



Congratulations to the Class of 2014



SENIOR DINNER – A NIGHT TO REMEMBER!

Brandon Beltz (CHS)

The MMSTC Class of 2014 Senior Dinner was definitely a night to remember. What an amazing night to celebrate all that our class has been able to accomplish in our four years here at MMSTC! That night was the culmination of the hard work, determination, and success that the senior class has had. My favorite moment of the night was when each student's accolades were announced by the teachers, and we were all able to hear what college they were going to and the scholarships they had received. Special thanks also go out to the MMSTC Senior Council, **Mr. Acre** and MMSTC staff members for helping to organize and decorate the event, **Kristen Lidwell (SHHS)** and **Jessa Webber (CHS)** for creating the seating assignment, **Ashley Meerschaert (CHS)** and **Abby Bault (Centerline)** for creating the senior slide show, the MMSTC staff for their continuous support and encouragement, and the parents for shaping us into the people we are today. For pictures from the senior dinner, see back page of the newsletter.

Congratulations, seniors! We made it!

From the Director:

Greetings to all of our students, their parents, and our Alumni! The long, frigid, polar vortex- induced winter has passed giving way to spring and the close of another wonderful school year here at MMSTC. Readers will find another action packed term represented in social and academic events taking place since our Winter issue.

Each year our MMSTC teaching staff pulls together wonderful events that leave lasting memories for our students. This year has been no exception. I hope our readers will enjoy the retelling of traditional events like the Annual Talent Show, Detroit Science and Engineering Fair, the junior trip to Cedar Point, and Senior Dinner, as well as exciting new opportunities for our students that included participating in the First Annual Alumni Career Fair, construction of the Solar/Electric Car, the fieldtrip to Cranbrook, and the AP Physics Balloon Launch. Each event brings our students and staff closer together connecting all of us for a life time.

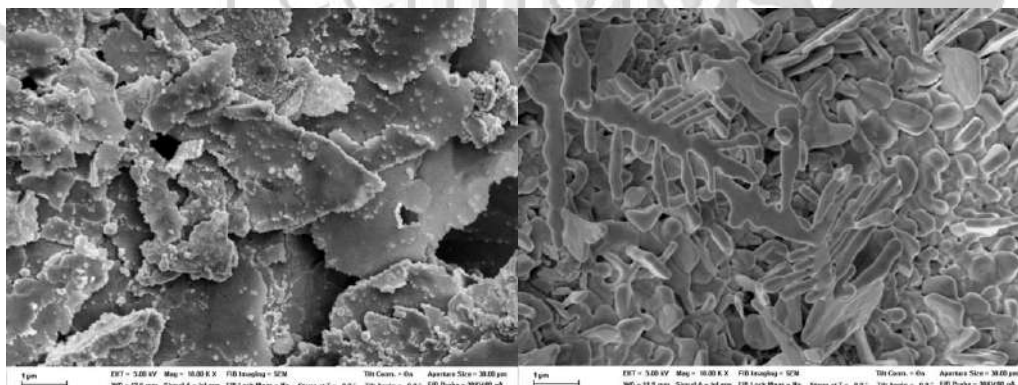
As summer quickly approaches and we prepare for the school year ahead, on behalf of our staff at MMSTC, I wish everyone a restful, eventful, adventuresome summer!

Dr. Catherine Neuhoﬀ



Experimental Results!

What happens to the formation of crystals in an environment with both increased radiation and microgravity? This was the question posed by graduates **Hunter Montrose (LSHS)**, **Steven Prascius** and **Sydney Waynick (WMHS)** during their junior year here at MMSTC. The question was relevant since the right shape of crystals can be used for gas fuel storage for future space missions. Unfortunately the space grown crystals have undesirable features which make them unsuitable for gas storage. After many months of rocket launch delays and over six week of experimentation in space onboard the International Space Station, the MMSTC research experiment finally returned from space in January of 2014. The team analyzed the crystal samples and determined that space crystals are flat and flake like in nature whereas the earth grown crystals are more rounded and have the cubic faces and branching structure that is common in crystal growth. Shown below is comparison of crystals magnified at ten thousand times. On the left are the space grown crystals and on the right are the earth grown crystals. Perhaps students will have a chance to further understand why these differences occur in future Student Spaceflight Experiments Programs (SSEP).





AT THE ZOO...

Amanda Conlon & Paige Redlin (LSHS)

On Thursday, May 15th, the freshmen class of MMSTC took a field trip to the Detroit Zoo. This annual field trip is always something that students look forward to. In the morning before departure, some of the students were asked what they most looked forward to doing or seeing at

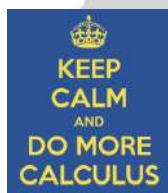
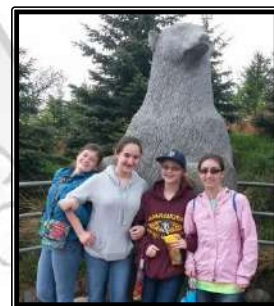
the zoo. **Charles Debczak (Centerline)** shared, "Large cats like lions and tigers" were what he was most looking forward to see. Other ninth grade students like **Logan Mardlin (LSHS)** and **Joe Lifshay (CHS)** were looking forward to the butterfly house. Giraffes also seemed to be a big hit among the girls of the ninth grade, like **Sara Nevedal (LSHS)** who shared she was hopeful she'd get the chance to feed one by hand.



Photo by Jaclyn Tockstein (WMHS)

In less-than-ideal weather conditions, classes boarded onto busses and departed from MMSTC. Despite the fact that twenty minutes after arriving at the Detroit Zoo every student was soaked, everyone was still anxious to see the animals and make the best of the day. I think it's a specific MMSTC quality that was shown during the field trip – being able to take what you're given and immediately make the best of it. During the few hours at the zoo, the MMSTC students were seen enjoying all of the exhibits and the very popular 4D movie experiences. There was never a dull moment.

Fortunately, it seemed because of the light rain, many of the animals were out and active and even after the rain slowed it was easy to spot a lot of the wildlife. "I have never seen the gorillas so close and active before. It was awesome!" said **Mrs. Gravel**. Even GAT teacher **Scot Acre** was seen enjoying seeing the animals and enjoying a day of outside of school bonding with students. After the day was over, many MMSTC students had formed a greater bond with each other between the morning and afternoon classes and as a result became a stronger, more unified class.



AP Calculus Oral Exams

AP Calculus students had a wonderful opportunity to demonstrate their knowledge of calculus in the annual AP Calculus Oral Exams on Tuesday, April 22. Students had previously written four essays on topics in calculus. Then they answered questions and solved problems related to one of those essays in front of a panel of judges. Judges were calculus experts from a variety of fields – WSU math professor **Dr. Frohardt**, retired and current mathematics teachers, actuaries, and retired engineers. Seven MMSTC alumni were judges as well:

Matt Affeldt, Class of 2009

Ryan Kaput, Class of 2008

Lauren (Sackey) Paton, Class of 2005

Mary Whitney, Class of 2013

Richard Ireland, Class of 2006

Nghiem Nguyen, Class of 2001

Aaron Setlak, Class of 1994

The event is a great opportunity for students to review calculus topics in preparation for the exam, by verbalizing their thought processes and communicating mathematics in a different forum.



Reaching For the Stars

Lindsay Fricano (Fraser)

The hour might have been early, but the excitement in the air was palpable. The **ARISS (Amateur Radio on the International Space Station)** program was about to begin. When the student questions were drawn out of a hat at the ARISS day kickoff earlier that month, I just accepted that my question wasn't meant to be read. I wrote it completely on impulse, and there were others who really thought about theirs. I figured they deserved the opportunity more. I was so startled when **Mr. Supal** told me to free my calendar for the morning of March 14th. I was both excited and a little nervous. Honestly, I had no idea what the experience of talking to an astronaut would be like. (MS)²TC and MMSTC, through the efforts of **Mrs. Duddles** and Mr. Supal, helped bring the opportunity to our two programs.



Fast forward, back to the day of the program: a representative from the **Hazel Park Amateur Radio Club (HPARC)** explained the procedure for contacting the ISS. There would be a limited time window that the ISS would be in radio range. I vaguely wondered how it was even possible that a HAM radio could call the ISS, but the antenna system did look complex. Maybe this just might work after all. The radio operator called the ISS. No answer. He put on a brave, professional smile, and tried again. All in the room were on the edge of their seats until the static cleared and we could finally hear **Dr. Koichi Wakata** loud and clear.



Twenty-two students lined up single file to ask Dr. Wakata questions. I was slated to go fourth. The questions before me were all rather interesting, intelligent, and practical. My question might have followed in that vein, had Dr. Wakata's answer not been so comical. "What is the most valuable tool used in space?" was met with a definite assertion that the humble vacuum cleaner got the most use. That answer released any leftover tension in the room and got us all laughing.

I walked back to my seat with such a surreal feeling. I just spoke with an actual astronaut. When it began to seem real, I was so grateful for the experience. Our 10 minutes of contact flew by as all the student questions were answered. I learned many things as Dr. Wakata explained the real stories of what goes on in the ISS. Everyone present was sorry to hear our communication fade out and give way to static once more. The odds may have been against us to even achieve contact, but the HPARC team succeeded. We joined a select group of people who can claim ISS communication bragging rights.



After an informative presentation about asteroids, the ARISS program came to a close. One last round of pictures, and then it was back to the real world. I couldn't help but think that I had done something significant with my morning. After all, it isn't every day you get to speak with an astronaut who is literally in orbit. This radio contact may very well be the closest I'll get to touch the stars, but as MMSTC often shows me, exploring the possibilities can lead to once in a lifetime opportunities.

Hands-on Physics at CEDAR POINT

On Tuesday May 13, the **Class of 2015** traveled to Sandusky Ohio to participate in various Physics laboratory activities at Cedar Point Amusement Park. T-Shirts to honor the occasion were available to those students who were lucky enough to receive one.



The activities at the park included testing the Law of Conservation of Energy on the many roller coasters found in the park. They also recorded the magnitude of Normal forces on looping roller coasters. They measured multiple accelerations and forces, such as the amount of g-forces experienced on the Top Thrill Dragster and the almost free fall acceleration of the Millennium Force Roller coaster. Centripetal forces and acceleration were observed on the Wind-Seeker and Raptor rides. They even determined which side of the Power Tower has more power by measuring the actual power exerted by the Power Tower! The physical work to complete these

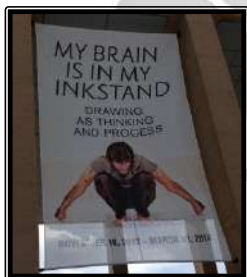


activities required chemical energy to be depleted; fortunately students were able to replenish their energy with a steady diet of Dippin' Dots and Elephant Ears.

Although the forecast called for thundershowers all day, the rain stayed away until 5:55 p.m., just in time to chase everyone back to the bus for the 6:00 p.m. departure.

“My Brain Is in My Inkstand: Drawing as Thinking and Process”

Nathan Coles(CHS)



The trip to the Cranbrook Art Museum was a fun and engaging experience for all! Organized by **Mr. Acre**, fifty MMSTC students had a valuable opportunity to learn about the surprising connection between math and art. Guides explained the intricacies of fractals, including Mandelbrot's set, one of the most famous fractals ever created. After this, the tour challenged society's idea of art itself. Many pieces of art were on display that were not pretty in a traditional manner, but forced the mind to think long after viewing the piece. Another focus of the tour was the idea that art is not merely an end result. Many pieces

of art were on display that urged viewers to think about what happened to create what they saw before them. One of the favorites was a set of chairs and tables, all created out of thin air using a motion tracker and plastic. As incredible as this was, perhaps the most fascinating piece was not even a piece of art in and of itself, but was merely a set of instructions for creating a masterpiece. These works and others left the mind wondering about the meaning of art long after the bus brought the students back to school.



CAREER EXPLORATION DAY AT LTU



Katlyn Johns (LVHS)

It was a chilly Michigan day when the sophomore class took its annual field trip to Lawrence Tech University, but that didn't dampen their spirits as they explored the campus. It was Lawrence Tech's 2014 Exploration Day which takes place every year. Before the event, all participants create their own personal schedule as to which sessions they would like to attend. These sessions circle

around specific career choices available at LTU. After a welcoming speech from LTU's president, the first of the three sessions began. Each session was an hour long and could be found in many areas of Lawrence Tech's small campus. At the end of the three sessions, lunch was provided by the organizers.

At each session, students worked on various activities chosen by that session's leader. These leaders included Lawrence Tech's staff, alumni, or the current students. As each session was different and the people who run it were different, each session was unique and included team work, competition, designing, and innovation. We met other students from around the Detroit area. There were a few guides around the campus, but a majority of navigating around the campus was done on our own.

In my future, I plan on being an architectural designer. Before I came to Exploration Day, I was already aware that Lawrence Tech has a well-known college of architecture. When it was time to register, my choices for sessions were easy: architectural engineering, architectural design, and art in architecture. From these sessions, I was finally able to distinguish the difference between architectural engineering and architectural design, so this made my career of desire plainer to see. Exploration Day has been a very helpful and fun experience for me as I am sure it also was for the MMSTC class of 2016.



The Tower Project: The Tradition Lives On!

The freshman class recently finished a right of passage here at the MMSTC... the tower project. The project started many moons ago in a land far, far away when GAT had an actual textbook! Over time the project has morphed into over 100 calculations, as well as a three dimensional model made to scale! For the first time in history, this year's project was a PARTNER PROJECT!!!! In addition, for some students it is their first "all-nighter", as they frantically cut and re-cut pieces of paper to form the appropriate ceiling or wall. The project reviews 16 different CCSS's (Common Core State Standards for Mathematics) and has become an effective, if time consuming, review project for volume and surface area of different polygons in geometry.

AP Physics Final Project: WATER BALLOONS

The Physics Seniors have completed their final project of their high school career: The Water Balloon Slingshot Project. The goal was to design, build and test water balloon slingshots. After testing the slingshots they competed in teams of four to test the abilities of their design in two different categories: Long distance and Closest to the Pin.



Long Distance was DOMINATED by the team of **Logan Holts (LSHS)**, **Alex Weblinski (LSHS)**, **Ben Sikorski (LSHS)** and **Kristian Wilks (LSHS)** with a distance of something over 200 feet (we only had 200ft of tape measure). Second place was the team of **Najah Mubashira (WMHS)**, **Karly Gallis (CHS)**, **Sarah Lewendowski (SHHS)** and **Sonja Berger (FHS)** with a distance of 105 ft.



The same team also won Closest to the Pin missing the target by only 4.5 feet, beating the 2nd place team of **Conner Roach**, **Ashley Meerschart (CHS)**, **Andrew Baran (WMHS)** and **Abby Bault (CLHS)** by 5 inches.

Congratulations to all the teams and a Special thank you to the bio seniors for stealing the water balloons!!

Senior Exit Interviews

Before graduating, MMSTC seniors took the time to reflect on what they had learned over the past four years and look ahead to think about their future. Through this reflection they identified where their interests lie and what their strengths and weaknesses were. They then used this to help guide their decisions on future goals for college and career plans.

To assist in this process, students created a portfolio where they selected exemplary pieces of work and evidence of outstanding academic records, scholastic and athletic achievements, and extracurricular activities throughout high school. They wrote three essays describing their academic achievements, skills development, and personal and social growth. They made a personal webpage which included all of the same pieces of work as well. Finally, to culminate the process, they presented their portfolio to a panel of Professionals from the community.

The interviewers required students to dress professionally and present themselves in a business-like manner that showed they were 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?”

Interviewers included leaders from Warren Consolidated Schools, business professionals from various industries, college admissions personnel, 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.



The Competition for College

Patricia Bonnici, Counselor

Every year it seems that the competition to be accepted to major universities and select colleges is becoming increasingly more difficult. Academically strong high school students are no longer guaranteed a place in the freshman class at the college of their choosing.

With the overwhelming popularity of some of the more prestigious schools, admissions representatives are faced with reviewing applications for triple and sometimes, quadruple the number of applicants for a fairly fixed number of openings in the incoming freshman class. The college admissions process has moved from simply reviewing a student's grade point average, rigor of high school courses taken, and ACT scores to a far more comprehensive evaluation of candidates when selecting who will be admitted. This is especially true of colleges that have a global reputation for excellence as their pool of applicants is comprised of international and well as out of state and in state students.

When evaluating candidates with equally strong academic performance, near perfect standardized test scores, and a high school transcript that reflects only the most challenging curriculum, how is admission selection determined when so many students are so well qualified?

More and more, colleges are recognizing that students who attend their school ultimately reflect the college's reputation/status. The potential for academic success at the college is extremely important, but so is what qualities each individual student brings with them; experiences and skills that make the student unique. Colleges and universities are looking for qualities that reflect the "whole student", not just academic strengths/history of success in high school.

Transcripts, ACT, SAT, and AP SAT scores are historical data which illustrate a student's proven ability and projected success in college, but they do little to showcase the "whole student". In order to learn more about an individual applicant, admissions representatives want to know more about personal attributes and who that prospective student is as a person.

To gain insight, many colleges and universities require a college essay and/or a list of accomplishments. These are opportunities for colleges to see a student's interests, challenges, passions, struggles, disappointments, and goals. It is also an opportunity for students to sell themselves through sharing their talents, participation in athletics, community service, part time employment, commitment to family, overcoming personal obstacles/tragedy, and contributions of time and effort to their interests. Well-rounded, versatile, compassionate, and creative students are what colleges and universities are seeking for what they bring to the college campus.

When applying for college, think very carefully about who you are outside of school. Reflect on what makes "you", "you", beyond the academics, the GPA, and test scores. Celebrate your uniqueness and let the school of your choice know how great you are!

View The Pond All Summer Long Over The Internet!

Currently the camera is set-up in the bird house so you'll be able to watch the birds develop!

Outside of school go to 64.88.21.185 to see the live camera.

It only works with Internet Explorer!

The username is *mmstc* and password is *pond*.

If you don't see the video, you must install Active X. To install, just right click and select install Active X, or conduct a search on the internet and download it.

MMSTC Students Brave Polar Vortex to Compete in Regional Science Fair



The 57th Science & Engineering Fair of Metropolitan Detroit (SEFMD) was held March 12, 2014, at Cobo Center. The class of 2014 braved the Polar Vortex to participate in the largest science fair of its kind in the country. This event is dedicated to promoting science and engineering discovery in students in 6th through 12th grade. The Fair is open to all students who are dedicated to expanding their knowledge and understanding of the world around them. Over 1,600 students from schools in Wayne, Oakland and

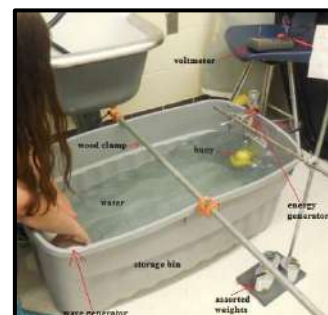
Macomb counties competed at SEFMD this year. Coordinated by **Mrs. Hilliard**, MMSTC had thirteen teams enter and took home first and second place ribbons in Chemistry. Second and third place ribbons in physics, as well as numerous red, blue, green ribbons and professional awards. (Order of awards: 1st, 2nd, 3rd, Blue, Green, Red ribbons.)

Award	Category	Name	School	Name	School
Red	Physics	Megan Satawa	WWT	Abby Bault	CLHS
Green	Engineering	Andrew Baran	WMHS	Tim Jones	SHHS
1st	Chemistry	Emily Laws	WMHS	Amanda Hercula	WMHS
2nd	Chemistry	Evan Gonzales	SHHS	Rachel Quesnelle	WWT
Blue	Biology	Danielle Yoskovich	CHS	Rachel Kloski	FHS
Green	Engineering	Noah Conner	CHS	Ryan Hallock	CHS
Blue	Physics	Karly Gallis	CHS	Sonja Berger	FHS
2nd	Microbiology	Jessa Webber	CHS	Kristen Lidwell	SHHS
1st	Chemistry	Cathleen Saraza	SHHS	Jacob Arche	SHHS
2nd	Physics	Alex Wielbinski	LSHS	Aaron Perry	WMHS
3rd	Physics	Marco Lin	LSHS	Kristian Wilks	LSHS
Green	Environmental	Maxwell Morgan	WMHS	Luis Dimech	CHS
Blue	Engineering	David Porkriefka	WWT	Samuel Habbo-Gavin	FHS

Young Innovators Recognized in Michigan Competition

Congratulations to two senior teams whose research projects won awards for innovation. **Sarah Lewandowski** and **Najah Mubashira (Mott)** developed a way to extract electrical energy from wave action using magnets and coils. This research could lead to a practical form of renewable energy productions from ocean waves. **Sam Habbo-Gavin (FHS)** and **David Pokriefka (WWT)** developed a concept which used electric current to create a magnetic field which pulled a scale model of a train along a track. The research could lead to an innovative propulsion system for magnetically levitated trains of the future. The two teams submitted their ideas to the **Young Innovators Competition** and each team member won a cash prize of \$100 in the Honorable Mention category of innovation. The prize was awarded by Prima Civitas, a non-profit organization which functions as a catalyst for a competitive, innovative and global Michigan economy. Show at right is a set-up used to test electrical energy production from wave action.

PRIMA CIVITAS
FOUNDATION



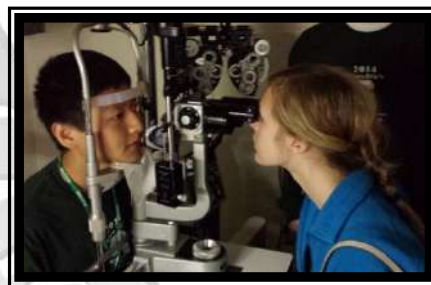
The Future DOc's Journey

Jacqueline Orjada (SHHS)

I never dreamed that life could hold so many opportunities; I had heard about how vast the medical field was, but I never thought I would get to experience it – until I went to medical school. **Michigan State University's College of Osteopathic Medicine (MSUCOM)** created a program for high school students interested in the medical field called Future DOc's. This program was worth every early Saturday morning! Junior **Mahir Chowdhury (WMHS)**, senior **Marco Lin (LSHS)**, and I were chosen to attend this eye-opening program.

The first event was MedSTAR, where we learned all about emergency assistance. Later we met a Broadway actor turned laryngologist (throat doctor). We talked to an Ophthalmologist, whom asserts that it is the best profession, and learned about the eyes, and the many careers that involve them. We met a medical examiner whose job is to evaluate the deceased and determine the cause of death. On other days we learned about laparoscopic labs and surgical robotics. On our visit with the general surgeon we learned how to suture and with the Urologist we learned how to operate the "Da Vinci", a 2.2 million dollar surgical robot. We also learned about the different physical and occupational therapists.

Marco has been accepted into MSU and into the MSUCOM program. I would like to be a physician's assistant in pediatrics or PICU, or become an ophthalmologist. I highly recommend this opportunity to other students; you can't ask for better exposure to the medical field. You make friends, create connections, and discover your interests.



When are we ever going to use this?

TRIGONOMETRY in the REAL WORLD



MMSTC students once again saw math in the real world through the TRIGSTAR contest, an outreach of the Michigan Society of Professional Surveyors and our sponsor, **Mr. Craig Amey** a professional surveyor at Anderson, Eckstein, and Westrick, Inc. of Shelby Township. **Mrs. Kincaid Dewey's** sophomore FST students as well as a couple of juniors, prepared for and took this trigonometry contest in May. Unlike other contests, winners are not just determined by the highest score, but also the shortest time to get

that score. The final problem of the contest is a real test of problem solving abilities when students are given a scenario similar to those encountered by surveyors in the real world.

This year's participants worked hard to prepare by completing previous year's contests and discussing problem solving and calculator strategies in class. Students learn to answer questions in the correct format and that that it's an all-or-nothing situation – there is NO partial credit! At the local (school) level, the top three finishers were: **Matthew Polgar (SHHS)**, **James Van Wagnen (Centerline)** and **Cheyenne Taylor (CHS)** Congratulations on their hard work!

In addition, we are proud to announce that **Matthew Polgar (SHHS)** is the **SECOND PLACE** winner at the state level! Over 1,000 students take this contest in Michigan each year. For his efforts, Matthew earned a \$500 cash prize! In addition to saving part of his winnings, we understand that Matthew will be treating his family to dinner!



MMSTC Students Win Innovations Awards for Vehicle Design



Students at MMSTC designed an electric vehicle for the Innovative Vehicle Design (IVD) contest sponsored by **Square One Education Network** whose purpose is to fund relevant STEM experiences for K-12 students through the integration of science, technology, engineering, and mathematics. The race took place on the oval track at Michigan International Speedway on May 3rd, 2014. Over a dozen schools from across Michigan competed for the prize of traveling the greatest distance within an hour on a single charge of batteries.



Although MMSTC's Electric Charlotte Vehicle (ECV) did not cover the greatest distance, it did pass the first place vehicle at the final horn ending the race. It just "kept on going and going" with lots of "water-bottle cooling" assistance from sophomore **Julius Estrope (CHS)**. MMSTC won two awards for vehicle innovation from the **Denso Corporation** and Square One Network. The ECV had 250 watts of on-board solar power, a collision-avoidance detector, head/break lights, and an emergency breaking system and horn. The top speed was measured at 29 mph by race car driver and junior **Ryan Caliguri (WMHS)** – see his take on the experience below. Other drivers included sophomore **Jonathan Banick (CHS)**, and senior **Luis Dimech (CHS)**. The project was a wonderful "hand-on" project for students and the team is already discussing ways to "trick-out" the vehicle for next year. You can see a trial run of the ECV by scanning the QR code. Contact **Mr. Supal** at marsup@weskids.net if you wish to participate next year. Shown are some of the core team members but not the complete team. Thanks to all who participated!

From Inside the Driver's Seat

Ryan Caliguri (WMHS)

As you well know, the outside of MMSTC's electric car, affectionately known as the **Electric Charlotte Boattail Speedster SS**, looks like just that; a boat.

From the inside however, the view during the race is a mixture of being a prairie dog and being in a coffin. From the tops of your shoulders down, the padded, vertical walls narrow under a metal hood to the dark tangle of the electrical harness and batteries near your feet, much like a half opened box for a body in repose. If you're tall enough to peek over the walls while in the five-point harness (most of the participating students were not) the view is limited to short horizontal strip since the top of the helmet forms an upper boundary. The view from a creature coming out of the ground may, in fact, be broader.

Going around the track at MIS, the straightaway with a tailwind lead to a record speed for the car, but the headwind on the other side lead the motor, originally intended for a bicycle, to strain and heat to the point it would not move on the fifth lap. With lessened speed, the astonishing slope of the corners became more and more apparent (my pace was only a fraction of the 200 mph that keeps the race cars hugging the road tight) and a sensation that my vehicle might tip lingered. After pouring water and spraying compressed air on the motor on every other lap after that, the "ship" made it back to the pits with more than a 40% charge left on the batteries!



Welcome to the MMSTC Family!

Congratulations to **Mr. & Mrs. Tallman** on the birth of Robert David, born May 22, 2014!



Beyond the Classroom: MMSTC Alumni Career Day

On March 25th, MMSTC held its first Alumni Career Day. The day brought in alumni to talk to current students about their jobs and college experiences. Some like **Brice Jurban (2008)** and **Courtney Love (2009)** Skyped students from across the country. Others, like **Ed Yruma (1998)** of KeyBanc Capital, flew in from Wall Street to share their experiences and expertise.

The day was about exposing them to the endless career possibilities they have with a STEM high school background. They learned about everything from being a Physician's Assistant from **Chelsea Parman (2007)** to micro-brewing beer from **Eric Stephenson (2004)**. **Sean Simpson (2003)** of AutoBike Inc. spoke about being an entrepreneur and **September Shaw (2000)** shared her experiences as a Technical Architect at Oakwood Hospital. Hearing from actual alumni who have been through the MMSTC program created a buzz of excitement among the students. "I got to hear about career choices that I never thought I would have liked, and it turned out I did," commented freshmen **Jaclyn Tockstein (WMHS)**. The Career Day brought in real-life examples of what students who attend MMSTC can (and have) achieved. Conversations during alumni's talks with upperclassmen included the do's and don'ts of college life. Seniors asked questions and got valuable advice about scheduling, living on campus, internships, study abroad opportunities, and more. Hearing alumni talk about their experiences helped ease worries.

Overall, students left Career Day with a newfound excitement for high school, college, and the endless list of possibilities for MMSTC students. **Mrs. Tallman**, who organized the event, hopes to expand and repeat this valuable experience in future years. A heartfelt thank you goes out to all participating alumni. (**Katie Nowinski, Hayley Laird, Stathis Pauls, Jennifer McBrien, Lindsay Loridon, Grace Hsia, Matthew Heinz, Jane Sturgell** and Petty Officer **Christopher Bloks** too.)

Spring Research At MMSTC – Freshmen, Sophomores & Juniors Want to Know

The science community at the MMSTC has wrapped up the results from the 2014 research season. This event marks a milestone in the students' academic career here at MMSTC. Biology students **Maddie Burgin** and **Celeste Rupert (WMHS)** have spent numerous hours collecting and analyzing data. Their results could have an impact on how benzalkonium chloride (the active ingredient in household cleaners) is administered to sanitize food preparation surfaces. Physics students **John Estapa (SCHS)** and **Nick Frechette (Fitzgerald HS)** are calculating the "Descent Velocities of Neodymium Magnets and their Interaction with Metallic Surfaces". Chemistry students **Bailey Abney (FHS)** and **Teresa Satawa (WWT)** are trying to solve the age old question "How will specific heat and linear expansion help to identify an unknown element?"



Guided by **Mr. Estapa**, this year's biology topics range from perfecting the adaptation rates of E. coli to testing the growth of different green fuels when exposed to a variety of plant growth stimulants. Physics students are exploring the world of engines and horsepower as well as a variety of other topics. **Mr. McMillan** has on numerous occasions suggested that this year's projects are very innovative. **Ms. Hilliard** has expressed that the projects are giving the students a concrete understanding of how applied chemistry has a universal impact on our society.



MMSTC Alumni Updates

(MMSTC Newsletters are electronically distributed to Alumni. The editor is always looking for alumni updates or articles from alumni about relevant topics for current students.)



Natalie Moran Zundel, (1999) the American Society of Civil Engineers (ASCE) Foundation's Senior Manager of major gifts appeared on the cover of *NOW Associations* magazine for an article entitled "The Social Appeal of Social Fundraising."

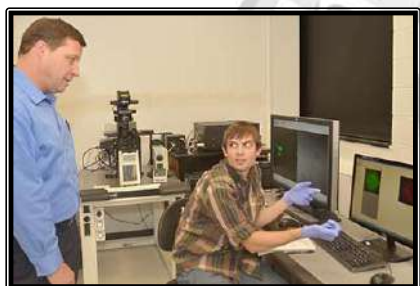


Jacqueline Close (2011) was recently elected President of the Society of Women Engineers at the University of Michigan.



Jason Kennedy (1994) has worked as a future program engineer developing and launching the Chevrolet Corvette, Cadillac XLR, Saturn Outlook, GMC Acadia, and Buick Enclave, and now works at the GM Tech Center as an Advanced Vehicle Development Engineer for future vehicles being designed. Married to **Kelly Cairns (1994)**, they have three wonderful children.

"My **advice to MMSTC seniors** is simple, yet often overlooked. Find something you enjoy and love to do and then pursue it relentlessly. I've always loved putting things together, being efficient, and planning for things. I was able to turn this into a career as a Future Program Industrial Engineer figuring out how to most efficiently assemble the next generation of vehicles at our assembly plants around the world."



Chris Kot (2010) appeared in the winter issue of the *Lawrence Technological University Magazine* in an article about their new Confocal Microscopy Laboratory. "Chemical biology senior Chris Kot is working ... to investigate the effect of calcium on intracellular signals involved in the metabolism of fat. This research may one day contribute to the development of new therapies or drugs to treat diabetes and obesity."



Patty Szczepanski (2012) was awarded two scholarships through the AdCraft Club of Detroit. The application was quite rigorous, consisting of an advertisement analysis, recommendations, GPA and portfolio review; and essays describing why she wants to pursue a career in advertising, and how her future will impact the greater Detroit area. The \$3,000 in scholarships was awarded at a luncheon where Dr. Oz was the guest speaker. While at the luncheon, Dr. Oz lectured about living a stress-free lifestyle, and encouraged those present to be better people by living physically, mentally, and emotionally healthier lives.

"MMSTC has completely changed my life. What sets us apart as MMSTC-ers is the way we think. We know to not take the obvious route, but to take the one with the most beneficial result. As an advertising student, I can stand out among my peers because I can creatively think my way through a business problem. Although I no longer use science every day, (however, it's always a great party trick to dazzle people with my knowledge of the phospholipid bilayer) what I learned about myself and my capabilities while attending MMSTC will truly last a lifetime."

MMSTC Talent Showcase a Hit!

Karly Gallis (CHS)

This year's MMSTC Talent Showcase was honestly one for the record books – but then again, when are they not? The anticipation leading up to the stage-frightful day itself was there, with everyone speculating on how big the performances would be this year, who **Mrs. Kincaid Dewey** was going to play with, and most of all, what the dance going to be!! One of the most surprising new aspects was the non-performance talents. It was incredible to see how multi-talented MMSTC students are through their displays and artwork. From cartoon art by **Adrianna Monacelli (Cousino)** to photography by **Kelly Rayner (LSHS)**, attendees enjoyed all those who submitted displays.

Now came the time for the talent to be shown: **David Pokriefka (WWT)** came onto the stage and told some his corniest jokes. **Lyndsey Rejc (Cousino)** did a rendition of “Let It Go,” but with a very appropriate twist. Instead of singing the traditional Disney lyrics (which **Megan Satawa (WWT)** performed with show-shopping brilliance), she made her own lyrics about apprehension and stress of taking the ACT! **Jessa Webber** and **Noah Conner (Cousino)** performed a cover of the Lumineers song “Dead Sea.” **Tim Jones (SHHS)** gave an electrified violin performance of “Crystallize” by the classical-EDM crossover artist Lindsey Sterling. The first half of the show ended with a half-hearted bang as the senior physics class attempted to make a group of laptop-powered robots dance. Unfortunately there were some missing semi-colons and misplaced curly brackets in the programming, so the robots mechanically wandered rather than dance. Freshman **Red Encabo (Mott)** opened the second act with a piano piece. Juniors **Keegan LaPorte** and **Lawrence Wickenhiser III (Fraser)** performed the classic Laurel and Hardy “Who’s on First?” skit which was also well done for a couple of researchers-to-be. And of course, the dance was great, as expected. The audience got loud when **Mr. Acre** made a cameo appearance! Even more surprising was the follow-up dance of the seminal “Here It Goes Again” treadmill dance to bring the Class of 2014 dance group (**Jacob Arche, Evan Gonzales, Tim Jones** and **Elton Defrance [SHHS & Mott]**) full circle.

When asked why she participates, **Alexandra Costanzo (LSHS)** replied, “I have participated since freshmen year and it is a great way to meet new people and do something you love.” Although we here at MMSTC aren’t training to be the next great actors and artists in the world, we just may have some talents that could break the STEM-art barrier! Many thanks to all who contributed to making this event a success – from our fantastic custodial crew and the **Ecology Club** to our administration and parents! Funds raised from this event were used to sponsor the care of an animal at the Sterling Heights Nature Center.

FST Students Show What They Know --- Through Projects!

Class of 2016 students had multiple opportunities this spring to synthesize and demonstrate their knowledge through projects. From designing their own for-profit carnival game and researching/presenting about prominent mathematicians to creative ‘Masterpieces’ with polar graphs and demonstrating 2nd semester FST content through projects based on *The Number Devil: A Mathematical Adventure* by Hans Magnus Enzensberger, sophomores have done great work!



Ecology Team on the Move!

Kelsey Giffin (WMHS)

From working the talent show to cleaning up the courtyard, the MMSTC Ecology Club has been very busy in the past couple months. This year's Ecology Club has consisted of **Noah Conner, Trevor Balfour, Melinda Her, Madeline Manuel, Ermelinda Ndoka (CHS), Kelsey Giffin, Emily Vo, Kaitlyn Lumpkins (WMHS), Kalie Tomlinson, Ann Krause, Maria Gallo, Lauren Evert (SHHS), Bridgette Wolf, Brendan Kelley (Fraser HS), Jenna Sassin (WWT), Elise Tomaszewski, Madison Werthmann (LSHS), and Andrew Damiani (SLHS).**

The Ecology Club worked tirelessly to plan, set-up / clean-up, and work during the **MMSTC Talent Showcase**. Funds raised from admissions went to sponsor an animal at the Sterling Heights Nature Center. At the talent show, attendees could vote on which animal to sponsor. The four choices were a tree frog, a newt, an albino black rat snake, and finally, a bobwhite quail. The Ecology Club announced that the winning animal was a Tree Frog! Because of the amount of money raised, we had the opportunity to name our sponsored animal. A **Penny War** competition between the grades was held for naming rights. The competitive nature between all of the grades sure paid off – we raised a total of \$199.15. The juniors were successful in raising the most amount money. However, the victorious grade was the freshmen! It sure seems like the Class of 2017 knows how to win a competition! The freshmen class decided to name the tree frog 'Treezus'. Go figure.

Most recently, the Ecology Club ran a collection to help support the **Sherman Supply Drive**, a collection drive to help support the Michigan Anti-Cruelty Society that was also run at Warren Mott High School. Students willingly donated pet toys and food. To top off all of the donations from the students, the Ecology Club decided to donate \$100.00 of the money collected from the Penny Wars to the Sherman Supply Drive. The Ecology Club was very proud that we could be a part of such a worthy cause.

With all of this going on, we still managed to go on two field trips: the **Sterling Heights Nature Center** and the butterfly exhibit and IMAX movie at the **Michigan Science Center**! At the nature center, we toured the facility and went on a tree identification walk. The best part about the butterfly exhibit was feeding the butterflies in the butterfly house and the Madagascar Hissing Cockroach that the tour guide carried around on her shoulder!

Finally, the Ecology Club began our semi-annual cleanup of the courtyard. With the help from students of all grade levels, it was very easy to get this very demanding job done. The Ecology Club hopes to be able to plant some more flowers and other plants in the near future. However, if we don't get to it this year, it will be one of our first tasks of next year! I hope to see some new faces next year and I promise that you will have as much fun, if not more, that we did this year! See **Mrs. Kincaid Dewey** if you are interested in joining us next year!



Photo collages created by Senior Karly Gallis (CHS)



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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.

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