

# GM Engineers Intro Students to Careers

by Jim Stickford  
Special Writer

GM engineers have been working with eighth graders at Warren's Lincoln Middle School, teaching them how to build functional scale model hydrogen fuel cell-powered cars.

This work is part of GM's World in Motion program. Paul Bartold, a trained engineer and senior buyer of machinery and equipment for the automaker, has been participating in the program for the past 11 years. He said it's been around for more than 20.

"GM goes to hundreds of schools across the country," Bartold said, "and introduces students to engineering."

"At Lincoln, there are about 180 kids in the eighth-grade class. I meet with them over five classes and give them a model kit provided by the Society for Automotive Engineers (SAE)."

"They contain parts for a scale model hydrogen fuel cell car. I and others help them put the cars together and explain what is needed to get the model cars to work. Most of the process is hands-on building."

Bartold said he's just one of many engineers involved in the World in Motion, and has been assigned to the Warren area. He said over the years, he's seen a lot of kids take an interest in engineering and is glad to see girls get an exposure to science and engineering.



The selection of the new intern is always a big event at SRG Global, an auto supplier based in Warren near 9 Mile and Stephens. Students, faculty and staff from Warren Cousino gathered at SRG.

## SRG Global Picks Cousino's Aaron Proudfoot As New Intern

by Gerald Scott  
News Dept.

At auto supplier SRG Global, Inc. in Warren, they sure take their student internship program seriously.

That's because SRG partners with nonprofit educational program Winning Futures on something called The Intern Connection, which helps the firm to choose an annual intern from nearby Warren high schools.

The Intern Connection is a business/education partnership created jointly by SRG Global, one of the world's leading providers of coatings on plastics for the automotive, commercial trucking and appliance industries, and Winning Futures mentoring program.

Following a rigorous selection process, Warren Cousino High School senior Aaron Proudfoot has been selected as SRG's next student intern – he will be working in the supplier's IT department.

"I am very excited about winning this award," said Proudfoot.

"I am so glad that SRG Global and Winning Futures provides this opportunity; but not just the internship, but the entire program. I have learned so much through the program, and now with the internship, I'll

Bartold started off his career in engineering, but moved over to purchasing because today's high-tech products need someone with a tech background to judge if they are worthy of being purchased.

He and other GM staffers visited the Lincoln Middle School campus on Friday, May 4, to show off some of GM's newer cars, including a Volt. After working on model cars for five class days spread out over several weeks, the kids had the opportunity to see some real cars that their mentors had a hand in bringing to life.

"The students follow the engineering process by building a prototype, testing it and presenting it" Bartold said.

"These kids were at the SAE World Congress event, recently held at Cobo Hall in downtown Detroit. They won first place in two of the four main categories. They competed against many other students across metro Detroit. They won for endurance, meaning their vehicle went the farthest, and for speed, meaning their car went the fastest."

All of the awards were presented by GM vice president in charge of global engineering John Calabrese.

In addition to making model cars, the kids also have to make the hydrogen to run the cars, Bartold said. They break water into its component parts – hydrogen and oxygen – through the process of electrolysis. The two gases are

then captured in two syringes. They are hooked up to the motor, which contains a fuel cell, which draws hydrogen back into the cell. The gas is converted into electricity, which drives the motor.

Bartold said this is a simplified explanation of the process, but the students get an idea of how a hydrogen fuel cell car works.

While they make models, the process is pretty much the same for full-sized hydrogen fuel cell automobiles.

Lincoln teacher Jonathan Healy has been teaching science for 21 years and said this year is the fourth year his students have been involved in GM's World in Motion program.

"The purpose of this program is to teach the fun of science," Healy said. "It helps students get interested in engineering."

"I know after participating in World in Motion, a lot of kids become interested in taking the green technology program we have here in our high school."

Like the engineers, Healy goes around and helps guide students through the process of building a model hydrogen fuel cell car. He emphasized that he guides the students, but they do the major work of getting the models built.

"The students work on the cars during science class," Healy said. "They use what I like to call the trial-and-error method of determining the

proper ratios of water converting to gases to get the amounts of hydrogen needed to run the models."

The students also seem to enjoy the hands-on approach to science and engineering. Cassie Bethea, an eighth grader at Lincoln, said she thought the whole project was fun.

"We had to test the cars and we saw how it was possible to get something to run on water," Bethea said.

Her classmate, Jennifer Schmid, also called the project fun, learning how the cars worked. But she added that it "was kinda hard."

"At first, before we learned what we were doing, it was hard putting everything together," Bethea said. "The really hard part was putting everything together and trying to get the cars to run in a straight line."

"Part of the program was building a car that would travel at least 30 feet. If the wheels weren't aligned or screwed in just right, the car wouldn't go straight. Our car crashed like six times before we were able to get it to run straight."

Cliff Lyons, an engineer at GM in the hybrid integration department, is another volunteer who works with students in



PHOTO: JAMES STICKFORD

Back row, from left, Jonathan Healy, teacher at Warren Lincoln Middle School, and Paul Bartold of GM. Front row are all 8th graders at the school, including, from left, Lynn Livi, Nalin Anderson and Moreom Rohman.

the World in Motion product. He has been a volunteer for the past eight years.

"I do this because I love to introduce kids to something beside sports or video games," Lyons said. "We show the students how technology is made and what it can do in the real world, and how it has an impact

on society."

Lyons is from Georgia and got his degree in engineering from Wayne State after getting out of the Army, where he served in the 212th Signal Brigade. After seeing what technology could do in the Army, he decided to get his engineering degree.

## Notre Dame Prep School in Pontiac Uses Dassault's 3D Experience Tool

AUBURN HILLS – Dassault Systemes, a world leader in 3D design tools, announced that Notre Dame Preparatory School in Pontiac is now using Dassault's 3D Experience platform, including CATIA application for virtual design authoring, DELMIA for digital manufacturing, SIMULIA for realistic simulation and ENOVIA for collaborative innovation.

Equipped with technologies implemented by today's leading manufacturers, students are creating products – form initial design through 3D prototype – for a variety of industries, including automotive, consumer goods, energy, aerospace and defense.

The 3D Experience platform and applications serve as the backbone for Notre Dame Prep's Engineering curriculum, which supports the STEM Education Coalition initiative focused on STEM education required in order for the U.S. to remain an economic leader in the global marketplace.

Notre Dame instructor Katrina Palushaj and three Notre Dame students were introduced to the 3D Experience platform and its applications at a two-week engineering camp held at the University of Detroit Mercy and sponsored by Ford Motor Co. and Dassault Systemes.

Recognizing a new paradigm in engineering design, Palushaj came away from the camp with a goal of increasing student interest in engineering careers.

"Advanced 3D computer

tools are changing the conventional idea of an engineer as the guy in the short-sleeve white shirt with a pocket protector," Palushaj said.

"Dassault Systemes' 3D Experience platform is aligned with the way kids think today and make it fun to learn, opening engineering up to a whole new group of people."

Whereas other product development solutions are document-based, the 3D Experience platform offers a unique object-oriented approach that relies upon a single server for data storage.

All users have access to the exact same, real-time information via a simple Internet connection, creating a collabora-

tive manufacturing environment where the school will be able to share designs with other schools around the world and co-creates products via social innovation.

Sophomore Guilford Guthrie said, "It is so cool to be exposed to this software prior to college – this platform has more features and is much more intuitive than I expected."

"Plus," added classmate Zachary Goldasich, "the idea of being able to collaborate globally through the Internet is really exciting."

Dassault's Monica Menghini, executive vice president, Industry, praised Notre Dame for its forward thinking.

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