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# The CENTER PAGE

## SENIOR RESEARCH

The science community at MMSTC is currently awaiting results of the data gathering and analyzing phase of our senior's research project. Physics students **Justin Vail** and **Mike Newton** are testing the accuracy of different types of putters based on the distribution of mass. Are those expensive clubs really worth the extra money? Chemistry seniors **Kelly Salis** and **Allison Zylinski** are trying to answer the question "Is the concentration of ascorbic acid in frozen, organic and mass grown oranges really the same?" Biology students **Sara Gaskin** & **Taylor Hunter** are exploring the effects of artificial sweeteners on tooth decay.

This year the biology topics range from perfecting the isolation of DNA from human cheek cells to testing the expansion and contraction of isolated striated muscle. Physics students are exploring the world of engines and horsepower as well as a variety of other topics. Chemistry topics are giving students a concrete understanding of how applied chemistry has a universal impact on our society.



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# Ford Motor Company Summer Internships

This past summer, I spent seven weeks as an intern at Ford Motor Company in Research and Advanced Engineering. I was assigned to the Manufacturing and Processes department in the Molding and Casting Methods group. During my internship, I completed a project which examined properties of a composite material that was considered to be a possible backup for the existing material used in production at Ford. Working closely with an engineer, I designed an experiment (DOE), prepared and tested samples, analyzed the results, wrote a report, and made a PowerPoint presentation to Ford management. During the seven weeks, I experienced many aspects of engineering and gained hands-on experience on many machines and lab equipment. I enjoyed my job and would gladly return to work for Ford as an engineer in the future.

## Dagmara Wehr

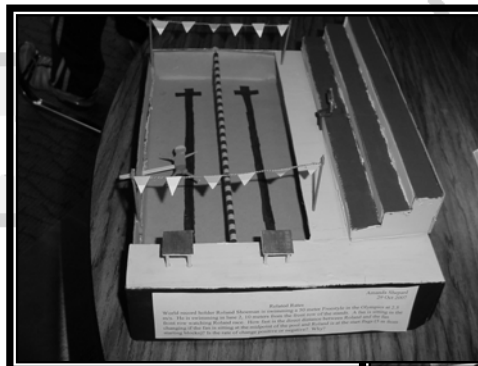


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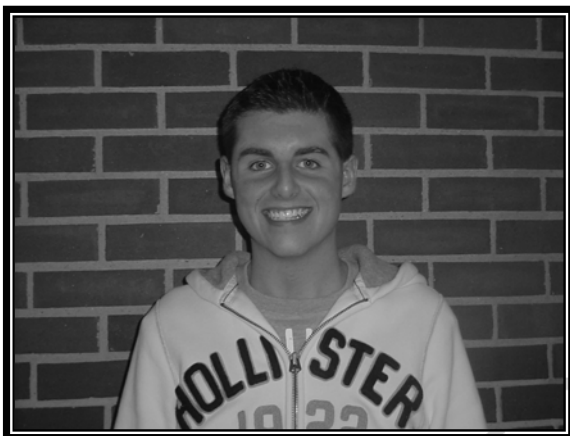
My internship at Ford Motor Company this summer was not only worthwhile, but it allowed me to dive into the field of engineering before college. From June until about the end of August, I worked in the Department of Materials and Nanotechnology at the Ford Research and Innovation Center. There, I completed a project involving Lap Shear testing, optical microscopy, and image analysis to quantify the welded area in lap shear coupons in support of plastic based laser welding. Afterwards, I made a technical presentation to research and management-level personnel. This experience exposed me to many aspects of Engineering. I learned something new and innovative each morning, and I came out of this internship with more knowledge than I could have ever imagined.

## Related Rates Projects

Students in AP Calculus got the chance to write their own math problems. Using creativity, they wrote story problems involving car chases, swim meets, tornadoes, and other real-world applications of calculus! Students also had to create a working model of their problem. Then lively discussions occurred as the rest of the class had to solve the problems.



Senior Composite:  
Seniors: Submit a (shoulder shot) photograph  
To: Mrs. Gerling



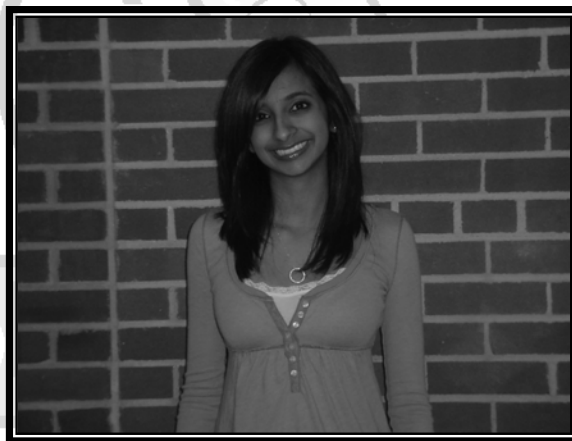
## Michael Polselli

Participating in the National Youth Leadership Forum on Medicine at the University of Illinois Chicago over the past summer gave me an unforgettable experience that has strengthened my motivation to become a doctor. Ms. Malone informed the junior class of this opportunity, and I immediately applied. As soon as summer vacation came, I was on my way to Chicago for two weeks to learn all about what it takes to become a doctor. While I was there, I took part in several conferences with world-renown surgeons and physicians. I visited the Rosalind Franklin Medical School where I examined human cadavers in the morgue. I also participated in a triage and a debate on situations involving medical ethics. At the end of the forum, I learned how to suture a banana and how to measure a person's blood pressure. I thoroughly enjoyed this valuable experience



## Rashmi Patil

With hopes of becoming a doctor someday, I eagerly attended the National Youth Leadership Forum on Medicine in Chicago during the summer of 2007. This sensational ten-day program, designed for high school students intending to pursue the field of medicine, proved to be a truly enriching experience. Along with a diverse group of students assembled together from all across the nation, I participated in various engaging activities, including a mock Match residency selection process, problem based learning cases similar to those encountered in medical school, medical ethics caucuses, and public health projects. The program also exposed me to numerous specialties in the field of medicine by introducing distinguished leaders of each specialty, and allowing them to share with us their stories and experiences. Above all, NYLF gave me the opportunity to indulge in my passion for medicine, with suturing clinics, triage workshops, visits to Chicago's top hospitals, and even trips to med school cadaver labs. The friendships created and memories made at this forum are sure to linger for a lifetime.



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They call it the FAFSA and it's your ticket to a college education. That's why everyone is doing the FAFSA. Now you can get FREE help learning the steps from financial aid experts. Bring your family's completed 2007 tax forms (or W2's and 1099s) to College Goal Sunday at 2 p.m. February 10, 2008.

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**Macomb Community College**, University Center, Clinton Twp

**Lawrence Technological University**, Buell Management Building, Room 236, 2100 W. 10 Mile Rd, Southfield

# FRESHMAN HOMECOMING

The class of 2011 hosted the Eighth Annual Freshman Homecoming! Parades, floats, and clowns electrified the atmosphere which had been building to a crescendo all week.

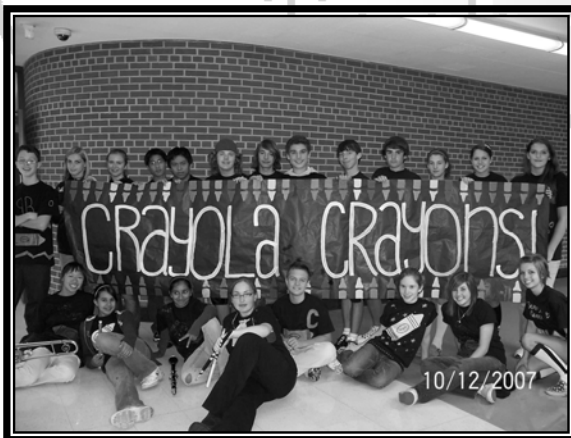
The 9A "Geek Squad" was rudely routed by the invited guests from 10A, The Tie-Dyed Spartans. **Mary Salisbury**, was that you? **Alex Steflja** caught not one – but two -- touchdown passes which appeared to have been either carefully rehearsed or pure luck. The "standing-room only crowd" chanted that they wanted the "most coveted" Homecoming Trophy to be forever retired, as the Class of 2010 had never lost a game. The "Geeks" outstanding players were **Patty Szczepanski** and **Catherine Rayos**.



The afternoon 9C group known as "Barney & Friends" managed to squeak out a victory over its cross-classroom rival, the 9B "Crayola Crayons." **Derek Nowak** scored all five touchdowns before kicking the winning field goal in double-overtime. The Big Crayon, also known as **Ryan Kreiter**, scored all five of Crayola's touchdowns.

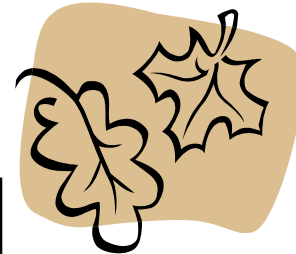
The morning half-time activities included a precision marching band that had twice the number of members as there were on the football team. The PM band delighted the crowd with their rendition of the National Anthem (which was actually recognizable) and the solo sung by **Nate Pedder**. The human pyramids surprised everyone by actually lasting an entire split second before tumbling down.

**Chef Estapa** prepared a large banquet for the hungry participants while mumbling something about wanting dogs either burnt or raw.



## SOPHOMORE CAMP 2007

Thursday, September 27<sup>th</sup> was the date of this year's Sophomore Camp. Morning and afternoon session students combined for an extended day. Activities included initiatives (team building tasks), a math scavenger hunt, tie-dyeing, bowling and finding your "color" (learning style preferences). Of course, the common denominator was FUN as can be seen in these pictures. Wow! That's a lot packed in one day! Sophomore teachers Mrs. Kincaid Dewey, Mrs. Hilliard and Mrs. Cybulski enjoyed planning this event.



## MOLE DAY

On October 23<sup>rd</sup> 2007, from 6:02 am to 6:02 pm chemistry classes across the nation celebrate the Mole Day and Amedeo Avogadro's number ( $6.02 \times 10^{23}$ ). This is not the pesky creature that plagues our lawns, rather for a given molecule, one mole is a mass (in grams) whose number is equal to the atomic mass of the molecule. For example, one water molecule has an atomic mass of 18 grams, therefore one mole of water weighs 18 grams.

To help grasp this abstract concept, students calculated one mole of some common household objects to illustrate the sheer volume of a mole. For example, **Ryan Du Tour** and **Guy Lin** found that one mole of rice would fill the Great Lakes 265.520 times. **Brittany Auld** and **Jeff Carothers** found that a mole of goldfish crackers would fill the Pacific Ocean 2.37 times. Students were blown away by the sheer size of a mole!

After calculating moles in FST, sophomores created a PowerPoint presentation with all of their new mole facts in IDS, as well as plush mole mascots in chemistry. It isn't everyday that you get a sewing lesson in chemistry, but the nimble fingers of our MMSTC sophomores crafted some amazing moles and lasting memories!

Students' moles were quite creative. Pictured at right, **Nicole Pasden** created a "Mrs. Copeland" mole and **Rebecca Pittman** sewed up a "Mrs. Gerling" mole.





# ARE YOU OVER SCHEDULED?

(re-printed from fastweb.com)

You don't have time to read this. You should be squeezing in 20 minutes of study time before you punch in at your part-time job. And after your shift ends you'll have to hustle if you want to make it to practice on time.

Sound familiar? Then you ought to make time to read this.

Some stress is a natural part of life, but maxing out your schedule to the point where you're constantly stressed out can have real dangers. Overtaxed students may find themselves abusing drugs or alcohol, engaging in risky behavior, making poor ethical choices and coping with depression.

There are a comfortable number of balls that even the most skilled juggler can juggle, and beyond that it becomes impossible and the balls start tumbling down," says Carleton Kendrick, a family therapist and author of, *Take Out Your Nose Ring, Honey, We're Going to Grandma's : Hanging In, Holding On and Letting Go of Your Teen*. He discussed some warning signs that might help students recognize when they've got too much on their calendar.

## Signs you're over scheduled:

1. **Sleeplessness.** You have difficulty falling asleep, staying asleep, or waking up. Rest is critical to your health. Falling asleep during class might only hurt your grade, but nodding off at the wheel of your car is dangerous.. "You cannot continue to take out of the sleep bank, and not be punished by it, mentally as well as physically," Kendrick says.
2. **Nothing gets done.** You add three items to your to-do list for every two you cross off. Over-scheduled students have a difficult time maintaining priorities. And if they are able to get things done, often they're not done well.
3. **Low self esteem.** "Since you're not accomplishing what you're attempting to accomplish, there's a drop off in self-esteem," Kendrick says. You enroll in less challenging classes to guarantee a good grade, or look for the path of least resistance in another facet of your life.
4. **Forgetfulness.** "It can range from vital, important things, like when to turn in a paper, to the mundane, like when to feed your pet," Kendrick says. "You're out of synch and out of rhythm." As a result, your grades and schoolwork suffer.
5. **Sport injuries.** Stress can affect your ability to focus on the field, which can result in injuries. If your performance is dropping in sports you've excelled in for years, it could be a sign of stress.
6. **Personality and attitude changes.** Kendrick says that for stressed out students "there's not as much excitement or joy about school or extracurricular activities." You feel like you've lost your sense of humor, lost your patience or find yourself complaining more often. This can hurt your relationships with friends and family.
7. **Physical health.** Stress can manifest itself physically in the form of a nervous tick. Stuttering or stammering while you try to express yourself can be a sign that you're mentally clogged by everything you're taking on. You may experience migraine headaches and become ill more often.
8. **You're overwhelmed.** You've lost perspective and aren't sure why you're involved in half the activities you're committed to. You feel like you're not in control of your life. You feel trapped. If this is true, it's appropriate to reassess what you're involved in.

If you are stressed out, turn to your parents, siblings, counselors, or friends for support. Scale back your activities and choose to get involved in the things you love. Focus on pursuing one or two things you're passionate about, rather than getting involved in half a dozen clubs you were told look good on a college application.

Kendrick say, "You have to take a look at the number of hours in the day and say, what really is possible for me to handle, and have a life. And a life where I can kick back for awhile and play a video game or catch a movie and just veg out."



## HALLOWEEN PARTY!

Planned by juniors **Dona Chan** and **Ashley Nebel** as well as by senior **Grace Hsia**, our Halloween Party was held at MMSTC on the evening of October 29<sup>th</sup>. This spook-tacular event had all the ingredients of a fun evening – music, games, food and friends! The funky-clothing relay had a team from each grade level and many showed off their amazing flexibility in the limbo, costumes and all! So whether you wanted to dance to Killing Aces, a rock band made up of mostly MMSTC students, play Guitar Hero, compete in the costume contest or just hang out with new/old friends, this was the place to be. Thanks to all the students who volunteered as well as staff and parents Mrs. Liening and Mrs. Arthur! Many said this was the best Halloween party yet!

Killing Aces MMSTC band members: **Ryan Kaput**, **George Basil**, **Tamim Shaker**, and **Brendan McNeilly** and **Ethan Pedder** (guest vocalist)



## University of Michigan Field Trip

Eleventh graders took a field trip to the University of Michigan on November 9. First they heard a physics lecture by U-M Professor Tarle. **Lauren Waggoner** was the volunteer who pedaled a bicycle fast enough to power light bulbs. Students then took a tour of the campus and enjoyed a panel discussion with current U-M students who graduated from MMSTC. They answered questions about the transition from MMSTC to U-M, and talked about the work load and level of preparation that MMSTC provides. Finally the students participated in a scavenger hunt at the Natural History Museum.

## DACTM CONFERENCE

MMSTC teachers were well-represented at the Detroit-Area Council of Teachers of Mathematics Conference on Saturday, November 10 with presentations from Mrs. Hilliard, Mrs. Cybulski, Ms. Malone and Mrs. Kincaid Dewey.

Mrs. Kincaid Dewey is the organizer of the event, which brings together over 800 math teachers in the area to discuss better teaching strategies.

**Senior Dinner, Monday, April 28, 2008**

## Fan-Tastic Vehicles

Students in the 11<sup>th</sup> grade IDS class used Solid Works to design fan powered model cars. This was a cooperative project between the physics class and IDS. The goal was to learn how to complete an assembly in Solid Works and how to apply concepts learned in physics in the design of a high performance vehicle. Students created a 3D computer model of a vehicle frame with wheels and then utilized the technology room to cut wood and drill holes to construct their projects. A gasoline model engine with a five inch propeller was fastened to the frame and students raced them down a 75 meter course. Acceleration and velocity data was collected during the races, and some of the top cars completed the course in times under seven seconds. Students then analyzed an entire class data set and studied the effects of wheel friction, aerodynamic friction, and vehicle mass on vehicle performance. Shown below are **Valerie Zeer** and **Kaitlyn Beel** with their car. Also, show below is **Melissa Zutek** getting ready to race.



Columbia Black Fleece Jackets:  
MMSTC logo  
Cost: \$34 check payable to:  
**Imagamerica**  
Return to Mrs. Gerling

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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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