. Early research and early hands-on experiences ignite that enthusiasm. The Department of Chemistry and Biochemistry is pleased to be a part of those positive actions through curricular changes and active faculty leadership.

David Nowack is Professor of Biochemistry and Department Chair in the Department of Chemistry and Biochemistry at Andrews University, Berrien Springs, Michigan. He received his bachelor of arts in chemistry education from Union College, Lincoln, Nebraska and completed his master of science in medicinal chemistry and pharmacology at Purdue University, West Lafayette, Indiana. He later completed his PhD in nutritional biochemistry from Purdue University. Students of Andrews, where he's been since 1998, recognized his teaching and advising excellence during the 2001-2002 school year when he was awarded Advisor of the Year.



Dr. James Hageman

Numerous reports of capable high school students being left behind academically, or failing once enrolled in a university curriculum, have left educators discouraged, innervated and looking for societal structural failures on which to place blame. The BEST Early (Building Excellence in Science & Technology) organization founded by Dr. Desmond Murray, Associate Professor of Chemistry at Andrews University and other such efforts are positively addressing these chronic problems.

Root conditions recognized by BEST Early are that students, especially young men, are bored to death by what appears to many of them to be irrelevant questions and by most questions being addressed by passive means in the classroom. Educators have recognized the importance of "active learning" for some time; in a highly-cited report of 1991, Bonwell and Eison (ERIC Digests, Identifier ED340272) suggest that for active learning to occur, students "… must engage in such higher-order thinking tasks as analysis, synthesis and evaluation … in doing things (italics added) and thinking about what they are doing."

Sadly, in schools and universities "active learning" is too often like "heaven" in the old spiritual, "Everybody talkin' 'bout heaven ain't goin' there."

One new NSF-funded program at CMU, directed by Dr. Tolga Kaya, teams a high school teacher, an undergraduate student and a faculty member in a joint research project in the summer – an aim being to drive such projects into the high school classroom. At our Beaver Island Biological Station, Dr. Dan Benjamin offers a Bio110Z course for high school students, exposing them to field research. It is most crucial that we stop using the same, centuries-old passive teaching methods; these will inevitably lead to the same disappointing results.

My own experience with over 55 undergraduates, even at the freshman and sophomore levels, has convinced me that engagement by these students in an authentic research problem is a game changer academically, and often a life changer. Instituting Early Research will be transformative, and we must pursue this approach with all the vigor we can manage.

James H Hageman, a PhD biochemist, recently ended a long and distinguished career in university teaching, research and administration. His more recent positions include: Special Assistant to the President at Central Michigan University, Interim Vice Provost for Research, Central Michigan University, and Associate Vice Chancellor for Research, University of Colorado Denver, Denver. He is looking forward to going canoeing in the upcoming summer months.

Natalie King

Participating in early research experiences was life changing for me because I had the opportunity to gain valuable hands-on practice of the scientific method; increase my knowledge of both normal and diseased systems of the human body, and learn how I could have an impact in the field.

During my undergraduate years at Oakwood University in Huntsville, Alabama, I was blessed to be involved in programs that included great mentorship and summer research internships at institutions like Loma Linda University and the Mayo Medical Clinic. While at these institutions, I was able to receive a higher level of training in the areas of Cancer Biology and Perinatal Biology and these experiences would later prove to solidify my decision in becoming a more independent scientific researcher.

Having this early familiarity with science not only helped me when it came time to apply for graduate schools, which, by the way, often select students based on past exposure to scientific research, but also helped me assimilate more quickly once I arrived as a graduate student. Previous experience allowed me to be more active in my quest for knowledge and learning techniques because I was not learning everything from scratch but merely building on preceding ability in a lab environment.

I firmly believe early exposure to any field, including science, is absolutely necessary for the well-roundedness of a student matriculating through the education system. I found it to be extremely helpful for me.

Natalie King is a PhD neuroscience candidate at the University of Illinois under the tutelage of UIC Distinguished Professor Mark Rasenick. She completed a Biology BS degree at Oakwood University, Huntsville, Alabama in 2007. She has been the recipient of several funded and academic awards at both the undergrad and graduate levels, including a 2012 NIH Training Grant. Her current research focuses generally on the areas of depression and autism. She is the author of a recently published Kindle book: The Ultimate Graduate School Survival Guide...Unspoken Tips & Skills Needed To Navigate Your Way To An Advanced Degree.

Thinking about a Career? Try SCIENCE!

EXPECT AMAZING...Messages from Science Professionals

We take for granted those students who started off with music classes while they were in grade school. These same students sometimes go on to play in symphony orchestras. We take for granted students who played sports when they were in middle school. Many of these same students go on to play college sports and an elite few become internationally recognized sports professionals.

Shawn Hitchcock

The scenario changes greatly when the focus comes to doing scientific research. Students are introduced to sciences in grade school, middle school, and beyond but they are rarely placed in a position to participate in research projects.

I did not encounter the idea of research until I was into my second year at college. While I carried out my undergraduate research, I made plenty of mistakes and would not have been successful if not for the guiding hand of a very patient research advisor, then Wayne State University Chemistry Professor Kim Albizati.

After college, I did research as a graduate student. It was a difficult journey, but it would have been a completely different experience had I not worked as an undergraduate researcher. All of my success today as a chemistry professor ties back to my beginning experiences in research in college. I reflect some days on just how much more progress I could have made then and even now had I started research sooner in high school. I know it would have made a difference for me and there is no question that there are many students for whom an early start in research, as early as possible, would make a difference. Involving students in early research is the key to success.

Shawn Hitchcock is a professor of chemistry at Illinois State University. His research is focused on developing efficient methods for the preparation of calcimimetic agents that are used in the treatment of secondary hyperparathyroidism.

When it comes to schools, failure is not an option. Students who don't meet the requirements for a class may be given an "F" and informed that they have disappointed their teachers and parents. A student who doesn't follow the detailed instructions for a chemistry lab to the pre-planned outcome has failed. This is the nature of our schooling system and I certainly acknowledge the need to set standards which students must meet.

Sara Kobilka

However, I work in an informal science setting and as we have begun our strategic planning process, we constantly return to the question of whether we are truly preparing students for what they will encounter outside the classroom.

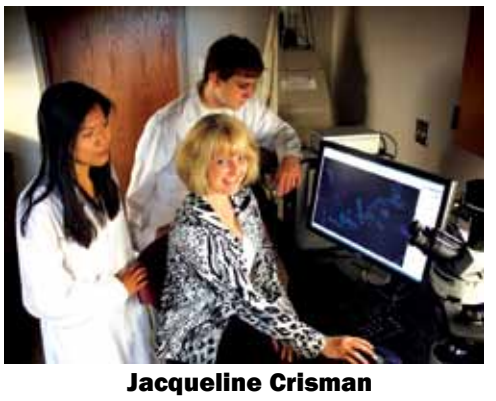
We live on a planet with limited resources and in order to continue with the standard of living we would prefer, we need the next generation of innovators to find "outside-the-box" solutions to our problems. Our students need the opportunity to try things early in their schooling that don't have a predetermined solution and come up with their own unique solution.

Some students thrive in open-ended projects, while others shut down after they encounter their first challenge, and the teacher wouldn't tell them "the right way to do it." These were some of the brightest students in the city, the ones who have the brainpower and creativity to solve the immense problems our planet is encountering and yet they simply shut down when confronted with an unlimited activity.

As a science center, we are now asking ourselves how we can give students the opportunities to pinpoint problems and creatively come up with solutions. As non-classroom educators, we must all ask ourselves how we can take this instant gratification generation and instill in them the joy of overcoming challenges and learning from your failures. Failure is not the problem, it is the inability to even TRY that is holding our students back. This is why early hands-on, open-ended science projects and research for all must be an important part of the mix for the future of science education, and in turn, for our society and way of life.

Sara Kobilka is the Guided Learning Manager at the Science Center of Iowa in Des Moines. She is in charge of a number of programs including camps, overnights, Café Scientifique and multiple programs that offer students the opportunity to interact with STEM professionals. She has degrees in broadcast journalism and atmospheric and oceanic science.

Those of us who grew-up during the age of the Apollo Moon Missions find it hard to believe that today's generation does not see the allure of the sciences. However today's high school students don't seem to see the value of earning a bachelor's degree, let alone a doctorate in the sciences. The Jamestown Community College (JCC) Biotechnology Program is part of two larger efforts funded by the National Science Foundation to change this attitude, collectively totaling about 4.5 million dollars.



Jacqueline Crisman

Firstly, principle investigator James Hewlett (Finger Lakes Community College) along with me and several other co-investigators have formed the Community College Undergraduate Research Initiative (www.ccuri.org). This organization is disseminating and evaluating undergraduate research in community colleges nationwide.

Secondly, I am involved in the High School Undergraduate Research Initiative to involve our high school students in JCC's Science Undergraduate Research Initiative (HURI SURI). We are disseminating our undergraduate research to 23 area high schools in our area of rural Appalachia, by providing training, equipment and curriculum to integrate undergraduate research into a first semester biology course called Biology: A Molecular Approach. Students in this course study mosquito evolution by detecting evidence of lateral gene transfer in specimen they trap using polymerase chain reaction.

Changing teaching methods in and attitudes about community college scholarly activity has not been easy, but these efforts are bearing fruit. Preliminary evidence indicates that using undergraduate research as a fundamental pedagogy in curriculum improves student engagement and retention. Additionally, on average our students demonstrate levels of critical reasoning on par with that of college seniors. This was assessed by a well-respected and NSF-funded project using an efficacious method to assess critical reasoning, namely the Critical Thinking Assessment Test (CAT) through Tennessee Tech University (http://www.tntech.edu/cat/home/.

Jacqueline M. Crisman earned a B.S. in Biochemistry from the State University of New York at Geneseo. She also holds a Masters in Molecular Virology and a doctorate in Molecular Immunology from Ohio State University. She was a well-published and funded faculty member at the Penn State College of Medicine for several years before returning home to care for her aging parents. She also performed research at the National Institutes of Health, giving her almost 3 decades of research experience. Dr Crisman currently directs the JCC Biotechnology Program in Western New York.

Early research inspires young minds to look beyond their current situation and dream of what they could be, the impact they could make and the new innovations they could create. In my particular career, early research helped direct me to my current profession and gave me the confidence that I needed to reach my goals.

Ginger Anderson

In high school, I wasn't sure what field I wanted to go in or how I wanted to support myself as an adult. My high school had career days to help students explore different career options but I never necessarily came across a profession there that sparked my interest. After hearing about Dr. Desmond Murray's work in the Building Excellence in Science and Technology (BEST Early) program, I decided that this might be a good opportunity to not only make money during the summer but also help me choose a career.

During that first summer, while I was still in tenth grade, I was exposed to a laboratory setting and challenged in the field of synthetic organic chemistry: something that wasn't offered at my high school in Covert, Michigan. I learned how to perform college chemistry research experiments, analyze them, and document them properly. I participated in the BEST Early program for two years in high school and one year in college. The experience resulted in two publications that even today stand out on my resume and lets the world know that I can perform research and make an original contribution to the research world.

The confidence and accolades that resulted from this experience led me to attend the University of Michigan and study Nuclear Engineering and Radiological Science. I am currently a Nuclear Engineer for General Dynamics Electric Boat and am also taking classes towards my Masters in Mechanical Engineering at the University of Connecticut. Early research helped me discover my potential and helped me become the person I am today.

Ginger Anderson designs, improves and oversees work performed by the Navy on nuclear submarines as a Nuclear Engineer for General Dynamics Electric Boat. She was a participant in the BEST program for the summers of 2004, 2005, and 2007.

Legacy Gift Left to the Berrien Community Foundation

The Berrien Community Foundation recently received a $1.8 million legacy gift from the estate of Theodore L. Lucker. This gift was placed in the Theodore & Elaine Lucker Endowment for Underprivileged Children and is the largest single gift received by the Foundation in its 60 year history.

"Ted and Elaine Lucker were quiet philanthropists who cared deeply about children here in Berrien County, especially those who were underprivileged," stated Dr. Nanette Keiser, BCF President, "We are truly honored that the Luckers entrusted this gift to the Foundation. We will do our very best to ensure that this gift is the legacy they envisioned."

Ted and Elaine Lucker are fondly remembered in the community for their philanthropy and for their beautiful flower cart. The proceeds from this cart were also dedicated to underprivileged children.

Theodore L. Lucker, who lived in the area his entire life, was born July 1, 1919 in St. Joseph to Fredrick C. and Barbara (Reith) Lucker. On April 14, 1946 he married Enid Elaine Snyder, who preceded him in death in 1999. He was also preceded in death by a son, Scott Louis, in 1964.

During WW II, Ted Lucker served in the U. S. Army Air Corps as a cryptographer and was involved in the Normandy, Northern France, Ardennes, Rhineland, Central Europe, and Air Offensive Europe campaigns, earning six bronze stars for his service. After the war Ted and Elaine settled in Stevensville where he enjoyed a long career as a purchasing agent at the Bendix Corporation.

By policy the fund will be invested for a year before any grants are distributed. The spendable of this endowment fund will then be available for various projects/programs for underprivileged children in Berrien County as per Ted Lucker's wishes. More information about the projects/programs to receive grants will be provided on the BCF web site at the appropriate time.

Celebrating over 60th years, the Berrien Community Foundation was founded by William Vawter and other caring local leaders. With this recent gift, the Foundation's assets are at $29 million, the highest in its history. Its mission is to enhance the quality of life in Berrien County and build a spirit of community through building mainly endowments like this legacy fund, providing donor services and grants, and serving as a facilitative community leader in Berrien County. For more information, visit www.BerrienCommunity.org.

Pilgrim UCC Marks Earth Day With Art Show, Film On April 20

The Social Justice Coalition is sponsoring an Earth Day Celebration at 6 p.m. Saturday, April 20, at Pilgrim UCC, 1200 Glenlord Road, St. Joseph. This event will begin with an Interfaith Earth Blessing, followed by a reception for an all-ages art exhibition and a film screening of "The Harvest/La Cosecha".

The Interfaith Earth Blessing will be on the lawn outside Pilgrim and include blessings provided by representatives from the Native American, Jewish, Buddhist, Christian, Unitarian-Universalist and Interfaith traditions.

The art show is called "How I show my mother, the Earth, I love her." The show will feature artwork created by artists of all ages that describes the many ways we can protect and nurture our Earth.

A reception for the art show will be followed by a presentation on migrant worker issues and a screening of the film "The Harvest/La Cosecha". There will be a time to discuss the film following the screening.

Every year there are more than 400,000 American children who are torn away from their friends, schools and homes to pick the food we all eat.

Zulema, Perla and Victor labor as migrant farm workers, sacrificing their own childhoods to help their families survive.

"The Harvest/La Cosecha" profiles these three people as they journey from the scorching heat of Texas' onion fields to the winter snows of the Michigan apple orchards and back south to the humidity of Florida's tomato fields to follow the harvest.

This Earth Day Celebration event is sponsored by the Social Justice Coalition which includes: the St. Joseph Buddhist Sangha, Pilgrim UCC, St. Augustine's Episcopal, 1st Presbyterian and Berrien Unitarian Universalist Fellowship. For more information, email Kunga Nyima: stjoesangha@gmail.com.

Berrien County Challenged to Move One Million Miles

Be Healthy Berrien plans to launch the Million Mile Challenge this spring. Be Healthy Berrien is a county-wide partnership of the Berrien County Health Department, Lakeland HealthCare, Southwest Michigan Planning Commission, Benton Harbor-St. Joseph YMCA, Niles-Buchanan YMCA, and United Way of Southwest Michigan. Be Healthy Berrien aims to reduce obesity and chronic illness, and increase overall health and wellness in Berrien County.

The Million Mile Challenge is a county-wide campaign through which residents are encouraged to collectively move one million miles in their communities from May 6 through September 25. The purpose is to motivate residents to improve their health and their community through physical activity.

The official kick-off week will occur May 6 – 11 at various locations across the county. Each community will be showcased on a given day during the kick-off week. The schedule will be announced through the Be Healthy Berrien Facebook page in April. A website will also be developed, so that individuals can sign up and track the miles being moved (either by entering the actual mileage, or minutes per activity, which will be converted into mileage). The site will also feature resources to help residents get active.

Be Healthy Berrien still needs partners to host events, showcase existing activities/programs, and encourage people to accept the Challenge! If you or your organization is interested in collaborating in this exciting community movement, email Jessica Stauffer, Jessica@behealthyberrien.org or call (269) 982-1700 (ext. 12).

Health Happenings - Around Lakeland

Community Invited to Celebrate Outpatient Services Center's 10-Year Anniversary

Lakeland HealthCare will celebrate the Center for Outpatient Services's tenth anniversary from 10 a.m. to 3 p.m. Saturday, April 27, at the Health Park, 3900 Hollywood Road, St. Joseph. This free event will include a health expo, tours, prizes, light refreshments, and more.

Free screenings will include heel scans for women to test bone density and blood pressure checks. The health expo will include information on nutrition counseling, hospice services, quitting smoking, heart disease risk, early heart attack care, congestive heart failure, stroke awareness, and diabetes.

Also, Gift of Life Michigan will be available for information or help with registering individuals as organ donors. RockWELL the Wellness Raccoon will be on hand to greet visitors and to kick off the Fitness Trail Walk along the campus grounds; prizes will be given to the first 100 walk finishers.

In addition to complimentary light refreshments served at the event, the Deli at the Center for Outpatient Services, St. Joseph will be open for patrons to enjoy snacks, beverages, or lunch. For more information, visit www.lakelandhealth.org.

Caring for a Friend or Relative?

You Are Entering the Caregiving Zone Being a caregiver can be both rewarding and stressful. Residents are invited to enter "The Caregiving Zone" from 1 to 3 p.m. Thursday, May 2, 9 and 16, Niles Senior Center,1109 Bell Road, Niles, and 2 to 4 p.m. Tuesday, May 7, 14 and 21, at Caretel Inns of Lakeland, 3905 Lorraine Path, St. Joseph.

Caregivers will learn how to obtain needed community resources, manage caregiver stress, organize important documents, monitor safety and risk, develop an increased sense of personal effectiveness as a caregiver, and decrease the sense of caregiver burden. Classes consists of two-hour sessions, for which respite care and transportation care are available, if necessary. All sessions are free, though donations for materials are accepted. For more information or to register, call (800) 717-3811. Class size is limited and pre-registration is required.

Free Pre-Diabetes Class - May 2

Lakeland HealthCare is offering a free program designed to help anyone with higher-than-normal blood sugar levels who's at risk for developing type 2 diabetes. This program does not require a physician referral and helps area residents change lifestyles to delay, or avoid, the onset of diabetes.

The class will run from 1:30 to 3:30 p.m. Thursday, May 2, at the Center for Outpatient Services, St. Joseph, Lakeland Community Health Resource Library, 3900 Hollywood Road, St. Joseph.

Pre-registration is required. For more information or to register, call (269) 556-2868 in St. Joseph, or (269) 683-5510 (ext. 2868), in Niles. For more information, visit www.lakelandhealth.org.

Free Heart-Healthy Foods Program Scheduled For May 6

Lakeland HealthCare will present "Eating Right for a Healthy Heart" from 6 to 7 p.m. Monday, May 6, in the Buchanan Area Health Resource Library at Lakeland Community Hospital, Niles; 31 N. St. Joseph Ave. At this free program, a registered dietitian will discuss how better food habits can reduce the risk of heart disease and stroke, and give tips on following the American Heart Association's eating plan. For more information, or to register, call (269) 556-2808, or (866) 260-7544, or visit www.lakelandhealth.org.

"Bones in Balance" Series Begins

Lakeland Orthopedic Physical Therapy is now enrolling participants for "Bones in Balance," a four-week program designed to teach those diagnosed with osteoporosis and osteopenia how to successfully live with these conditions through self-management.

"Bones in Balance" incorporates education and exercise and is led by specially trained physical therapists. The program includes valuable self-management tips from a pharmacist, registered dietitian, nurse educator, and counselor.

Classes meet twice a week for a four-week period at the Center for Outpatient Services, 3900 Hollywood Road, St. Joseph. Registration is now open for the next set of classes, which run from from 9 to 11:30 a.m., or 5 to 7:30 p.m., Tuesdays and Thursdays, from May 7 through May 30.

A physician's order is required for "Bones in Balance," and the class is billable to insurance. There is a $25 registration fee. For more information or to register, call (269) 556-7150, or visit www.lakelandhealth.org.

Mother-Father Breastfeeding Class Is May 7

A breastfeeding class for mothers and fathers will be presented from 6 to 8:30 p.m. Tuesday, May 7, in the Frederick S. Upton Education Center at Lakeland Regional Medical Center, St. Joseph, 1234 Napier Avenue.

The cost for the breastfeeding class is $30, due at the time of registration. For more information or to register, call (269) 556-2808 or (866) 260-7544, or visit www.lakelandhealth.org.

Expect Amazing....

...chemiluminescent molecular sensors for hydrogen peroxide … potential class of hybrid drugs and bifunctional nanoparticle linkers …. making newspaper ink dyes from the artificial sweetner saccharin

My project is to convert arylidene pyruvic acids into chemiluminescent probes that detect hydrogen peroxide, which is a by-product of metabolism in most living things. Interestingly, hydrogen peroxide is also involved in the graying of hair. It is known that pyruvic acid, an important biomolecule, helps in detoxification of hydrogen peroxide.

My project is important because it could potentially provide a visible and measurable method for detecting hydrogen peroxide using pyruvic acid derivatives – arylidene pyruvates (AP). They may allow scientists to detect and destroy hydrogen peroxide and to know that the reaction has worked. So far, we have been working on preparation of the chemiluminescent AP probes.

My experience with this project has been wonderful so far! At first it was hard, but it got better with time. Everyone started out asking how to do the different aspects of their projects, but we all gradually learned how to do them on our own without so many questions. I've loved the atmosphere that we've been able to have in our lab. We all get along well and we help each other out when we need to. It's an environment where we're all interested in what the others are doing and it really helps us to learn about the other projects as well as our own. It's been a new experience being trusted to do lab work by ourselves. It's a great way to build independence and confidence. I'm really glad that I've been able to take this class and that I've been able to have this experience.

> "Potentially provide a visible and measurable method for detecting hydrogen peroxide using pyruvic acid derivatives – arylidene pyruvates (AP)."

My name is Kirsta Anderson and I am 18 years old student at Edwardsburg High School. I am going to attend Brigham Young University in the fall, to become a blood analyst.

I have attended classes through the Berrien County Math and Science Center for four years. This year I am doing original research alongside my professor, Dr. Desmond Murray. Together we are studying and synthesizing rhodanine arylidenes as a potential class of hybrid drugs and as bifunctional linkers of metal and metal oxide nanoparticples. As drugs, rhodanine derivatives have been used in the treatment of diabetes, a major illness around the world. They have also found applications as sensors for metals like copper, silver and gold.

> "Used in the treatment of diabetes... also found applications as sensors for metals like copper, silver and gold."

In my experiments I am trying to discover the most efficient and versatile way to synthesize rhodanine arylidenes. To accomplish this, I have systematically changed different reaction conditions, including solvent and catalyst. So far I have discovered that calcium oxide catalyst in ethanol solvent produces the highest yields. Now I am working to see how general this process is by varying the substituted benzaldehydes used to make rhodanine arylidenes.

Dr. Murray bought a sample of the rhodanine arylidene that I was trying to synthesize from dimethylaminobenzaldehyde and we compared it to the product that I actually synthesized. They were very similar if not exactly the same. This is a very nice feeling knowing that I made something that professionals had already made and is now commercially available.

So far I am enjoying this semester of research. I believe it is very beneficial to expose students to research early on. I look forward to continuing my research.

My name is Loren Simmons and I attend Brandywine High School in Niles, Michigan. I like to spend my free time with friends, and I enjoy playing chess and soccer.

When I first heard that we would be doing individual research, I was sort of worried about messing up. In tenth grade chemistry we worked with partners and everyone was doing the same exact experiment with the same expected results. If your group messed up, you'd just observe another group.

However, doing our own research different from anyone else in lab, on projects never researched before, has led us to be more individually responsible, thoughtful and careful as young chemists.

I am synthesizing the dyes found in your daily newspaper print ink that are used specifically to keep the black pigment from fading to brown. The combinations of reagent solutions and solids that I am using in this project has not been done before. I was very eager to see the colors they would create.

I find it "crazy" that I am taking several clear and colorless liquids and one white solid to create a colorful and strong dye. Even "crazier," I am taking saccharin, an artificial sweetener, to create colors and pigments – a sweetener being used to make red, blue, and green colors. So cool.

> "I find it crazy...an artificial sweetener, to create colors and pigments – a sweetener being used to make red, blue, and green colors. So cool."

One thing I have learned from my time in the lab, is that it will always have a different smell. Between everyone making perfumes and the strong odor of acetone and other chemicals, the lab always has a different smell, sometimes good, but most of the time not!

Beyond that, I have gained the ability to conduct independent research. During the beginning of the course I always had questions about my procedure and the equipment, but now I am able to complete the sentences of some of the lab assistants and my professor. I will definitely remember this course and all the amazing experiments, friends, and experience.

I am Alex Gamso, currently a senior at Niles High School with plans to attend the University of Michigan next fall to study mechanical engineering. During my free time I enjoy volunteering, blogging, and traveling.

"The principal goal of education in the schools should be creating men and women who are capable of doing new things, not simply repeating what other generations have done."
-- Jean Piaget, 1896 - 1980

Expect Amazing...

...novel bifunctional photographic agents for image stabilization and development…interpreting NMR and IR spectroscopic data…performing standard synthetic organic chemistry operations like extractions, reflux and rotovapping

My name is Jessica Thompson and I am currently attending Edwardsburg High School. Next year I plan to go to college and major in mathematics and physics. Eventually, I would like to obtain a PhD in math.

The purpose of my research is to develop a compound that can potentially be used in photography as both a chemical stabilizer and developer. In traditional photography, organic compounds known as phenols and naphthols are often used as developers, while stabilizers are generally nitrogen containing cyclic molecules.

My experimental procedure involves combining a stabilizer subunit with a developer structure via a special bond called an imine. These imine bonds are known to play a very important role in human vision. My reactants are combined under different factors, including temperature, solvent and drying agent. Solvents used so far have included cyclohexane, ethanol, and methanol. Drying agents – used to remove the water by-product of the imine forming reaction - have included molecular sieves and magnesium perchlorate. Interestingly, imine methods taken directly from the chemical literature has not worked out for us so far. So, we still are in the process of figuring out what reaction conditions would lead to our desired product.

> "This class has shown me that I enjoy research."

Overall, the chance to do independent research has been great for me. I liked my sophomore chemistry class, but I don't think I retained a lot of the information I learned. Doing research has not only taught me more about the subject, but also allowed me to remember more about what I learned since I am directly participating and doing it. This class has shown me that I enjoy research. Though, I do not think I will pursue chemistry in college, I am now more interested about science, in general, because of this opportunity.

"We must become as little children to enter the kingdom of science."
– Sir Francis Bacon, 1561-1626.

Expect Amazing...

...developing new synthetic methods for hybrid sulfonamide drugs…developing new approaches and sensors for forensic blood analysis… college-level research done by high school students.

If I were forced to sum up my feelings about this semester's research program in one word, I would choose the word consuming.

I entered this semester with mixed feelings. The idea of getting to conduct my own original research was a thrilling prospect, but nonetheless a prospect filled with apprehension. Although I had taken a general high school chemistry class in tenth grade, I felt my knowledge of chemistry was lacking to say the least. The combined feelings of excitement and inadequacy created an interesting set of emotions near the start of the program.

As I began the preliminary background work for my project, I quickly developed an interest in the topic. My research is based on the search for new and improved antibiotics, and since I plan to pursue a career in the medical field, my personal interests soon began to coincide with the focus of my research. Although the technicalities of certain chemical reactions were above my understanding, I developed a fascination with the project I was about to start.

> "Not only have I acquired an interest in research and laboratory work, but I have been filled and consumed with a passion for discovery and growth in every aspect of my life."

After several weeks of preliminary preparation, the time finally came for me to begin my work in the lab.

At first it was a tedious, monotonous, and slightly dull way to spend the afternoon. Hours upon hours ticked by as my melancholy attitude toward lab developed. But then one day, almost subconsciously, I began to enjoy myself. The passion and drive I had felt during my preliminary research returned. All of a sudden, I found myself looking forward to time in the lab, and even spending extra time outside of class in the lab.

Consuming is the word I must use to describe my experience with research, for not only have I acquired an interest in research and laboratory work, but I have been filled and consumed with a passion for discovery and growth in every aspect of my life.

Andrew Krause is a senior at Andrews Academy, and upon graduation will attend Andrews University to study pre-med. Andrew's interests include music, specifically violin and drums, and outdoor action sports including mountain biking and snowboarding.

> "This evidence can prove to be a game-changer in a crime."

My name is Libby Hein, and I am a senior at Niles High School. In the fall, I plan to attend either Michigan State University or Olivet Nazarene University to pursue a major in actuarial science.

For my independent research project, I am attempting to synthesize a novel product - fluorescent arylidene pyruvates - for use in forensic science to test for hydrogen peroxide. At a crime scene, blood is often tested for using luminol in the presence of hydrogen peroxide. This evidence can prove to be a game-changer in a crime. The purpose of my project is to assist in providing this evidence by developing other effective and complementary tests to those already in existence.

I have been able, through my project, to develop lab skills working on my own with new procedures, equipment and instrumentation that I have had the opportunity to utilize and which are not available at my home school. For example, my experiment calls for refluxing, vacuum filtering, and examining nuclear magnetic resonance (NMR) spectra of my starting materials and products.

Additionally, the experiments are ever changing. Sometimes, I need to adjust variables in my experiment to obtain better results, and have to be prepared to work with changes in my procedures.

I have also been able to gain experience working with a variety of chemicals with varying safety and disposal concerns, which requires close attention and caution. The new skills I have learned have taught me to address, analyze and solve problems and keep moving forward.

Working independently on a project, I have been able to see the rewards that result from hard work and concentration. Watching reactions, as they undergo changes, and interpreting spectra of their final product has become an exciting event, and I *love* it when everything suddenly makes sense. Independent research has been a great way, especially as a high school student, for me to expand my horizons and prepare for my future.

SCIENCE ROCKS!

Expect Amazing...

...preparing more effective sunscreens by covalently combining existing templates …synthesizing novel super absorbent polymers…design and synthesis of novel nalidixic acid stilbene antibiotics

My name is Paige Coffeen, and I currently attend Berrien Springs High School. After I graduate this June I plan on attending Southwestern Michigan College for 2 years then transfer to University of Michigan to study Electrical Engineering. My hobbies include pageants, volunteering, and ceramics.

Sunburn is an issue that concerns many people, but do they really know what goes into a good sunscreen that keeps them from that burn?

Do they know that green plants have natural organic molecules that protect them from dangerous ultraviolet radiation of sunlight?

Two classes of organic compounds found both in man-made and natural sunscreens are benzophenones and stilbenes. Since they are usually found in separate sunscreens, Dr. Murray wondered if we could make a "super sunscreen" by building a single sunscreen compound that contained both a benzophenone and stilbene substructures.

As a frequent beach goer this experiment sparked my interest and imagination and motivated me to find out just how we would successfully go about making a "super sunscreen." My project consists of first making the benzophenone subunit and when successful build the stilbene portion directly on to it.

> "Sparked my interest and imagination and motivated me to find out just how we would successfully go about making a "super sunscreen."

So far, my work has focused on the first step of making benzophenones. We have been using a classic organic chemistry reaction called the Friedel Crafts acylation to accomplish this goal. We have tried a variety of catalysts, about five or six, to determine which works best. Lewis acid catalysts we have tried include zinc oxide and aluminum chloride. This aspect of the research is still continuing. I am looking forward to when I finally discover the optimal catalyst. In the meantime, in this process, I have become familiar with several organic chemistry procedures that are normally done in college, like, refluxing, extraction, rotovapping and NMR and IR analysis.

My research is about producing a new super-absorbent polymer, a material that absorbs hundreds of times its weight in water. The compound I use is an arylidene pyruvic acid (APA) previously produced by other high school and college students under Dr. Murray's supervision. The goal of my project is to join APA monomers into a polymer, and then determine its properties. So far we haven't gotten our desired results, and we have experimentally ruled out methods that don't work. We are currently trying hydride initiated polymerization approaches.

When the class first started, I was rather nervous. I didn't know what laboratory research entailed, or much about the project I chose. The first few weeks of class outside the lab taught me most of what I didn't know, so when the lab time actually started, I was ready. Now, I've come to realize after being in the lab for a couple months that I genuinely enjoy the whole process.

> "Experiencing true laboratory research this early has been very valuable."

Experiencing true laboratory research this early has been very valuable. I know I'll have to do some form of research in college and possibly as part of my future career. Engaging in research now will help prepare my classmates and me for more of it later on. On top of that, we have been slowly pushed to handle more and more experiments in the same amount of time, so we're all learning better time and lab management skills. Having actual lab research experience during high school should keep similar things in the future from intimidating me!

My name is Gabe Hodge. I am a senior at Buchanan High School and the Berrien County Mathematics and Science Center. Starting this fall, I will be studying Computer Science and Computer Engineering at the University of Michigan in Ann Arbor. I spend my free time reading and enjoying programming.

My name is Chris Gillis. I attend Edwardsburg High School and enjoy reading, being outside, and cycling. In the fall, I plan to attend college to study to become an accountant.

For my research, I am creating Nalidixic Acid Stilbenes. Nalidixic acid is a marketed antibacterial that was used for urinary tract infections. While some stilbenes have been shown to have antibacterial properties, others like resveratrol, are being increasingly investigated for biological properties ranging from anti-cancer to cardiovascular. My project involves making a single hybrid molecule comprised of nalidixic acid and stilbene subunits.

> "...for biological properties ranging from anti-cancer to cardiovascular."

My experimental procedures include mixing a solvent, a substituted benzaldehyde, and nalidixic acid, along with a reaction promoter. When all of these are together, the mixture is stirred and refluxed for about five hours over a magnetic stir plate. After the reaction has taken place, I stop the reaction by pouring it into a mixture of ice and saturated ammonium chloride. I then separate the solid product from the liquid using the process of vacuum filtration. When this is complete, I collect the yield, weight it, and take an NMR of the sample.

I really enjoy doing this type of research. Having the opportunity to be able to do such unique and original experiments is amazing. Nowhere else in school do students have the chance to do chemistry as we are. This opportunity has made me more aware of the field of chemistry and has made me extremely interested in the world of research.

My reactions were unsuccessful at first, but after a series of experimental changes, I was able to obtain our desired products.

I was very excited. It is a great feeling. Doing this research has given me a great insight and hands-on experiences to what exactly goes in to developing new drugs and antibacterials.

"The real voyage of discovery consists not in seeking new landscapes, but in having new eyes."
--- Marcel Proust, 1871 – 1922

Take Pride in Your Space! 11th Annual Adopt-a-Block Kick-off

The Near Northwest Neighborhood Inc. (NNN) will kick-off the 11th Annual Adopt-a-Block program this Saturday, April 20, 2013 at 8:00 a.m. at the NNN offices, located at 1005 Portage Avenue. The Adopt-a-Block event provides the perfect opportunity for neighbors to work together to clean up the neighborhood!

After over a decade of involvement in the program, neighbors have stepped up to take pride in their space by adopting every block in the neighborhood, over 200 blocks! Organizers are excited about the success of Adopt-a-Block and its continual growth; starting in 2003.

Since the first year, the number of adopted blocks has increased from 14 to over 200! "It is encouraging to see the partnership between residents, civic groups, and local businesses, resulting in every block in the near northwest neighborhood being adopted in 2012." said Karen Ainsley, Executive Director of the NNN. "It says a lot about the fabric of the near northwest and the pride people have in their neighborhood." The event has been so successful in the near northwest that it has inspired other South Bend residents to work to implement clean-up programs in their neighborhoods.

The Adopt-a-Block program was developed by near northwest neighbors in collaboration with the City of South Bend's Department of Code Enforcement, and has proven to be very successful over the past 10 years. The program gained national recognition, after the City's Department of Code Enforcement received the award for Outstanding Achievement in Code Enforcement Techniques from the American Association of Code Enforcement.

The development and success of this program proves that neighbor involvement can make a difference. Please plan on joining us at the Adopt-a-Block Kick-off, where neighbors have the opportunity to join in neighborhood camaraderie, enjoy good food, and gather the supplies that they will need to clean up the area. In addition, Mayor Pete Buttigieg will be on hand to share a few words of encouragement with participants. There is strength in numbers and these kick-offs show what a difference a day can make!

Volunteer Nominations Now Being Accepted

It's time to say "thank you" to the wonderful volunteers in our community who are making an impact at local non-profit organizations, schools, and churches! Your help is needed to bring their accomplishments to light.

United Way of Southwest Michigan seeks to honor these dedicated volunteers at the annual Volunteer Celebration and Recognition Event with volunteer awards in three categories - The Margaret B. Upton Volunteer Leadership Award, LIVE UNITED Youth Award, and the Powerful Giving Awards in EDUCATION, INCOME, HEALTH, and BASIC NEEDS.

Nominations are due by April 30, 2013. Full descriptions and nomination forms can be found online at www.uwsm.org/volunteerevent and hard copies are available by request by calling 269-982-1700.

Margaret B. Upton Volunteer Leadership Award -

This prestigious award honors a Berrien County resident with a lifetime record of volunteer service. Nominations should demonstrate a candidate's lifetime of exemplary service to the community through a range of diverse projects or services. The winner will receive $3,000 to direct to the non-profit organization of their choice.

LIVE UNITED Youth Award Scholarships -

Each year United Way honors outstanding youth volunteers, one from Cass County and one from Berrien County. Along with the recognition at the event the winners receive a $500 scholarship. Applicants should show a commitment to volunteerism through innovation, time and dedication, andadvocacy for community improvement.

Powerful Giving Awards -

United Way is proud to announce the Powerful Giving Awards to honor Berrien or Cass County volunteers who are making a difference within United Way's goals in the areas of Education, Income, Health or Basic Needs. The winner in each category will have the opportunity to direct $200 to the non-profit organization of their choice.

Expect Amazing...

...designing and synthesizing novel aspirin hybrid drugs and prodrugs…fragrance synthesis using alpha-lactone cycloaddition reactions…environmentally friendlier ring opening polymerization routes to medical sutures

When I first began my research project, I wasn't expecting the amount of excitement and hardwork that I've now discovered is actually involved.

My name is Michaela Blake, I'm a senior at Berrien Springs High School and I plan on attending Western Michigan University in fall of 2013 to major in Psychology and minor in Business. I love to ski, read, and hang out with friends in my spare time.

My project deals with the Synthesis of Aspirin Acylal Hybrid Drugs and Prodrugs. The basic idea behind this is to create a hybrid prodrug.

A hybrid drug is a combination of two drugs with the goal of creating a chemical entity more medically effective than it would be individually.

A prodrug is a pharmacological substance that is administered in an inactive form, and then converted into an active pharmacological agent through bioactivation. In simpler words, when you take some medications they are converted to an active form which is what actually is the drug. In fact, one of the interesting things I've learned from this project is that aspirin, one of the most widely used medications in the world, often functions as a prodrug.

> "What does this mean for the future of medicine?"

At the beginning of this class, I found myself very interested in this topic for several reasons. In the past, I have done in depth research on painkillers such as aspirin and their interaction with the human body. I view this project as a continuation of my past research. I am also very fascinated with the body's chemical reactions, both natural and the response to foreign substances.

So far I have learned quite a lot about how tweaking a small part of experimental procedure will change the product in a large way, from amounts of certain chemical to changes in time and so much more.

Researching this topic has left me with a few questions I hope to further investigate. What types of hybrid drugs will we discover? What does this mean for the future of medicine? With the information I've gathered so far and continued work on this research project, the answer can only be positive.

My research experience developing a new synthesis of fragrances has been great so far. I am able to use techniques and equipment no one at my home school has heard of.

Being able to do this research will prepare me for any research I might have to do when I go to college. I never thought it would be possible for a high school student like me to get to use such advanced analytical instruments, such as IR and NMR.

> "I wish more high school students were given the opportunity to do research like I am doing this semester."

I wish more high school students were given the opportunity to do research like I am doing this semester. It would prepare them better for college like a regular high school chemistry class would not be able to.

I have learned so much in this class. Without this class, I would have no clue how to even start an experiment, let alone how to carry one out in a professional manner. It feels like everyday I learn a new technique, or of a new development in one of my peers' own experiment. I, along with them, am continually learning from our professor and our teaching assistants. Without their help, none of the early research opportunities we have been presented would be possible.

I would like to thank them as well as everyone who has helped to keep the Math and Science Center running for as long as it has. Without out it, I would just be another kid who doesn't know one end of a separatory funnel from the other.

My name is Brandon Sieting and I go to Brandywine High School. I love to read and will do so for hours on end.

If you think back over your lifetime, you may likely remember a new invention or breakthrough in human medicine that had a vast positive impact. This idea is the backbone of my belief in the importance of research.

Michelle Graffenius attends Coloma High School, where she is a three-sport varsity athlete and a member of the band. In her spare time, Michelle enjoys reading and listening to music.

Medical research leads directly to medical innovations, which can, in turn, save lives.

Since I plan to study biomedical engineering in college, I jumped at the chance to do this specific research project.

> "Medical research leads directly to medical innovations, which can, in turn, save lives.

My project is titled "Medical Sutures," and its goal is to synthesize medical-grade polymers from organic materials called lactones, which are ring-shaped oxygen-containing molecules. In a process called ring-opening polymerization, we are investigating the use of calcium oxide as a catalyst for the reaction. Ring-opening polymerization is already used in industry; however, reaction components and/or conditions are either toxic or otherwise environmentally unfriendly. If successful, our experimental 'green' process using calcium oxide would be nontoxic, environmentally friendlier and more biocompatible. This will hopefully polymers – medical sutures – that are more suitable for use in human health and medicine.

Now that we're about six weeks into our laboratory research, it's safe to say I've already learned a lot. The very first experiment I did in the lab took me quite a long time; I found myself having to ask how to use every unfamiliar piece of lab equipment. In my most recent work in lab, however, I found myself repeating these same processes correctly with little to no guidance.

To be in high school and have the opportunity to conduct my own independent research is very important, as early research allows us to develop laboratory skills, as well as a foundation which could have a strong and beneficial impact on my college career and beyond. This early research course also allows me the chance to be engaged in potentially useful research that could benefit others.

Happy Birthday to: "Big Archie" Davis, Joshua Hill, Mariah Harper, Glenda Bell and YOU! Have a birthday, send them to: birthday@bentonspiritnews.com

Expect Amazing...developing a new type of soap(surfactant) for complex fluids like blood…using renewable biomass to make lactone fragrances…high school students using modern, high-end instrumentation

Andrew Smith is a Berrien Springs High School senior desiring to go into an engineering career, hopefully to use it for mission work in the future. Even though his passion is in STEM he loves all learning, athletics and arts.

Research has always been something that I enjoy, learning a plethora of information through the study of a specific idea. Thus, when I heard that our senior chemistry class at the Math and Science Center was going to be totally focused on research this semester I was ecstatic.

However, before we could start with the physical experimentation we needed to look into our topics and everything that related to them. Through this process I was able to remind myself of basic chemistry principles I had learned before as well as look into many new things that applied more to my specific experiment. The project based learning style is something I enjoy for several reasons. Because the learning is kinesthetic, not just auditory or literary, I am able to remember it much more easily. Also the application is in the learning. We see that what is learned in the classroom has relevance.

> "Learning is kinesthetic, not just auditory or literary... what is learned in the classroom has relevance."

Finally, because of it's importance I remember it easier and have something to say for my knowledge, besides that I am just smarter. From this I have learned organic chemistry techniques, the organic chemistry language, lab notebook keeping skills, and many life skills. Beyond my learning hopefully my research will also have some significance besides teaching me science. I highly advocate research learning, allowing students to learn knowledge and apply it practically to the real world, beyond your basic paper, poster or school project.

My name is Jessica Lafler (featured above (right) with Dr. Desmond Murray. I'm a senior at Niles High School and class president at the Berrien County Math and Science Center. In the fall I plan on attending the University of Michigan to major in biomedical engineering and later attending medical school to become an anesthesiologist. In my spare time I love to read.

Right now I am synthesizing gamma-lactone fragrances using levulinic acid. This is an organic acid obtained from the chemical breakdown of cellulose and other carbohydrates. This means that I'm attempting to make the active ingredients of perfumes from a biomass-derived renewable resource.

In the laboratory I'm constantly busy working, sometimes on more than one experiment at a time. Because there are many steps involved in even a single synthetic reaction – (reaction set-up, isolation and purification, and analysis), being aware and knowledgeable in the lab is extremely important. One mistake can ruin the whole process.

Because no one has performed this experiment before, I never know what to expect. This is extremely hard because I don't know if my experiments are successful and just different than the previous, or if they are unsuccessful. I use NMR analysis to help in deciding whether the reaction worked or not. Although determining whether my experiment was successful or not is nerve-wracking, it puts pressure on me to pay attention and do my best.

In past science classes, experiments were predictable and for every botched experiment there was a perfectly successful one to observe.

In addition, in previous years a team of two students worked together on a single research project but this year the projects are all individual based. This puts greater responsibility – and stress - on each student for the effort, work and results of their project.

However, as my professor Dr. Murray always says, "Expect amazing!" This helps to keep me challenging myself to be the best and although it can sometimes be stressful, gaining the laboratory experience is something that is priceless for me.

> "Make the active ingredients of perfumes from a biomass-derived renewable resource."

"The public has the right to know, and the duty to ask; scientists have the responsibility of telling."
-- Anne Sayre, 1924 – 1998.

Expect Amazing...

...surface metallization and modification of paper using sugar and vitamin C…synthesis of novel color formers for print & screen imaging technologies…investigating the synthesis and potential applications of 'unnatural' aza-anthocyandin plantlors.

Azlactone cationic dyes. Sounds scary, right? When I first learned that I would be learning how to create color formers by using azlactones and Grignard reagents, I was skeptical. I didn't even know any one of those things existed. But after researching them for the past few months, I've learned that all of them are very important to today's society. For example, without color formers, we would not be able to print on things like receipts or tickets.

My name is Matt Schiele and I am a student at Niles High School. I have lived in Niles all my life and I love playing baseball.

The first few days in lab doing experiments were a little slow. I didn't really know what I was doing and I had to ask a lot of questions. Thank goodness I had Camille and Davina, our two college lab assistants. Between them and Dr. Murray, I was able to learn the "ins and outs" of the lab. Now, I know where to get my round bottom flasks, reflux condensers and other lab materials that I need. I know how to use a hotplate stirrer for reflux and a rotovap for evaporating away excess solvent. I know how to take NMR and IR of my product and do comparative analysis with my starting reactants. I even got to be the first person in our class to use KBr pellets for IR sample preparation.

> "I didn't even know any one of those things existed. But after researching...I've learned that all of them are very important to today's society. ."

Overall, my experience while researching in the lab has been a good one. I enjoy hands-on activities, so this is a really fun experience. I think the best part about the research is seeing my azlactone product. A few classmates and I joke that my product looks like cheese because of its yellow coloring and texture!

I am currently researching much cheaper, milder and nontoxic ways of plating various surfaces with metal, such as, silver, copper and gold. These metal-plated surfaces will then be used to engineer different devices (e.g. sensors and detectors) by varying attached organic groups. So far I have successfully plated paper, plastic, and various other materials in silver and I am currently working on plating surfaces with copper. The method that I am attempting to replace involves the use of a lot of heat and a powerful vacuum. My method is much simpler, uses room temperature solution phase chemistry and common organic chemicals glucose and Vitamin C.

> "Involves the use of a lot of heat and a powerful vacuum. My method is much simpler,"

The research that I am doing is very interesting and enjoyable. I am grateful that I have the opportunity to research with tools not available to me at my home school. Research can be stressful, but when you get positive results it is worth all of the stress.

The most valuable lesson that I learned from my time researching is that you have to be extremely patient. It is very common for nothing to work most of the time; you just have to keep at it until you accomplish what you set out to do. I also learned that time is valuable when researching. You need to do all that you can to work very efficiently or you will not have enough time to research.

My name is Jonathan Kelly and I attend Buchanan High School. I plan on attending Michigan State University where I will major in computer engineering with a minor in computer science. During my free time I enjoy watching television and hanging out with my friends.

My name is Bethany Van Alstine and I am a senior at Buchanan High School. I plan on double majoring in Religious Studies and International Business and pursuing mission work across the world.

I am currently enrolled in an Organic Chemistry class at Andrews University through the Berrien County Mathematics and Science Center. Each person in my class has a different individual independent research project that hasn't been done before. I have been researching the preparation and manipulation of aza-anthocyanidins.

> "I am grateful for this class because of the expansion of knowledge I have gained."

Anthocyanidins are the main component within plants that cause vibrant colors in the plant material. The goal of my experimentation is to change an element – carbon to nitrogen - in the base structure of the anthocyanidins and observe the effects of the change.

The lab work has been interesting to me, especially seeing the effects of the different aldehyde reactants. It is fascinating to me to see how changing one thing can drastically change the end product. I have enjoyed observing all the color changes that occurred through the experimental process. I look forward to seeing what the differences are and how it could be used.

One of the features of anthocyanidin based plant colors is their ability to switch or change colors depending on external factors, such as, acidity and the presence of metal ions. They are natural molecular switches.

My project will allow us to see what differences would result in "switching" when a simple change is made in the anthocyanidin structure.

I have learned a lot of new things through procedures and lab tools. I am grateful for this class because of the expansion of knowledge I have gained.

"Eye of the Tiger"

This page is sponsored by Benton Harbor High School (BHHS), via the Safe and Supportive Schools Grant (S3) from the Michigan Department of Education, and BEST/Benton Spirit Newspaper's Aspiring Young Journalist (AYJ) Program. The stories and photos are by BHHS students.

Benton Harbor's Tech Tigers 1940 Make Their Robotic Mark

By: Damon Christopher, Benton Harbor High School Spirit Aspiring Young Journalist

Benton Harbor High School's Robotic Team, Tech Tigers 1940, has been working very hard on creating a competition-worthy robot.

This year's team consisted of Mr. Applewhite (coach), mentors Harvey Fluellen, Joseph Taylor and Paul Paget (Whirlpool Corporation), Nate Geib (Whirlpool), and members Mahalah Fuller, Tyron Hurtt, Corbert Harvey, Kendall Franklin, Robert Castaneda, Adonis Cloy, David Drake, Jamila Foriest, Diontrayl Nelson, Charmaila Ware, Nykita Welch, and Dontreal Bownes.

This year the team as a whole came together to create a robot that throws Frisbees. Many hours were spent after school in creating the robot.

The team entered two competitions for the 2013 season, which took place at Gull Lake and St. Joseph High School. The competitions were long and fiercely contested. The team had lots of fun and learned many lessons about competing and teamwork.

The team effort was outstanding. Great Job!

Below are a few of the Benton Harbor High School students who participated (l-r): Adonis Cloy, Jamila Forist, Mahalah Fuller, Tyron Hurtt, and Kendall Franklin.

In honor of Earth Day Benton Harbor High School will hold its 3rd Annual High School Restoration/Revitalization Day

• Monday April 22, 2013 at 10 a.m. •

Students, staff and parents will be working together to clean up the campus and plant flowers after the long winter. The plans also include the restoration of the girls softball field with special attention given to the dug outs and bleacher areas.

Individuals who enjoy working outdoors and would like to help out, grab your rake and garden gloves and meet in front of the Benton Harbor High School, 870 Colfax Street, Benton Harbor, MI, at 10 a.m. on Monday, April 22, 2013.

With four different tickets, and a chance to win from $400 up to $4,000 a week for life, Cash for Life® instants are freedom to do whatever. Meaning you could turn an instant into a lifetime of almost anything!

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CLASSIFIEDS

LEGAL NOTICE

ELECTION NOTICE
BENTON HARBOR CITY
MAY 7, 2013

TO THE QUALIFIED ELECTORS OF THE CITY OF BENTON HARBOR IN THE COUNTY OF BERRIEN:

Notice is hereby given that a Special Election will be held in the City of Benton Harbor within the County of Berrien, State of Michigan on Tuesday, May 7, 2013 for the purpose of voting on the following millage proposals:

-Charter Authorized Millage Restoration
-General Operating Millage

Electors may obtain the full text of the proposals at the following location: Office of the City Clerk, 200 E. Wall Street, Benton Harbor, MI 49022, 8:30 a.m. – 5:00 p.m. Monday – Friday.

To comply with the Help America Vote Act (HAVA), voting instructions will be available on audio tape and in Braille. Arrangements for obtaining the instructions in these alternative formats can be made by contacting the city clerk in advance of the election. All polling locations are accessible for voters with disabilities.

The following polling places will be open from 7:00 a.m. to 8:00 p.m.

WARDS 1 & 3
Benton Harbor High School
870 Colfax Avenue

WARD 2
Martin Luther King School
750 E. Britain Avenue

WARD 4
Morton Hill School
267 N. Hull

I, Bret Witkowski, Treasurer of Berrien County, Michigan, hereby certify that as of March 21, 2013 the record of this office indicate that the total of all voted increases over and above the tax limitation established by the Constitution of Michigan, in any local units of government affecting the taxable property located in City of Benton Harbor, in Berrien County Michigan, is as follows.

By Berrien County:
4.7723 mills for General
.3500 mills for Public Safety
.2500 mills for 911
.3000 mills for Senior Centers
.1000 mills for Parks

City of Benton Harbor
11.1017 mills for General
13.2311 mills for Extra Voted

Benton Harbor Public Schools
6.00 mills for SET
18.00 mills for Operating
2.00 mills for Building and Site

St. Joseph Public Schools
6.00 mills for SET
18.00 mills for Operating
3.55 mills for Debt
.9946 mills for Building and Site

RESA
2.3699 mills

Lake Michigan College
1.7854 mills

Dated: March 21, 2013

Bret Witkowski
Treasurer, Berrien County

This notice is given in compliance with MCL 168.653a.

Kim Thompson, City Clerk
200 E. Wall Street
Benton Harbor, MI 49022

BS/adv. April 18, 2013

CITY OF BENTON HARBOR
NOTICE OF PUBLIC ACCURACY TEST

A Public Accuracy Test for the purpose of testing the accuracy of the tabulating equipment and programs which will be used to tabulate voted ballots for the May 7, 2013 Special Election in the CITY OF BENTON HARBOR, County of Berrien will be conducted at the following time and location:

10:00 a.m. Thursday, April 25, 2013

City Hall
200 E. Wall Street
Benton Harbor, MI

Kimberly Thompson, City Clerk
269-927-8408

BS/adv.: April 18, 2013

CITY OF BENTON HARBOR
ORDINANCE
AMENDMENT NOTICE

I, Kimberly Thompson, City Clerk of the City of Benton Harbor, Michigan, certify that on April 16, 2013, Emergency Manager Saunders II, approved an amendment to a PILOT Ordinance for Hayward Wells Estates, Trinity Village Non-Profit Housing Corporation in Section 9 of the Ordinance, entitled Duration. A full copy of the ordinance amendment is available for review in the City Clerk's Office at 200 E. Wall Street, Benton Harbor, MI 49022.

Kimberly Thompson
041813

BS/adv.: April 18, 2013

EMPLOYMENT

GRAPHIC DESIGNER NEEDED

PART-TIME POSITION. START IMMEDIATELY.

Send Letter of Interest and samples of work to:
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NATIONAL STANDARDS

"Eye of the Tiger"

This page is sponsored by Benton Harbor High School (BHHS), via the Safe and Supportive Schools Grant (S3) from the Michigan Department of Education, and BEST/Benton Spirit Newspaper's Aspiring Young Journalist (AYJ) Program. The stories and photos are by BHHS students.

Many Girls Scouted, Few Chosen

Girl Scout Leader Luvenure Barnhill, featured right, speaks to Girl Scout members at Benton Harbor High School.

By: Kysre Gondrezick, Jr. Correspondent
Spirit Aspiring Young Journalist

Many are called, though few are chosen, and just about 50 girls were hand selected, each by grade level, during Girl Scout activities held last week at Benton Harbor High's very own Alden Bierman Library. Group discussions were held, opinions were shared, teamwork was defined, and knowledge was developed.

"First off, I would like to thank the United Way of Southwest Michigan for making this happen. It gave me the opportunity to observe the girls become more open and comfortable to the activities we had to offer them," said Luvenure Barnhill, a 10-year employee, and current leader of the Girl Scouts program. "More communication was involved and when that took place, the girls became extremely excited and teachable to what we were instructing towards them to comprehend."

In one group discussion, things got pretty intense on the topic of examining both right and wrong friends. "They had to identify the different acts of girl power. I wanted them to understand the true meaning of girl power," Barnhill said. "If nothing else was learned, this was the most important thing I wanted them to get, that girl power doesn't mean the power of your fists and how much you can hurt someone."

Asked to explain herself further, Barnhill was happy to elaborate. "It is the way you kill someone with kindness and knowing the identification of who you are from your own perspective, that it's okay to be yourself rather than the stereotype. Girl Scouts, isn't just about cookies, even though they are very essential," Barnhill chuckled, "but the fact that it is okay to be you." As to the fifty selected, YOU were the reason why you were chosen.

Founded by Juliette Gordon Low in Savannah, Georgia, on March 12, 1912—100 years ago—Girl Scouts of the USA was chartered by the United States Congress on March 16, 1950. Today, there are 3.2 million Girl Scouts: 2.3 million girl members and 890,000 adult members working primarily as volunteers.

Girl Scouts of the USA (GSUSA) is the largest organization for girls in the world. "Our mission is to build girls of courage, confidence, and character, who make the world a better place," the organization states, on its website. "Through activities in science and technology, business and economic literacy, and outdoor and environmental awareness, Girl Scouting provides girls with opportunities for fun and friendship while fostering the development of leadership skills and self-esteem." For more information, visit http://www.girlscouts.org.

Both articles on this page were written by
Kysre Gondrezick, Freshman at Benton Harbor High School

Kysre is a member of the *Benton Spirit Newspaper's* Aspiring Young Journalist Program

EDUCATING and MENTORING TOMORROW'S FUTURE

Thank you Benton Harbor High School and the State of Michigan for this opportunity!

"Service Above Self": What Is The Rotary Club All About?

By: Kysre Gondrezick, Jr. Correspondent
Spirit Aspiring Young Journalist

Rotary International's objective is to encourage and foster the ideal of service as a basis of worthy enterprise and, in particular, to promote the development of acquaintance as an opportunity of service. Its high ethical standards in business and professions has drawn the recognition of the worthiness of all useful occupations and the dignifying of each Rotarian's occupation as an opportunity to serve society. The application of the ideal service in each Rotarian's personal, business, and community life has enhanced the advancement of international understanding, goodwill, and peace through a world fellowship of business and professional persons united and the ideal of service.

Rotary President, Jackie Huie (left), and Newly Inducted Rotary Member, Felicia Gondrezick (right).

Members are chosen as a business or professional representative, and grouped into classifications. The intention is to have a broad cross-section of business executives and professional people who are active in and important to our community. Rotary Club members are volunteers who work locally, regionally, and internationally to combat hunger, improve health and sanitation, provide education and job training, promote peace, and eradicate polio under its motto, "Service Above Self." Rotary International is in fact the world's first service club organization, with more than 1.2 million members and 34,000 (thirty-four thousand) clubs world-wide.

Established on February 3, 1905 in Chicago, Illinois by Paul Harris, Rotary International has defined a name throughout the world based on its current high level accomplishments. In 2011-2012, Rotary has been awarded a record $55,400 from its foundation to charitable organizations in Benton Harbor's community. The organization's first online site was developed February 1, 2011 on its own Facebook page, followed by the award of four scholarships totaling $8,000 to area high school athletes who displayed exemplary academic performance and leadership ability, following the recent 50th Annual Rotary Track Meet at Benton Harbor High School. (The event is Michigan's second largest track meet.)

Rotary has also received two District 6360 grants for international projects in the Dominican Republic, as well as $4,000 in Scholarships to area high school students in its essay contest. Just recently, Lisa Harvey-Gondrezick, the first African-American female to be inducted, is now an official Rotarian of the Rotary Organization. She stated, "Rotary will allow me to be an extension of my servitude to community, service, educational development and expansion, as well as to inspire social commitments to city-wide and global causes."

On behalf of the members of the St. Joseph/ Benton Harbor Rotary club and board, Rotary provides "Service Above Self" internationally through its 1.2 million members. Active involvement by new members will ensure Rotary's future legacy.