

# Roller coaster project gives kids taste of engineering

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If futuristic roller coasters are the wave of the future, engineering students at Farmington High School have a head start down the track.

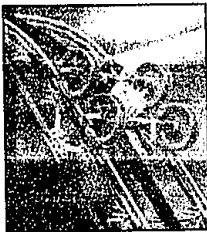
Seven student teams in the "Principles of Engineering" program this week unveiled the fruits of eight weeks of labor: roller coaster models and Power Point proposals to "sell" them to mock company executives, portrayed by teachers.

To do the project, they linked several pieces: problem-solving; Internet communication with Minnesota engineers and computer-aided design. Then, they really went to work, assembling roller coasters from K'nex kits, each comprised of 3,195 interlocking pieces.

Among the teams was one that built "Tsunami," a water-alike roller coaster model.

"We just wanted to build a realistic design... one that will work and attract visitors," said sophomore Hemanth Srinivas. He teamed up with Ben Cuddeback and Stephanie Pakula.

Named after the Japanese word for tidal wave, "Tsunami" would shoot mist at riders as



**Tsunami:** Hemanth Srinivas and his teammates built a little car that will travel the whole loop of the roller coaster.

cars traversed down what would be a 1,980-foot course, which is relatively short as far as roller coasters go, Hemanth explained.

"We based ours on (an) economic principle," he said. "The ride is fairly short, but more people can ride it and generate more revenue."

## Go around twice

But futuristic isn't one word he attached to the prototype, built (as were all of the models) using a scale of 1 inch equals 3 feet. "In the real world, probably every combination of design has been done."

Magnets drive the "ACC-1,000" model, created by students Ian Shaw, Nate Pacer and Kristin Westlund.

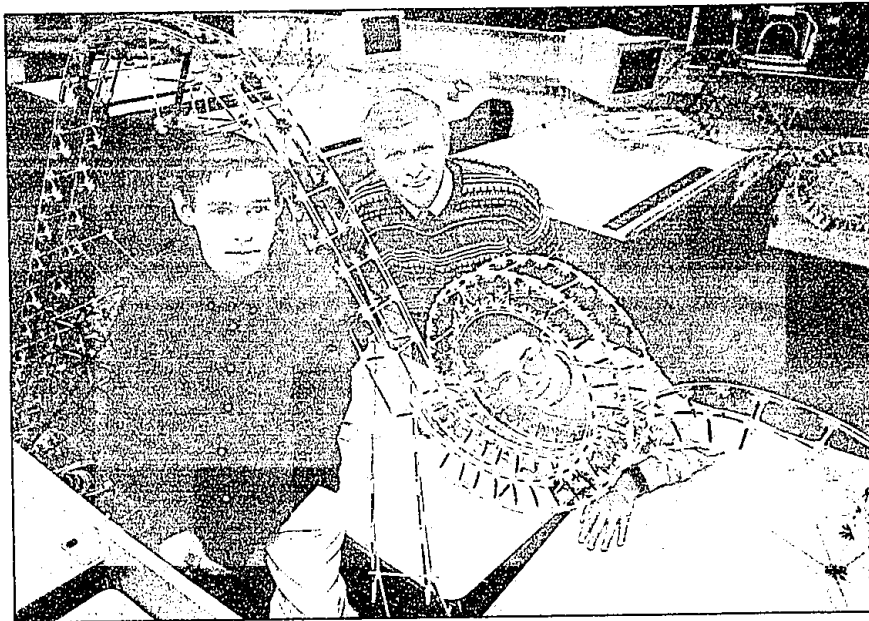
"We're using magnet power for acceleration instead of the hill," Ian said. "We can get the cars going up to 75 miles-per-hour. Then the magnets stop, and the roller-coaster (ride) starts."

It only takes 25 seconds to make it around the track, so "we'll send you around twice" for the price of admission, he added.

As demonstrated by the above two models, each POE team took a different course from start to finish.

Even though seven student teams began with the same materials and instructions, mathematics teacher Brian Shaw said there was no single solution to the challenge.

"It's a very open-ended pro-



STAFF PHOTO BY SHAWN LEMMON

**Let's roll:** John Klenczar teaches the principles of engineering to junior Ian Shook (left) and Hemanth Srinivas, a sophomore, who are on separate teams of roller coaster "engineers." The teams of three or four Farmington High School students were each given two kits of 3,195 Lego-like plastic pieces, the time to design on computer and the space to build them.

ject," Shaw explained. "We gave them few criteria. There's no one right answer. It's kind of exciting to see different ways to attack a problem."

That required plenty of teamwork during Student Managed Academic Resource Time classes, taught by Shaw, physics instructor Peter Finn, and POE teacher John Klenczar.

"All of the physics principles they learned in labs for weeks were applied here," said Klenczar, citing energy, force and inertia among those.

Teams took that knowledge

and designed, on computer software, designs for their prototype roller coasters. From there, they built them with the K'nex physics kits.

"It's like a puzzle," Klenczar said.

About communicating with professional engineers on the Internet, Ian Shook said it was

"helpful in the beginning. But the site had bad links and it was hard to use."

"We wanted to simulate the class to the actual engineering industry" and what those in the field contend with in doing their jobs, said Shaw.

Students soon found out what many engineers know: that pro-

jects take hard work and long hours. Both Hemanth and Ian, and their teammates, devoted part of their holiday break into their respective models.

For those who want to take a peek, the projects are on display in the POE classroom and media center.



**Looking good:** Teacher Brian Shaw likes the way the projects turned out.

## Hills officials critical of county snowplowing job on main roads

BY JOANNE MALISZEWSKI  
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Farmington Hills City Manager Steve Brock says he believes snow removal on major arteries under Oakland County jurisdiction in the city should have been a lot better.

"What I don't like is that it reflects on us (the city)," Brock said. "We need to keep on them (Oakland County Road Commission) about doing a better job."

Of particular concern to Brock was the snow removal on 12 Mile, Orchard Lake and Middlebelt. "These are obviously main arteries for us," Brock said.

A better snowplowing job on Orchard Lake north of 14 Mile in West Bloomfield did not go unnoticed.

Farmington Hills Mayor Aldo Vagnozzi said he recognizes that the county did a lot of the roads early in the storm of Jan. 2-3, but lanes of traffic remained blocked with snow.

Craig Bryson, Oakland County Road Commission public information officer, said communities, and when and how much attention they get during a snowstorm, are not prioritized. However, West Bloomfield is under jurisdiction of the road commission's Waterford garage, and Farmington Hills under the Southfield garage.

"We don't favor one community over the other," Bryson said. "Orchard Lake is equally busy in both communities."

**'When I heard Patterson was offering trucks to Detroit - which is a very neighborly thing to do - they probably should be doing our roads first'**

*Aldo Vagnozzi  
—Farmington Hills mayor*

But Bryson admitted that the Southfield garage is confronted with many more miles of freeways as well as major arteries such as Woodward.

"All of our districts are trying to get to roads as fast as possible," Bryson said. "Each district gets to its busiest roads as fast as it can."

Vagnozzi said the county's snowplowing just isn't up to city standards. "When I heard Patterson was offering trucks to Detroit - which is a very neighborly thing to do - they probably should be doing our roads first."

In Farmington Hills, work on the city roads began Saturday, Jan. 2, when the heavy snow began to fall.

"We had five trucks on the road keeping the main roads open. By 4 a.m. Sunday, we had all 25 pieces of equipment on the road. We had the main roads done first. We put two trucks on every route. But we were in the subdivisions by Sunday morning," Brock said.

## YMCA HIGHLIGHTS

**CAMP SLEEPOVER**  
All 1998 Summer Day Camp participants are invited to attend a sleepover from 7 p.m. to 7 a.m. Saturday, Feb. 13, at the Farmington YMCA. Campers and staff will have activities in the gym, pool and youth center.

**SHAPEDOWN**  
The YMCA in collaboration with the Children's Hospital of Michigan will offer a weight management program designed especially for teens 12-18. Learn about nutrition, exercise, physical fitness, and improved family communication and shapedown to a better body image and improved self-esteem. The class will be

held 6-8 p.m. every Wednesday. Call the DMC referral service at (313) 745-6000 for registration and more information.

**PERSONAL FITNESS**  
YMCA Personal Fitness Program began Jan. 4. It's a three-month, one-on-one program designed to teach and support good health and wellness. You will have your own coach to help lifestyle changes that will have far-reaching effects on your long-term quality of life as well as your physical health. The cost for this program is \$230. Call 653-4020.

**WATER MASSAGE**  
Enjoy being gently held, moved and stretched in warm water. Shiatsu massage in warm water can help strengthen muscles, increase flexibility, improve range of motion, reduce muscle aches and relieve stress. Call 653-1933.

**ARTHRITIS WATER EXERCISE**  
Designed in cooperation with the Arthritis Foundation, this class emphasizes range of motion and flexibility with very low cardiovascular activity. Classes are available Mondays, Wednesdays and Fridays in 88 degree water.

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