

Students identify, design and create to be

RETAIL-READY

ENGINEERING CLASS: Rigorous course develops skills for marketing finished products

By Tanner Kent

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Forget college-ready.

These students are retail-ready.

This year marked the first in which Mankato high school students were able to take the capstone class in the Project Lead the Way program, a national engineering curriculum adopted by Mankato Area Public Schools four years ago to prepare students for engineering careers.

Students could not even register for the top class — called Engineering Design and Development — until this year because it required students to complete several courses beforehand.

The class requires students to identify a need, and then design and create a product to fulfill that need. Along the way, students engage in nearly all aspects of engineering and, at the end of the course, have a finished project to market.

Five Mankato East

Please see READY, Page [B2](#)



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Jake Barnett demonstrates his team's product, a car air freshener/disinfectant, during a presentation Wednesday. Barnett is among five Mankato East seniors who represent the first class of students to reach the top course in the district's Project Lead the Way curriculum.

[See READY on Page B02](#)

READY: Air freshener is also a disinfectant

Continued from Page B1

seniors stuck with the program and are now only weeks away from becoming the first in the district complete it. On Wednesday they showcased their engineering acumen and nearly finished products to the district's technology education advisory committee.

" There were a few more when we started the year," said Eddie Putzier about the handful of students who dropped the rigorous course. "But then they saw what we had to do."

Putzier and his teammates - Jake Barnett and Alex Finke - decided to construct an automobile air freshener that doubled as a disinfectant (they also considered a remote- controlled lawnmower and a weed guard for Jet Skis, among others). Their goal was to reduce the chances of catching airborne viruses from riding in cars with people who are ill.

The group started by considering several different disinfectant mixtures before finding one that was not harmful to

breathe.

Once they had a mixture - complete with lemon and sesame oils for a pleasant aroma - the group conducted a flurry of tests, including lab tests at Mankato Clinic to determine if their mixture actually killed viruses (it did, but only if applied directly), tissue tests to determine if their mixture irritated the heart, eyes or lungs and combustibility tests.

They designed a clip that attached to most automobile vents and engineered it so that consumers could control the flow. They stress-tested each part of the assembly for durability and checked to make sure that Sanitair did not infringe on any patents.

" We chose (the project) because it was practical and easy to do," Barnett told those in attendance.

"And because it would be helpful to everyone."

The second group - Miller Crawford and Justin Hughes - crafted the Double Shovel, a shovel attachment that features two high wheels that act as a fulcrum for lifting and moving snow without neck and back strain.

The advantage over current push-shovel models is that users can also push down on the Double Shovel to lift snow in the air, a maneuver that would require manual lifting with any other shovel.

" We wanted to reduce the strain and stress on the body due to shoveling," Crawford said. "And also speed up the process."

Perhaps not surprisingly, all five students are planning on pursuing some form of engineering in college.

Several other area schools also have adopted Project Lead the Way in recent years, including Blue Earth Area, Maple River and United South Central.



Pat Christman

Dave Stahl (right) answers a question by V-Tek, Inc. president and CEO Denny Siemer during a presentation by Stahl's Engineering Design and Development students Wednesday.