



△ Center Line △ Clintondale △ Fraser
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The **CENTER PAGE**

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Volume IX No. 2

Macomb Mathematics Science Technology Center

2012-2013

Congratulations to the Class of 2013



On April 30th, 2013, MMSTC held its annual Senior Dinner at the Ukrainian Cultural Center in Warren. This was a night where seniors were able to step back from all the stress of school to spend time with our family and friends, eat good food, and celebrate our successes. **Mary Whitney (Fraser)**, **Sarah Myers (SHHS)** and **Hannah Mico (Lakeshore)** were involved in planning and running the night with various activities from brainstorming decorations to creating PowerPoint presentations. In addition, Mary and **Martin Alyass (Cousino)** did a fantastic job as emcees for the evening!

The evening consisted of speeches from some of the school's dignitaries including Superintendent of Warren Consolidated Schools, **Dr. Robert Livernois**, and Director of Special Programs, **Dr. Catherine Neuhoff**. Another special speech was given by our retired IDS teacher, **Mrs. Carole Gerling**, who returned to send off her last graduating class from MMSTC... remember to put a bow on your box! The MMSTC staff announced the future plans for each of the students, as well as any scholarship awards they may have received. Awards received by this year's class totaled over \$ 5.5 million, a fact of which all the students were proud. Emotions ran high as the senior slideshow reminded all the graduates of the fun times they shared with the MMSTC family over the past four years. As the students move off to college to do bigger and better things, they will forever keep their roots at MMSTC in their hearts.



SSEP Update:

Finalists Chosen for Student Spaceflight Experiment Program

MMSTC students had a daunting yet exciting task this past winter. Teams of three were challenged to design an experiment to test the effect of a microgravity environment on a natural earthly phenomenon or a chemical reaction. The *really* exciting aspect of this task was that the teams competed to come up with the best idea so that their experiment would be the one chosen by the Review Board of NCESSSE (**National Center for Earth and Space Science Education**) to actually be tested in a real microgravity environment and that environment would be none other than on the International Space Station.

How hard could it be to come up with an idea to be tested in microgravity? That doesn't seem so tough, unless of course it has to be done in a tube about 6 inches long and the width of about a pencil. Oh yes, and it can't use any magnets or electricity, **or** get any sunlight, **or** use any biological substances that may die **or** contaminate other experiments **or** violate any of the many other restrictions given. So come on, think...not easy, is it?



Despite the difficulty of the challenge, our students came up with some brilliant ideas: from testing whether blood would coagulate differently in free fall or testing growth hormones on pig bone marrow to see if some of the bone deterioration that astronauts experience after being in space a while could be alleviated to the winning idea of growing crystals in a microgravity environment to see if they retain their size, shape and other properties. Under the direction of **Mrs. Cybulski**, juniors **Steven Prascius**, **Sydney**

Waynick (Mott) and **Hunter Montrose (LSHS)** tested their idea of "The Effect of Micro-Gravity on the Growth of Silver Crystals" because they learned that crystals, due to their open molecular structure, could be used to store fuel. They were proposing that if the crystals they grow in space still retain the size and shape, these crystals could be used as holding and storage to carry fuel to the ISS or other space craft or even planets.

The two other finalist topics were "The Effect of Micro-Gravity on the Germination of Rhizobium-Covered Lentil Seeds" and "Astronomical Arachnids". Sophomores, **Kathleen Hawkey (Mott)**, **Caroline Jankowski (LSHS)** and **Emily Liu (Clintondale)** wanted to know if rhizobium



leguminosarum – which is a type of bacteria that forms a symbiotic relationship with lentil plants and also fixes nitrogen in the air into ammonia which acts as a natural fertilizer – would speed up the germination process of lentils in a micro-gravity environment. **Matthew DeSantis (Cousino)**, **Austin Morales (LSHS)**, and **Zachary Youkhana (Mott)**, also sophomores, wondered

how a micro-gravity environment would affect the production / quality of silk produced by spiders and the effect on web formation. **Mr. Supal** guided the sophomore submissions while **Mrs. Cybulski**, **Mr. McMillan** and **Mrs. Tallman** assisted other grade levels.

SSEP Update Continued:

The “Effect of Micro-Gravity on the Growth of Silver Crystals” experiment will be shuttled to ISS in October of this fall on board the Space X-3. It will spend about six weeks aboard the International Space Station then make its way back to Earth via the Soyuz which will land in Kazakhstan then be shipped to the Johnson Space Center in Houston then finally home to the students at MMSTC where they can analyze and compare their results to those on Earth. To read more about any of the MMSTC finalist experiments or follow the take-off count down, visit <http://ssep.ncesse.org/communities/selected-experiments-on-ssep-mission-4-to-iss/>

Major Sponsor, The Chrysler Foundation, Presents Check

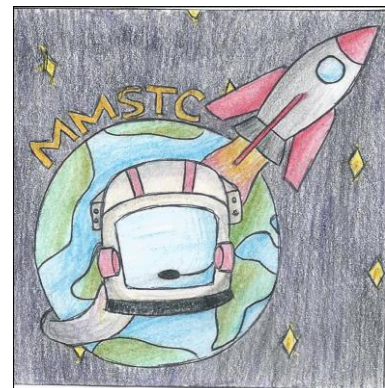
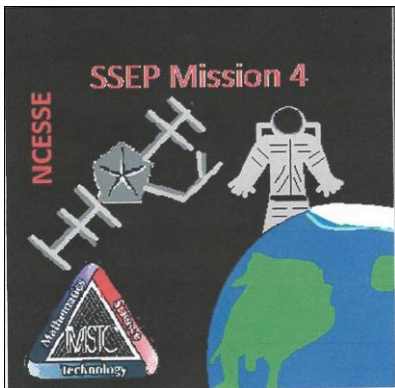
The SSEP opportunity was provided to our students by grants given to us from the Chrysler Foundation, DTE Energy Foundation, and Beaumont Health Systems. On March 25th, **Mr. Brian Glowiak**, Vice President of The Chrysler Foundation, presented a check for \$17,500 to an assembly of students, dignitaries and media at Butcher Educational Center. The event was reported on Fox 2 News and a highlight video of the presentation is available at <http://tinyurl.com/lwcmjj3>. MMSTC students **Sarah Myers (SHHS)** and **Hannah Mico (LSHS)** emceed the event along with contributions by **Krystal Krygowski (Cousino)**, **Max Livernois (Cousino)**, **Micah Turner (WWT)**, **Zach Youkhana (Mott)**, and **Elise Tomaszewski (LSHS)**. Pictured are some of the students along with **Mr. Brian Glowiak**, **Mr. Brian Walmsley** (Chief Academic Office – WCS) and Macomb County Executive **Mark Hackel**.

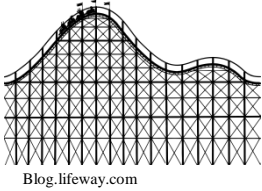


The SSEP (<http://ssep.ncesse.org>) is undertaken by the National Center for Earth and Space Science Education (NCESSE; <http://ncesse.org>) in partnership with Nanoracks, LLC. This on-orbit educational research opportunity is enabled through NanoRacks, LLC, which is working in partnership with NASA under a Space Act Agreement as part of the utilization of the International Space Station as a National Laboratory.

MISSION PATCH CONTEST WINNERS

The MMSTC review committee chose the mission patch winners from all our submissions. The patch that will fly to the ISS is the one of the left by **Cooper Homic (Cousino)**. Runners up are **Jackie Orjada (SHHS)** and **Megan Richards (Cousino)**, middle and right respectfully. Congratulations!





The Physics of Roller Coasters

Thursday May 16, the Juniors and some Seniors of MMSTC attended the annual fieldtrip to **Cedar Point Amusement Park** in Sandusky, Ohio accompanied by **Mrs. Cybulski**, **Mr. McMillan** and **Mrs. Stadler**. The students, once again, learned the importance sunscreen as the skies clear and sunny all day. Fortunately, the crowds were small and lines were short all day.

While at the park, Physics students were required to collect data, make observations and calculations. They calculated the **acceleration** of the Millennium Force first drop, the amount of **G-Forces** on the Top Thrill Dragster, rate of **work** done on the Power Tower and observed the changes in the **normal force** on the Corkscrew. What was not calculated was the gain in chemical potential energy due to calorie intake via Chick-Fil-A and Elephant Ears.

The projects, which were counted as a Physics test, were turned in around 2:00 p.m. so the students had the rest of the day to enjoy the park as seen in the Magnum roller coaster picture. **Brandon Beltz** is Captain America, **Noah Conner** is Buzz Lightyear, **Ryan Hallock** is Batman – all juniors from **Cousino** – and **David Pokriefka (WWT)** is Boba Fett.



MMSTC Students Raise \$ 1,340 for March of Dimes



Travis Conte (Cousino), Storm Trooper,
Sarah Myers (SHHS), Lando Calrissian,
Chewbacca, Rebel Pilot, **Gretchen Grade (SHHS)** March for Babies at Lake St. Clair

A big thank you to all the students who carried donations jars and sold (or purchased) pizza to support our cause. A special thank you to **Sarah Meyers (SHHS)** for helping coordinate the MMSTC Students and to **Madison Kirby (Lakeview)** for coordinating an event at her home school which raised over \$200.00!

Mrs. Hilliard's son Max was born at 28 weeks weighing 2 lbs. She was very touched by the outpouring of support for this very worthy cause. "MMSTC has not only, some of the smartest, but the most caring kids around. It gives me great hope to watch these kids do such amazing things every day!"

MMSTC Trigstar Winner!

This year's Trigstar Contest was a tough one! **Andrew Neidbala (SHHS)** scored 76 points in 35:13, with **Matt Wilson (Cousino)** and **Joey Maleszyk (SHHS)** close behind with times of 35:54 and 36:38 respectively. Sophomores used the trigonometry skills to solve real-life application problems common in the surveying field in this competition sponsored by the Michigan Society of Professional Surveyors and our local sponsor **Mr. Craig Amey** of Anderson, Eckstein & Westrick, Inc. thru **Mrs. Kincaid Dewey's** FST class. Eight students matched the state top score of 76 points, but our times were a little too long for the top awards.

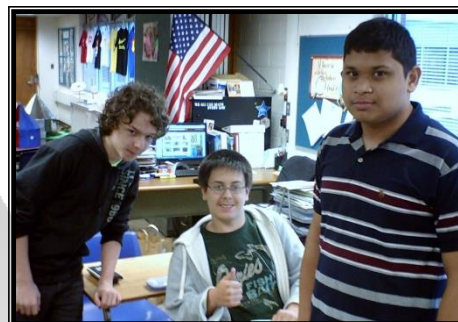




Freshmen Place Second in Michigan!

To answer the nation's need for increased literacy in Science, Technology, Engineering and Mathematics (STEM), the U.S. Army offered a contest during the 2012-13 school year called eCybermission which encouraged students to participate in research. The entire ninth grade class at MMSTC teamed up in groups of three participated in the contest by completing a research project aimed at solving real problems in their community under the direction of **Mrs. Cybulski** and **Mr. Supal**.

Teams were required to select from topics such as alternative energy, health, and national security just to name a few. The ninth grade teams competed against other teams from around the country to win prizes. In April of 2013 an MMSTC team was selected as the second place winner from the State of Michigan and each member of the team received \$500. **Philip Gutzman (Cousino)**, **Mohanned Saquib (Fitzgerald)** and **Brendan Maletski (South Lake)** were the winning team. They designed and studied a lawn water irrigation system that re-uses water known as grey water. Grey water is household wash water which can come from sinks, showers, or the laundry. The researchers pointed out that it was an important study since the U.S. uses 26 billion gallons of water a day, which is 80-100 gallons per citizen.



SOPHOMORES EXPLORE CAREER OPTIONS AT LAWRENCE TECH

KathyJo Buiteweg (Cousino)

The sophomore class attended Lawrence Tech Exploration Day this spring. Students gathered to enjoy refreshments and hear an inspirational speech by the president of Lawrence Tech University. Afterward, the students went to three career sessions they had previously signed up to attend. Students then enjoyed lunch and returned to school accompanied by **Mrs. Hilliard** and **Mr. Supal**.

This orientation offered a unique experience and a taste of the college life. Students were expected to find their way to classes and expected to show up on time. "I liked having the responsibility and the trust to walk around and find our classes. It made me that much more excited for college. But you know, I can wait a little bit more for that to come," says **Alex Costanzo (LSHS)**.

Many classes were offered during this trip. Some took the forensics unit, psychology, architecture, and so many more. The favorite of most students was either public communication or biology. The students in public communication created a fictional news story that was conducted in the actual new cast and media room. "Ours had to do with Unicorns taking over I-75 because they were denied their supply of French fries," says **Luke Emery (Cousino)**. In the biology unit the class got to 'play' or 'explore' the way termites follow indentations in wood. They did this by using a pen and piece of paper. **Matt DeSantis (Cousino)** said, "I found it really interesting how the termites would follow where the pen mark was or where an indentation was put." Over all, the trip to Lawrence Tech was a success and brought the sophomore class of MMSTC closer together and created many memories.

COUNSELOR'S CORNER – Mrs. Pat Bonnici

It's Never Too Early to Start Thinking about a Career

“I’m only in high school, why do I need to start thinking about a career?” is a common reaction when students are asked to complete a career interest inventory or do research on a specific career. The answer is simple; it is never too early to start thinking about your interests, aptitude, favorite subjects, and hobbies as possible gateways to finding the perfect career.

Most elementary students, when asked about their future careers, will tell you that they aspire to be a nurse, firefighter, teacher, police officer, and other careers that they observe in their daily lives. Few, if any, will tell you that they would like to be an engineer, geologist, physicist, or genetic counselor because their experience with these and other specialized careers is fairly limited. The decisions both large and small that lead to your ultimate career choice are ever-evolving and the high school years are a perfect time to begin exploring possible careers that would be a good fit. So where do you begin?

One of the easiest ways to obtain information about a specific career is to talk to someone in this profession. Ask questions related to the best aspects of this career, the least desirable aspects, and how they made the decision to pursue this career path. What advice would they give someone who was considering this career in the future?

Many high schools use a career resource program such as “Career Cruising” to assist students in assessing their abilities, identifying their interests, and providing information about specific careers such as educational requirements, salary ranges, a detailed job description, and the future outlook for this position. An added feature to Career Cruising is that it will provide a list of colleges and universities that offer this major with a direct internet link to each school’s website where information on admission requirements and programs is available. Career Cruising is internet based and once a student has a username and password, information can be accessed from anywhere, not just in school.

The Occupational Outlook Handbook is published by the US Bureau of Labor and provides information on thousands of careers and the necessary resources to help students and parents gain insight on various careers regarding salary, education, outlook for employment, and detailed job descriptions. It is a free service available online at: www.bls.gov/ooh. The handbook is updated frequently and information is current and relevant.

Summer jobs, volunteer opportunities, and internships are all valuable in helping students identify skills needed for specific jobs and to determine if qualities such as personality, teamwork skills, interests, and aptitude are a good fit. So much of knowing what **is** desired in a career can be determined by knowing what **is not** desired in a career. To be sure, no career is perfect and all have positive and negative aspects, however, if there are five positive aspects of a career to every one negative, the career could likely be a good fit.

It has been said “if you find a career that you love, you will never work another day in your life.” When you consider that the average work week of 40 hours per week equates to 2,080 hours per year, it is a significant part of your life and well worth the time to begin the search for that ideal career while you are still in high school.



MMSTC Dominates at South East Metro Detroit Science and Engineering Fair

The Science and Engineering Fair of Metropolitan Detroit, established in September 1956, is a nonprofit organization established to give students in the tri-county area (Wayne, Oakland, Macomb Counties) an opportunity to develop and exhibit science fair projects. This year MMSTC sent a record number of teams (10) to compete in this prestigious two day event held at Cobo Hall. Winners are selected after two rounds of judging. Judging is performed by hundreds of Detroit Area science, mathematics, and engineering professionals who donate their time to this event. In the preliminary round of judging, students are visited by the same group of judges who select a percentage of those categories best projects to move on to the final round. This year half of our teams were asked to stay to compete in the final round. The final round of judging consists of one-on-one interviews with at least *nine* separate judges.

Awards are given out by category (Biology, Chemistry, Physics, etc.) with one Grand Award Winner for the team category. In each category there is a first, second and third place winner and the remainder of the entries are classified as blue, green, or red ribbons. The Grand Award (ISEF qualifiers) are the top 5 individual projects from the entire fair and the top team score from the entire fair (for a total of 6 ISEF winners). Sadly this year we did not have a Grand Award Winner. That award went to two gentlemen who entered a mathematics project that won a Siemens Award last year (no small feat!).

MMSTC students placed in two of the three categories entered. Many teams earned numerous professional awards including journal subscriptions, scholarships, and monetary awards.

MMSTC 2013 SFMD Entries				
Student	Partner	Category	Award	Teacher
Mohammed Islam	Emily Caretti	BIO	Blue/Outstanding	Estapa
Alex Gielegem	Travis Conte	BIO	Blue/Outstanding	Estapa
David Stroshein	Lucas Hicks	CHEM	First Place	Hilliard
Mary Whitney	Marla Nazee	CHEM	Second Place	Hilliard
Micah Turner	Jake Hackmer	CHEM	Third Place	Hilliard
Brent Zablocki	Shane Schulte	PHY	First Place	McMillian
Kevin Dewandler	Mark Trombly	PHY	Blue/Outstanding	McMillian
Max Livernois	Austin Serriaco	PHY	Third Place	McMillian
Josh Denzler	Alex Mardlin	PHY	Blue/Outstanding	McMillian
Jamon Ford	Lawrence Jhons	PHY	Blue/Outstanding	McMillian



MMSTC Seniors Attend Wayne State University

AP Curriculum Enrichment Day

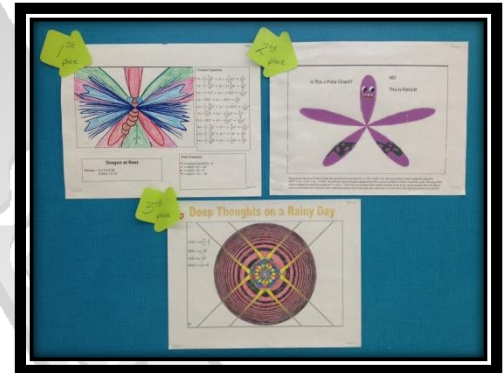
Nick Higgins (Cousino)

On April 23rd, the seniors were given the opportunity to take part in AP Day at Wayne State University hosted by the College of Liberal Arts and Sciences and attend by more than 1,500 area high school students. The day consisted of high school students sitting in one classroom, watching a series of three college-level math lectures. I found the lectures interesting because the professors were using college-level thinking and techniques to prove concepts that we just accepted to be true in high school. For example, we derived the famous Euler's identity and talked about the importance of Mobius strips. After attending AP day, I feel more prepared for college math courses because I know what to expect: countless pages of notes, little time for questions, and a wide variety of topics. I also learned to make sure I get a good seat in class; otherwise I might not be able to see all of the teacher's notes! Overall, I am very excited to attend college classes this fall after this mathematical adventure. Thanks to the WSU faculty members who volunteered their time for this event.

Polar Project: People's Choice Awards

As part of their unit assessment project on polar graphs in Mrs. Kincaid Dewey's FST class, students created a "masterpiece" using their new-found skills. Students through Butcher had the opportunity to vote on the masterpiece they liked best. It was a close call but here are the finalists:

- 1st – Kelly Rayner (LSHS)
- 2nd – Jeremy Bojowski (LSHS)
- 3rd – Danny Havern (Mott)



Seniors Crunch Numbers at Comerica Park?

Seniors Enjoy Tiger Game!

In what is becoming a yearly tradition, seniors enjoyed an afternoon of fun and camaraderie before the intensity of AP exams and other senior activities began by attending the Tigers vs. Twins game on May 1st with Mr. Acre and Mrs. Hilliard. Unfortunately, the Tigers lost, but the seniors won as a good time was had by all!



Collage by Patty Rempala (LSHS)



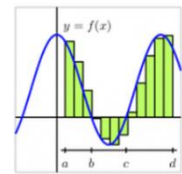
Students Attend Cyber Security Conference

On April 12, 2013, **Mrs. Bonnici** and twenty-seven MMSTC freshmen, sophomores, and juniors attended the “Digital Divas” Conference at Eastern Michigan University. The conference, sponsored by the Information Assurance Department at EMU, focused on the many available careers in IT, Information Assurance, and Cyber Security. Currently, only 12% of professionals in these professions are comprised of women. Over 300 students from area high schools attended the conference to explore specific topics of cyber-security and information assurance to encourage young women to consider careers in this ever-changing, fast growing career.

The workshop included speakers from national and local cyber security organizations and companies. Breakout sessions centered on the topics of cyber bullying, sexting and stalking, building a computer, programming an android phone, and creating jewelry from computer parts. The young ladies who attended gained not only new knowledge but an enthusiasm and awareness of these fields of study. “The conference was a really good experience! There was a lot of information and facts given about how women play a role in the world of technology! I didn't know that there were so many jobs that women actually had a little bit of an advantage to be hired over men!” remarked junior **Rachel Kloski (Fraser)**.

CALCULUS ORAL EXAMS

Emily Upton (Cousino)



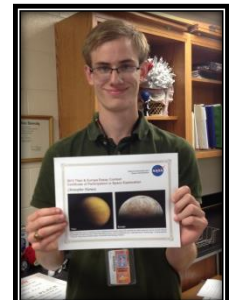
When the four calculus papers and their corresponding presentation were first mentioned in class, I was definitely overwhelmed. I was exhausted from senior research, the science fair, and the college application process and wondered how I would be able to write these papers! However, every two weeks as the due date drew near, I looked over my notes and slowly began to understand each topic. Because I had not looked at the assigned topic for months, I could approach it with a fresh mind. This gave me a chance to recall different pieces of information and determine how they fit together.

The oral presentations played a key role in preparing for the AP Calculus exam. It is one thing to understand a topic for yourself; it is another to explain the topic in your own words and solve a related problem; but it is an *entirely* different level of understanding when you can teach the process to another person who is an expert in their field as well as answer his/her questions! Each individual senior sat for two judges in the oral exam. **Mrs. Tallman** and **Mr. Acre** invited educational professionals as well as engineers and other STEM professionals to serve as judges. We are grateful to all for volunteering their time and wish to especially thank MMSTC alumni and former MMSTC staff.

Though I was often stressed and challenged during the months prior to the AP Calculus exam, this process's thorough examination of these topics guaranteed my calculus knowledge both for the AP Calculus exam and for college.



Christopher Harness (SHHS) took advantage of the opportunity to enter NASA's 2013 Titan & Europa Essay Contest and received a Certificate of Participation in Space Exploration. Chris had to write an essay explaining why he would recommend that NASA's next space mission would be to either Saturn's moon Titan or Jupiter's moon Europa.



MMSTC's Ecology Club – A Busy Spring!

Nick Higgins (Cousino)



This year Mrs. Kincaid Dewey sponsored two teams for the Michigan Envirothon state competition: the Green Turtles and the Biodegradable Hamsters. The returning Green Turtles consisted of Noah Conner, Erin Drylie, Nick Higgins, and Dylan Twardy (Cousino), and Liz Diviney (Mott) while the new team, the Biodegradable Hamsters, was made up of Maria Gallo, Ann Krause, Kalie Tomlinson (SHHS), Kelsey Giffin, Emily Vo (Mott) and Trevor Polisuk-Balfour (Cousino).

The teams took a particular interest in the importance of bats in their surroundings. To learn more about how bats benefit the environment, both teams visited the Cranbrook Institute of Science's Bat Zone. The Bat Zone offered the students the opportunity to come face to face with live bats, while providing insight into the bat's behavior trends and habitats.



After Cranbrook, the teams were excited about helping the bats in our area. To do so, the two teams decided to construct bat houses from raw materials given to the team by generous donors. With help from Mr. Ron Dewey, the teams spent many hours after school assembling and decorating the bat houses.

Then, they created presentations from the information gathered at Cranbrook and at home. The Biodegradable Hamsters presented their findings about bats to Beer Middle School's ecology club, along with a sixth grade science class, while the Green Turtles informed Flynn Middle School's eighth grade science class and Carter Middle School's ecology club.

Following their success at the regional competition, the two teams visited Michigan State University and participated in the statewide Envirothon Competition, along with 22 other teams. The judges were highly impressed with the team's outreach projects because of the positive feedback they received from the middle school students.



To finish up the year, the teams worked together to clean up Butcher's courtyards by pulling weeds, spreading mulch, and planting flowers. Overall, this past year has been a definite success for the Envirothon teams! "We couldn't have done it without great support we had from parents! I will miss our graduating seniors, but look forward to continuing our activities with the returning underclassmen as well as recruiting new members," said Mrs. Kincaid Dewey.

Freshmen Tower Projects

Jessa Sassin (WWT) Bailey Abney (Fraser)



Winston Balmaceda (Fitz)



Stephen Kane (Cousino)



MMSTC Alumni Contributions / Updates

MMSTC Newsletters are electronically distributed to Alumni.

The editor is always looking for alumni updates or articles from alumni about topics for current students.

MMSTC and Medicine – It Can Be Done!

Carmen Wah Liang, DO, MPH (MMSTC 1994)

There is no doubt that my family and friends were concerned when, after living in Michigan for the first 21 years of my life, I was accepted into a California medical school that was only a year old. I wasn't scared, though. I was excited about starting a new life at an institution that relied on student feedback and contributions during its formative years. As a member of the second MMSTC graduating class, I was accustomed to new programs, hard work, and change. These experiences shaped my attitude and confidence, which have led me to where I am today.

I began truly appreciating MMSTC after graduating high school. My goal was to become a physician. I attended the University of Michigan, which has a strong and competitive pre-medicine program. The university did not allow students to declare pre-medicine as a major, so I had to take "weeder" science classes for most of my elective coursework. Surprisingly, my workload was about the same as my high school homework load. I was involved in several extracurricular activities (student association member and officer, acting troupe writer and performer, elementary school tutor, research assistant, etc.) and held part-time jobs. With all of my time commitments, I never had to rely on coffee or energy drinks to buy more study time. Except for my last senior year research paper, I never had to pull an all-nighter. Overall, my transitions from high school to college to medical school were almost seamless because I knew how to study with a heavy workload and prioritize my time.

Because of my MMSTC computer courses, I was well prepared to work with technology. The introduction of e-mail and Internet during my freshman year was not daunting but rather exciting and fascinating. During medical school, I was constantly introduced to different electronic health record (EHR) systems at each hospital and clinic. I had to quickly learn how to navigate each system and document, organize, and store patient health information. At my first physician job, I was asked to help implement an EHR into the organization, which was relying completely on paper for its medical records. When I decided to obtain my Master's Degree in Public Health, I chose an online program designed specifically for full-time working health care professionals, and I was able to complete coursework and participate in discussion boards without having to step onto campus. In my current medical director position, I am working with several technology systems to improve methods for utilizing patient health information. It has been both challenging and exciting to integrate health care and technology.

Looking back, MMSTC gave me more than just a solid education. It gave me the necessary tools to reach my professional goals. My teachers encouraged and inspired me to work hard and enjoy learning. MMSTC taught me how to manage and balance a heavy workload early in my academic career, and this prepared me for the challenges I faced in college, medical school, residency, graduate school, and life. Early exposure to technology made it easy for me to adapt to our rapidly changing health care industry. The MMSTC provided invaluable support for me to reach my potential as a physician in today's world.



When Considering What College or University to Attend --- Courtney Love (MMSTC 2009)

I graduated from Wayne State this May, with a BS in Chemistry and a minor in Spanish. I have a summer internship at DTE working in an inorganic lab, then I'll be heading to the DC area to attend the University of Maryland in August for their Chemistry PhD program, which is tuition compensated with a stipend.



I'm very grateful for the opportunities presented to me here at WSU, which would not have been possible without the scholarship I received for the past four years. Going to MMSTC helped me obtain that scholarship, which has set me up to graduate debt-free from undergrad to pursue my further dreams of working in science as a career. I was one of the first to discredit what WSU had to offer, but now I'm one of the first to encourage high school seniors to put in a little effort and see what opportunities could unfold while here. I've been able to have an on campus Resident Advisor position for the past three years, participate in undergraduate research, obtain a high-quality education in a natural science, be elected 2012 Homecoming Queen, perform with the WSU Marching Band, and be an advocate for my university. I do not believe these things would have been possible had I gone to a larger institution, and I'm proud to say that I was prepared for my journey at WSU through MMSTC, and now I'm prepared to go on to other things after attending WSU. Feel free to contact me through the MMSTC alumni page for 2009!

Chemistry Degree Leads to Sales/Marketing Manager Position

Joanna Slisinger (MMSTC 2008)

I graduated from Adrian College in the spring of 2012 where I played volleyball all 4 years and earned a Bachelor of Science degree in Chemistry. I won the Outstanding Senior Award from the Chemistry Department. I was offered a position at Wacker Chemical Corporation my last few weeks at Adrian and accepted.

I started June 1st, 2012 and my official title is Commercial Program Analyst. I am in a unique position at Wacker. They just begun a program called the Commercial Rotation Program. This is a 24 month program where we rotate between different divisions within Wacker in different marketing and sales functions. The divisions include silicones, polymers, bio-solutions, and more. My rotations are located in Adrian, MI, North Canton, OH, and Allentown PA. My last 3 rotations include construction chemicals, construction building, and rubber solutions. After the program, we are eligible to pass the entry level positions and find a permanent sales or marketing manager position. By rotating us to all of the divisions we are able to see all aspects of the company and have some experience before we take on a permanent role. This is both a benefit to the company, to have well rounded employees, and to the employee, to enhance our resume and give us a ton of experience! I am looking forward to the company sending me to Germany for training at our global headquarters sometime this year. I am really excited for what my future at Wacker has in store for me.

THANK YOU MMSTC Alumni for Giving Back to MMSTC!

Several MMSTC alumni volunteered their time this spring for the Calculus Oral Exams and the Senior Exit Interviews or gave a monetary donation to our program. The administration, staff and students of MMSTC appreciate your time, efforts, expertise and generosity.

Mr. Alex Franz, Finance Analyst Ford Motor Company, MMSTC Class of 2007

Ms. Brittany Johns, Graduate Student UIC College of Pharmacy, MMSTC Class of 2007

Mr. Brandon Long, Product Application Consultant, WorkForce Software, Livonia, MI., MMSTC Class of 2006

Mr. Nghiem Nguyen, Mathematics Teacher Everest Collegiate High School, MMSTC Class of 2001

Ms. Chelsea Parman, Physician's Assistant Troy Beaumont, MMSTC Class of 2007

Ms. Lauren Sackey, Asst. Director of Annual Giving, University of Michigan, MMSTC Class of 2005

Ms. Jessica Schoenherr, Hewlett Packard Project Lead, MMSTC Class of 2005

Mr. Aaron Setlak, Athletic Director Cousino High School, MMSTC Class of 1994

Mr. Andrei Taut, Dental Student - University of Michigan School of Dentistry, MMSTC Class of 2006

Mr. Matt Westermann, MMSTC Class of 2007

MMSTC Skills Put to Good Use for Cancer Research

Tammy Hsia (MMSTC 2010)

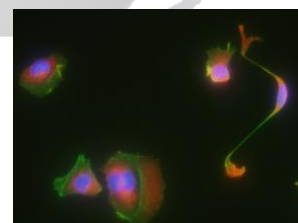
This summer, I am a part of the Cancer Summer Research Internship Program (CarSIP) at the University of Michigan. It's a marvelous opportunity for fledgling researchers who are interested in cancer research! (http://www.cancer.med.umich.edu/professionals/summer_internship.shtml)

I am researching neurofibromatosis, an autosomal dominant cancer type that is actually the most common neural cancer. I had never heard of it before this project, but the phenotype and genotype of this one type of cancer is extensive! There are so many manifestations of the cancer (whether it's these strange, disfiguring bumps on the skin, GIANT benign tumors, mental retardation, etc). I'd suggest googling "neurofibromatosis," but the results can get pretty graphic. This is because the gene which is affected is incredibly large. Conditions get exacerbated in periods of hormone influx, such as puberty and pregnancy.

My role in this research (which will hopefully become submitted for publication by the end of the summer) is to understand the "mechanism" of this cancer. We're not sure what pathway the cancer takes. The drug that we are using is an analog (something that is similar in structure to a chemical/hormone naturally created in the human body and because it is similar in structure, the analog can go to places that the natural chemical/hormone goes to) of a natural anti-oncogene that has natural anti-cancer property. We're using this drug analog because it doesn't get digested as easily when orally taken.

With different kinds of cancer cells both benign and malignant, we are examining the cascade pathway of the cells as well as what happens to the cell on a structural level. Once adding the drug, does it undergo apoptosis? What do the actin and tubulin fibers do?

Here is an image of one of our cells I helped create with fluorescent imaging. The blue are the nuclei, the red are actin fibers, and the green are tubulin. The fibers are very visible in this image.



I've only been in this program a short time but I absolutely LOVE the lab, the incredible mentorship and faculty, and our weekly luncheons. The lab has state-of-the-art equipment and we are encouraged to ask questions and explore. This program accepted 8 out of 324 applicants this year. Applicants don't need to be University of Michigan students (I myself am an English major and a Wayne State Warrior). I hope to see MMSTC students here.

SOPHOMORE RESEARCH: CHEMISTRY

Alex Costanzo (LSHS)

Sophomore Research is finally over for the class of 2015! There was sweat and tears put into the writing of the 50 page papers and the 10 minute presentations by all students. Throughout the project many things learned – like don't procrastinate! Students in the picture are dressed in their 'Butcher presentation clothes'! The purpose of this year's research was to use the chemistry topics of specific heat and linear thermal expansion to find if an unknown metal would match the known metal already identified by the student researchers. We analyzed our data with a statistics test taught to the students in first semester.



Research is a very big part of the "Butcher Life". It takes up most of the final semester and can be stressful. When it was over, my partner and I saw what we had accomplished and felt pretty great about it. "I'm glad it's over!" says **KathyJo Buiteweg (Cousino)** and many others as well. **Christina Wark (LSHS)** says "Research, while it is very detailed, lengthy, and exhausting, is an amazing experience. It forces us to use and gain many skills that we can all take with us in to post high school opportunities."

Starry Starry Night



The south campus of Macomb Community College recently had a program called Summer Skies. There were many events revolving around the study of astronomy (my choice of study) and star gazing. The prestigious astronaut, **Mr. Andrew J. Feustel**, who is from Michigan, came to give a presentation about his two journeys into space. He mesmerized his audience with the story of his journeys.

Mr. Feustel was a part of the last shuttle crew and fixed the Hubble telescope in 2009. His next journey was in 2011 to the International Space Station (ISS). After presenting a video of that mission, he answered a few questions on many different topics – from how much he has trained for each mission to whether or not he found any extraterrestrial life! Meeting an astronaut was amazing and inspiring. A man from Michigan who is not too different from any of us here at MMSTC has become an astronaut! His initial career choice was automotive designer. He is proof that anyone can reach the stars. Reach for your goals and one day you will achieve them! Also seen at Summer Skies were MMSTC students **Dylan Twardy, Julius Cesar Estrope and Megan Richards (Cousino)**.

Lawrence Jhons (WWT)

Blast Off!

On May 11th, **Emma Burgin, Andrew Oughton, and Michael Prascius (Mott)**, took part in the Team America Rocketry Challenge national finals in The Plains, Virginia, just outside of Washington, D.C. Prior to the competition, the team, led by **Mr. Supal**, built two rockets similar to the ones made in the small-scale rocket project the class of 2014 did first semester. Over 700 teams nationwide participated in the event, and 480 teams sent in their qualifying scores to the national board. Only 100 moved onto the next level: national finals. Team MMSTC made it there.



The goal of the competition was to build a rocket that would launch no more than 750 feet into the air and reach the ground 48-52 seconds after takeoff. Team MMSTC's rocket was launched 782 feet in the air but made perfect time, so they earned a score (penalty) of only 32. This score put the team just outside of the Top 24 score range. However, the team placed 33rd in the nation overall, still a fantastic accomplishment for a new team! The team plans to partake in this event next year and would also like to increase participation, so if you are interested, please let us know.

Senior Exit Interviews

Just when they thought their senior year was wrapping up and slowing down, the Class of 2013 prepared for another challenge – the Exit Interview!

Students had selected exemplary pieces of work and evidence of outstanding academic records, scholastic and athletic achievements, and extracurricular activities throughout their four years of high school. They reflected on their past and their future and wrote three essays describing their academic achievements, skills, and personal and social growth. They made a personal webpage which included all of those things as well. Finally, they presented their portfolio to a panel of judges.

The judges required students to dress professionally and present themselves in a manner that shows they are ready for the adult world. Then they asked questions of the students such as

“Looking back on high school, of what things are you most proud?”

“What have you learned through research, collaboration, and teamwork?”

“What are your future goals?”

“How have you prepared for college and career?”

Judges included leaders from Warren Consolidated Schools, business professionals from various industries, educators, and MMSTC alumni. It was an intense process, but the seniors rose to the challenge and demonstrated that they are, in fact, ready for the next chapter of their lives.

From the Director:

Dr. Catherine Neuhoff



Greetings readers! As you can see by our newsletter, MMSTC had a fabulous year filled with exciting challenges and fun activities that certainly strengthened our family. This summer promises great changes for Butcher. These include new ceilings and floors, fresh paint, updated PA system, and wiring to bring in updated technology. While exciting, this remodeling will limit staff access to the building until nearly the start of school in the fall.

In addition to our structural changes Warren Consolidated Schools is proud to announce the opening of the Middle School Math Science Technology Center (MS)²TC. Incoming sixth graders, 167 total, completed student and parent applications, teacher recommendations from all of their fifth grade teachers, and took the IOWA and the COGAT tests to determine their eligibility. While modeling several aspects of the high school program, the primary emphasis for the (MS)²TC includes opportunities for students to participate in an integrated curriculum featuring math, science, and English language arts that is project-based. The teaching staff, selected from many fine teachers within WCS will be charged with creating the family atmosphere and solid relationships between students, between students and staff, and students and their advanced and enhanced curricular experiences. Participation in the middle school program is not a gateway into the high school as both programs serve distinctly different ends.

Having said all of this, we look forward to seeing everyone in the fall and wish you a very happy, fun, adventurous, safe summer!

Senior Dinner

Collage by Patty Rempala (LSHS)



MACOMB MATHEMATICS SCIENCE TECHNOLOGY CENTER

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MMSTC MISSION STATEMENT
 The mission of the Macomb Mathematics Science Technology Center, in partnership with families and community, is to create the best innovative environment which fosters excellence and vision in teaching, learning, and discovering the relationships of mathematics, science, technology, and society.

WARREN CONSOLIDATED SCHOOLS

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Student Achievement

A focus on measurable student achievement in our Professional Learning Communities.

Clear Expectations

Clear expectations for every stakeholder, including students, staff and parents.

Strong Relationships

Strong relationships among all stakeholders, including: teacher-student, parent-teacher, principal-teacher, and superintendent-board member.

2012-2013 Board of Education

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In compliance with Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, the Americans with Disability Act of 1990, and the Elliott-Larsen Civil Rights Act of 1977, it is the policy of the Warren Consolidated Schools that no person shall, on the basis of race, color, religion, national origin or ancestry, gender, age, disability, age, height, weight, or marital status be excluded from participation in, be denied the benefits of, or be subjected to, discrimination during any program, activity, service or in employment. Inquiries should be addressed to the Chief Human Resource Officer, 31300 Anita, Warren, Michigan 48093, (586) 825-2400, ext 63110.

Dr. Robert D. Livernois, Superintendent