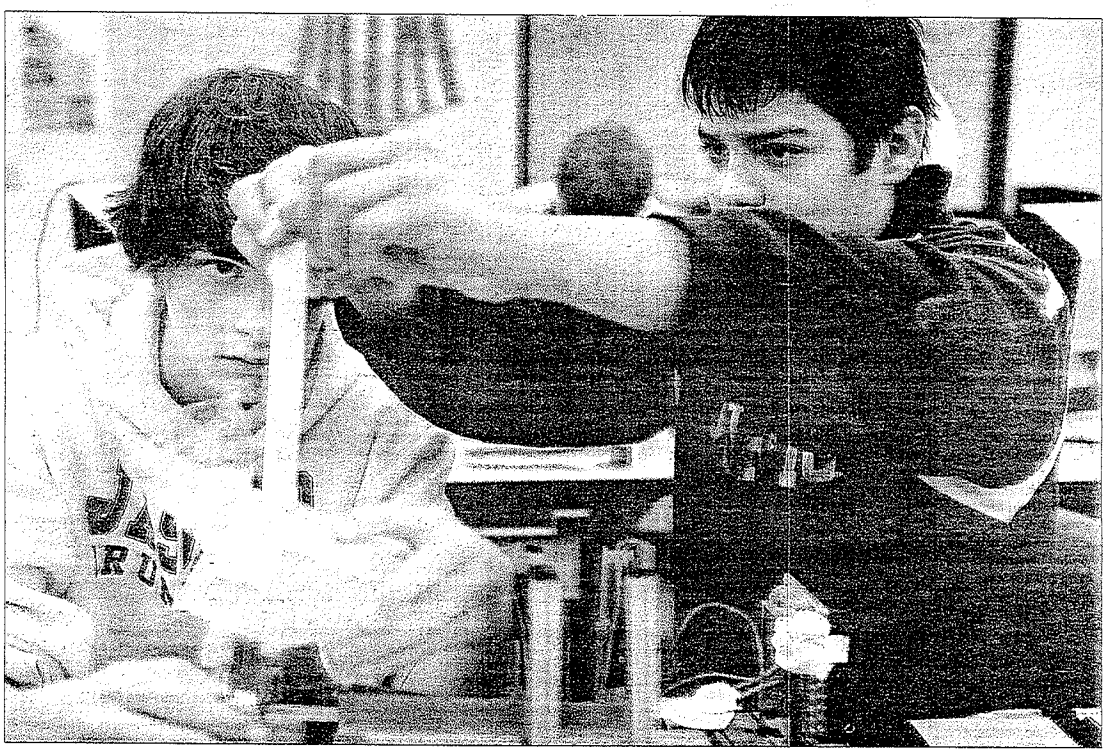

Sophomores Michael Loomis, left, and Oscar Lopez tried to reassemble their marble sorter before Project Lead the Way instructor Craig Denney tested the students in the Principles of Engineering class Dec. 19. The students had to design a device that would separate marbles by color and put them into the correct bin. The team had its marble sorter finished — before Loomis tripped over a cord while carrying the sorter and it broke.

Engineering A Career

PROJECT LEAD THE WAY IS A NATIONAL INITIATIVE THAT ALLOWS HIGH SCHOOL STUDENTS TO TAKE ENGINEERING COURSES THAT WILL HELP THEM DECIDE WHETHER ENGINEERING IS SOMETHING THEY WANT TO PURSUE IN COLLEGE.

Story by **Kasey Hawrysz**
Photos by **Krista Schinagl**

Michael Loomis wasn't really expecting to be taken seriously when he suggested to his longtime friend Mike Lehrke that he could design specialty skates for Lehrke's Wisconsin-based skate company, Vanilla Skate Co.

After all, Loomis is a 16-year-old sophomore at Jasper High School. Just a few years ago Lehrke was teaching young Loomis skating tricks at a Wisconsin roller rink near his former hometown of LaCrosse.

But thanks to a Project Lead the Way course at JHS, Loomis has a portfolio of engineering designs he has created throughout the school year, as well as the communication skills to work collaboratively with others.

Communication and problem solving are the main focus of many of the hands-on learning activities in teacher Craig Denney's Principles of Engineering class. The class comprises 17 students, most of them sophomores, and is the second of five courses offered through Jasper's version of the nationwide Project Lead the Way program. The program is intended to prepare and encourage students to pursue degrees and careers in engineering and, in some cases, enable them to earn college credit.

In Loomis' case, the skills he's already acquired were enough to land him a job with Vanilla Skate Co. He now designs "jam skating" skates, which are used for performing break-dance type moves on wheels, and has plans to launch his own company soon.

"(The class) allowed me to explore other things outside the class and take it to a whole new level," Loomis says. "I've gotten to learn better communication skills, which are key in engineering."

Students spend almost 50 percent of their

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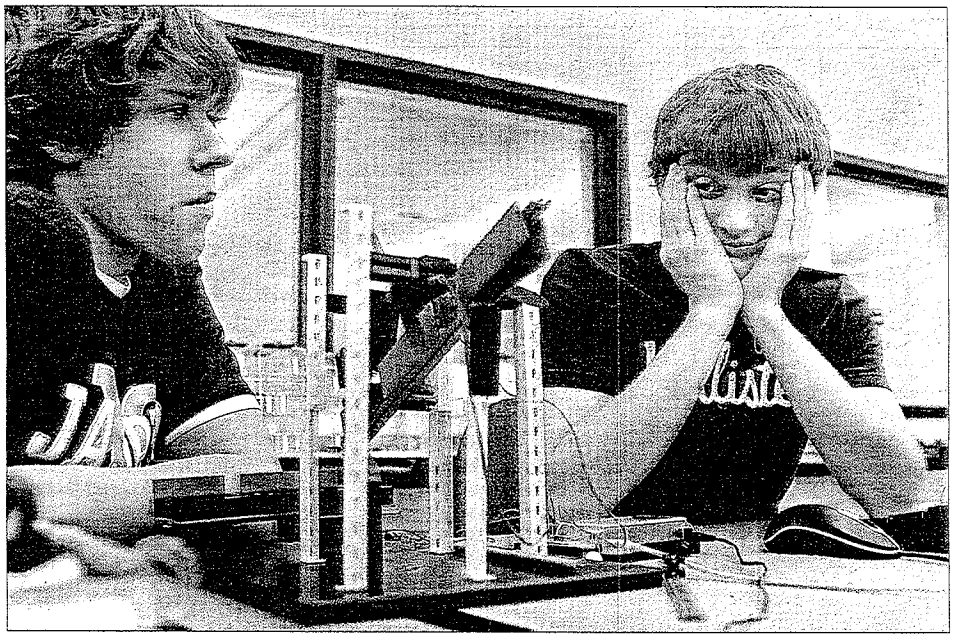
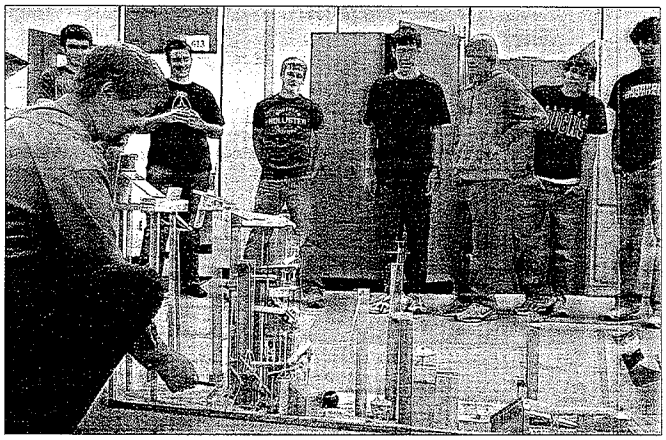
The Saturday Herald

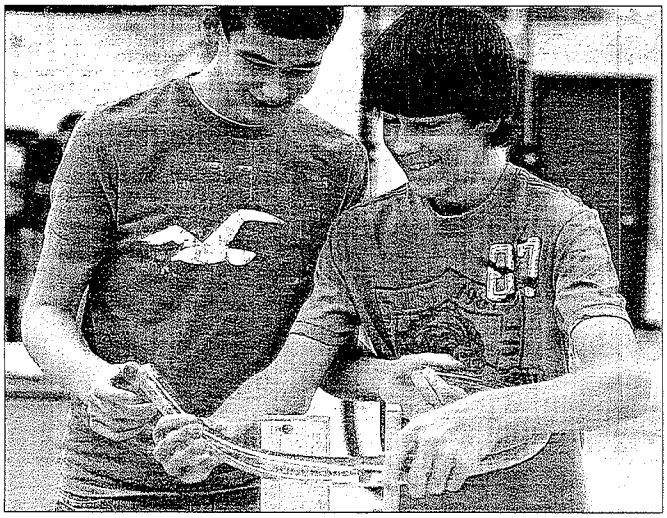
DUBOIS COUNTY, INDIANA
MAY 2, 2009



Sophomores Alex Hawkins, left, and Kyle Kieser worked to figure out the timing for their marble sorting device during class Dec. 9. Their marble sorter used fans and was supposed to drop one marble at a time but was dropping several.



Denney lined up eight Rube Goldberg projects to see if a marble could travel from one side to the other without stopping during class Oct. 22. Students Austin Budell, left, Aaron Miller, Jarod Mehringer, Aaron Anderson, Justin Nichols, Alex Hawkins and Colton Schum, all sophomores, watched to see how successful their projects were.



Sophomores Craig Altmann, left, and Loomis worked on the design of their Rube Goldberg project during the Principles of Engineering class Oct. 14.

Career

Concluded from Page One

time working on practical, hands-on projects in the class.

"You learn how to communicate with other people, and how to work together to solve a problem," says Craig Altmann, who aspires to be a mechanical engineer. "And with giving presentations to the class, it's like it would be like in a real work environment."

The program helps students determine whether engineering is really something they are interested in as a career or college major, according to Altmann. That's something he's seen firsthand through his brother, Alex, who took two Project Lead the Way courses when they were first offered at Jasper about five years ago. The 22-year-old will graduate from the University of Louisville next May with a master's degree in mechanical engineering.

"(The courses are) what really influenced me to go into engineering instead of business," the 2005 JHS graduate says. "I was more leaning toward business before I took the engineering, but by probably the end of my junior year (of high school), I had switched and decided I was going for engineering."

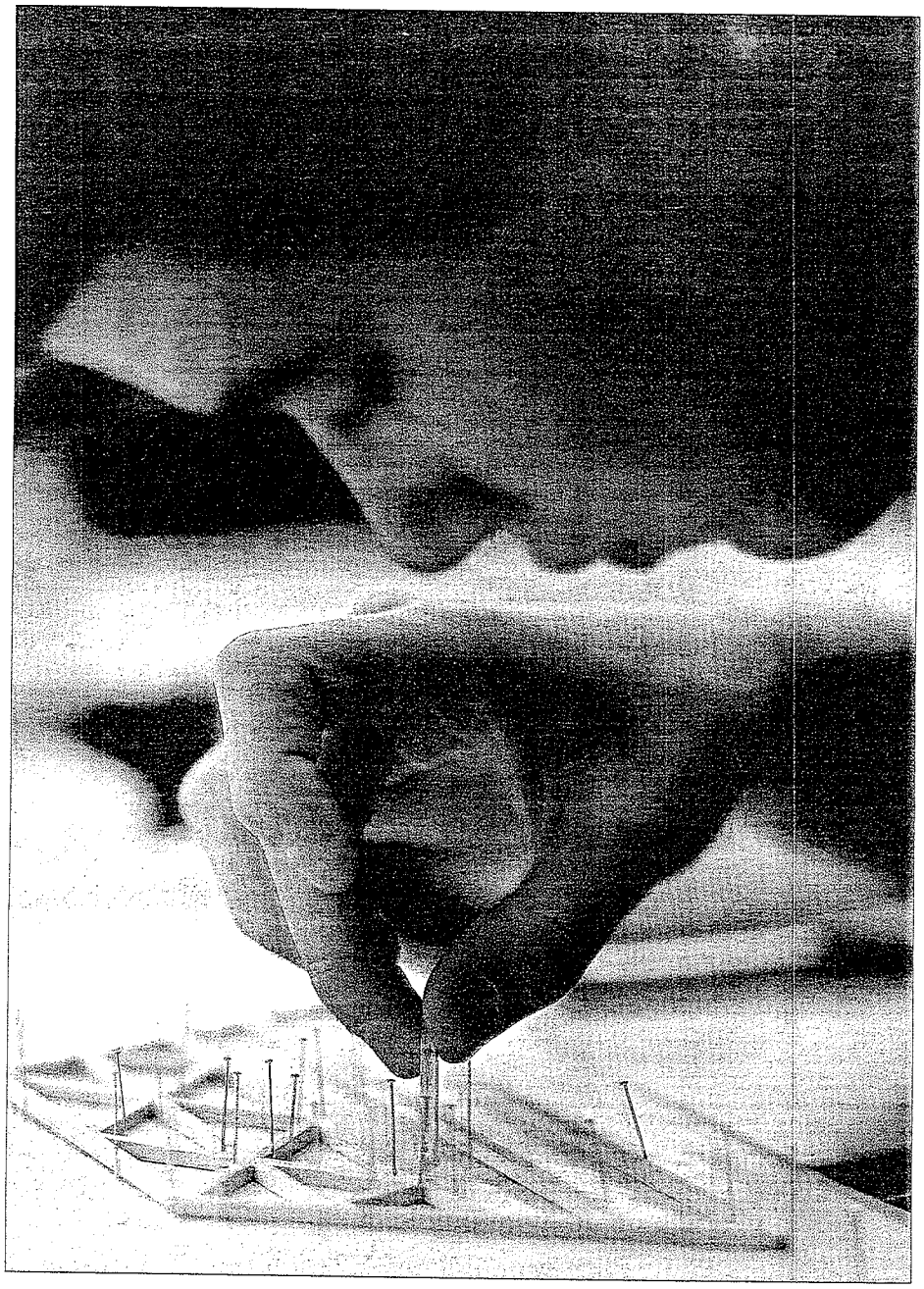
On the other hand, the classes have shown Austin Budell that although he still wants to study mechanical engineering as an undergraduate, he's more interested in studying law for a career.

Students in the Project Lead the Way classes can earn college credit at some universities, including Purdue, if they score well enough in the class and on a final national exam that everyone involved in the program is required to take at the end of each yearlong course. Denney estimates that 30 to 40 percent of his students will do well enough on the upcoming exams to qualify for college credit.

More than 230 Indiana schools offer Project Lead the Way, including all four high schools in Dubois County. Each school is allowed some leeway to teach the curriculum, Denney says, but all teachers are required to include certain projects: building an automatic marble sorter, creating a Rube Goldberg contraption, crafting a load-bearing bridge of balsa wood and testing the tensile strength of metal rods.

The process of making a marble sorter teaches students about electrical and structural engineering, Denney says, while other projects teach about civil, mechanical and materials engineering.

"The main theme to all of them is prob-



Altmann carefully glued pieces of balsa wood together March 5 to make a bridge that would be tested for strength in the structural stress analyzer portion of class. The bridge project taught the students about civil engineering, how structures hold different weights and how some shapes are stronger than others.

lem solving, how do you get from this problem you need to solve to the solution," he says.

Of course, it never seems to be as simple as that in the classroom.

The marble sorting machine that Colton Schum and Jarod Mehringer created to sort different colored marbles into their respective bins is operating well one morning when Denney comes over to observe and grade the assignment. Suddenly, marbles are going to the wrong bins, while others spill out of the machine completely.

Moments later, Denney walks away and the pair tries again.

"If it works now, I'm going to be like, 'Oh my God,'" Schum says.

The machine had been operating perfectly before Denney turned up and — surprise, surprise — it continues working again after he leaves. Denney has a reputation as a jinx.

"That's the nature of the project," he shrugs. "I have not seen one (marble sorter) work perfectly when I'm standing next to it."

Schum and Mehringer are not particularly amused, even though they are pretty certain the real cause of the jinx is Denney's shadow affecting the machine's ability to read the colors.

"I quit," Schum grumbles as the machine operates flawlessly, though just a few minutes later he celebrates when the 15th and final marble for the test is incorrectly sorted. He wasn't sure he wanted it to work perfectly right after Denney left anyway.

Still, he and Mehringer continue to fiddle with the machine.

"I just want to see it work all the way," Mehringer says.

Even when they grow frustrated, most other students in the all-male classroom seem to share the same drive to perfect their machines. And though laughter is common — especially on days like a March morning, when students cheer and mock-groan as they test the strength of their balsam wood bridges — the mood can be intense when students are struggling to get their contraptions to work.

"It worked 14 out of 15 times yesterday," Nick Ackerman says as his marble sorter fails to work in front of Denney. He punctuates the sentence by chucking a pen onto his desk.

The class also occasionally can lead to some competition, including light-hearted ribbing during testing days, but students say it's all friendly. Denney tries to keep it that way by not making anything a competition because "that would get them too riled up."

"I don't want them to stress in my class and have that be the factor in whether they pass or fail another class," he says.

But despite the occasional stress, Loomis enjoys the process.

"Even though it's like a failure, you can keep trying, you'll never give up," Loomis says of the Rube Goldberg project, one of his favorite assignments of the semester.

Conducted in the fall, the Rube Goldberg project entailed small groups of students each charged with building one section of a machine that, when put together, would keep a marble moving through it from beginning to end. The assignment proved difficult, and parts of every segment malfunctioned on test day. Still, many students still name it one of the favorite projects of the school year, which concludes next week with a final project before reviewing for the final exam begins.

Contact Kasey Hawrysz at khawrysz@dcherald.com.