

HANDS-ON LEARNING

A small Wisconsin district has emerged
as a technology education leader

Shelby Anderson



The Barneveld School District's technology education, "tech ed," department is proof that bigger isn't always better.

The school district, which had a graduating class of 27 in June, has won awards in several high-mileage vehicle competitions. Its SkillsUSA

chapter has been successful on the state and national stages, and its tech ed classes rival many large schools.

Brett Stousland, district administrator, said the district's tech ed department flourishes because of district staff but also because of community support.

"It's truly a community program," Stousland said. "Someone will show up with a farm tractor and say, 'Hey, can you quickly weld this?' Then when they have extra metal rods or something, they donate it to the district. The community has been very supportive."

Welcome to
BARNEVELD
SCHOOL
Class Of 95



Despite the school's small size, Barneveld High School students have won numerous high-mileage car competitions.

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Duane Elfering teaches the district’s tech ed classes and advises its related clubs. Elfering won the International Technology and Engineering Education Association’s Teacher Excellence Award last year

and was named Wisconsin Technology Teacher of the Year by the Wisconsin Technology Education Association in 2014.

Under Elfering’s guidance, Barneveld’s students have earned

numerous awards and recognitions. In particular, they have been very successful in the Wisconsin Energy Efficient Vehicle Association’s (WEEVA) high-mileage car competitions. The competitions challenge

students to build small energy-efficient vehicles. Teams from around the state compete in a fuel category (supermileage) and an electronic class (electrathon). This past school year, the team from Barneveld won the supermileage category with a car that averaged 560 miles per gallon of gas and took third in the electrathon.

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— Duane Elfering,
Barneveld tech ed teacher & advisor

Students built canoes in a class focused on transportation at a cost of only \$50 per canoe. At the end of the class, students tested the canoes on a local lake. Teacher Duane Elfering confirmed that the canoes did indeed float.

Elfering is proud of his students’ success, especially considering that they are going up against larger school districts with more funding.

“You have schools that have 2,000 students and a lot of funding, and our kids are able to compete,” he said.

■ Learning Inside and Out of the Classroom

While the district’s success with its high-mileage vehicles is impressive, the classes that the small district is able to offer is equally impressive. The slate of courses includes metals, woodworking, engineering and robotics. Additionally, there are a number of high-level courses that Elfering offers every other year such as a building trades course, a class focused on transportation, and a

biotechnology class.

Over the years, the Barneveld building trades class has constructed a house for a staff member, a chapel for a northern Wisconsin summer camp, and a generator for the Barneveld Fire Department. One year, the class built a 6,000-square-foot “sale” barn, a building typically used for auctions that includes a show ring as well as living quarters.

This past school year, Elfering held the transportation class. Among other projects, students were put into small groups and charged with building 16-foot, full-size canoes. By the end of the class, the students had manufactured six canoes out of a special plywood called luan for a cost of only \$50 per canoe. On one of the last days of class, the students took their canoes out on a local lake



where they put their engineering and construction skills to the test. Elf-ering confirmed that all canoes not only floated but performed admirably in the water.

One of the more involved classes is the district's biotechnology course. Students study how technology is being used to improve agriculture and increase food production. In one project, the class raises chickens. At the beginning of the course, the class receives a shipment of baby chicks and over the course of the class, students closely monitor and study the chickens' growth and health. At the end of the course, the chickens are butchered and the class holds a chicken dinner for the community to raise money for the district's tech ed program.

"Overall, the class is really good



The New Pathway for Vocational Education Teachers

Districts across the state have struggled to fill teaching vacancies in a number of subjects. One of those areas most challenging to fill is vocational education or tech ed. Last year, lawmakers passed 2015 Wisconsin Act 259 and included provisions in the 2015-17 biennial budget in hopes of drawing more people to the teaching profession.

Act 259 created an experience-based licensure process for teaching vocational education subjects similar to the process created for technical education subjects in the biennial budget.

Candidates for either license must have training and/or experience in a technical or vocational field or a trade, as well as some training in how to teach (pedagogy) and have a district interested in hiring him or her to teach technical or vocational education subjects.

Qualification for these licenses are based on a system of points. Candidates must score at least 100 points, with at least 25 points for technical or vocational experience and at least 25 points for pedagogical experience.

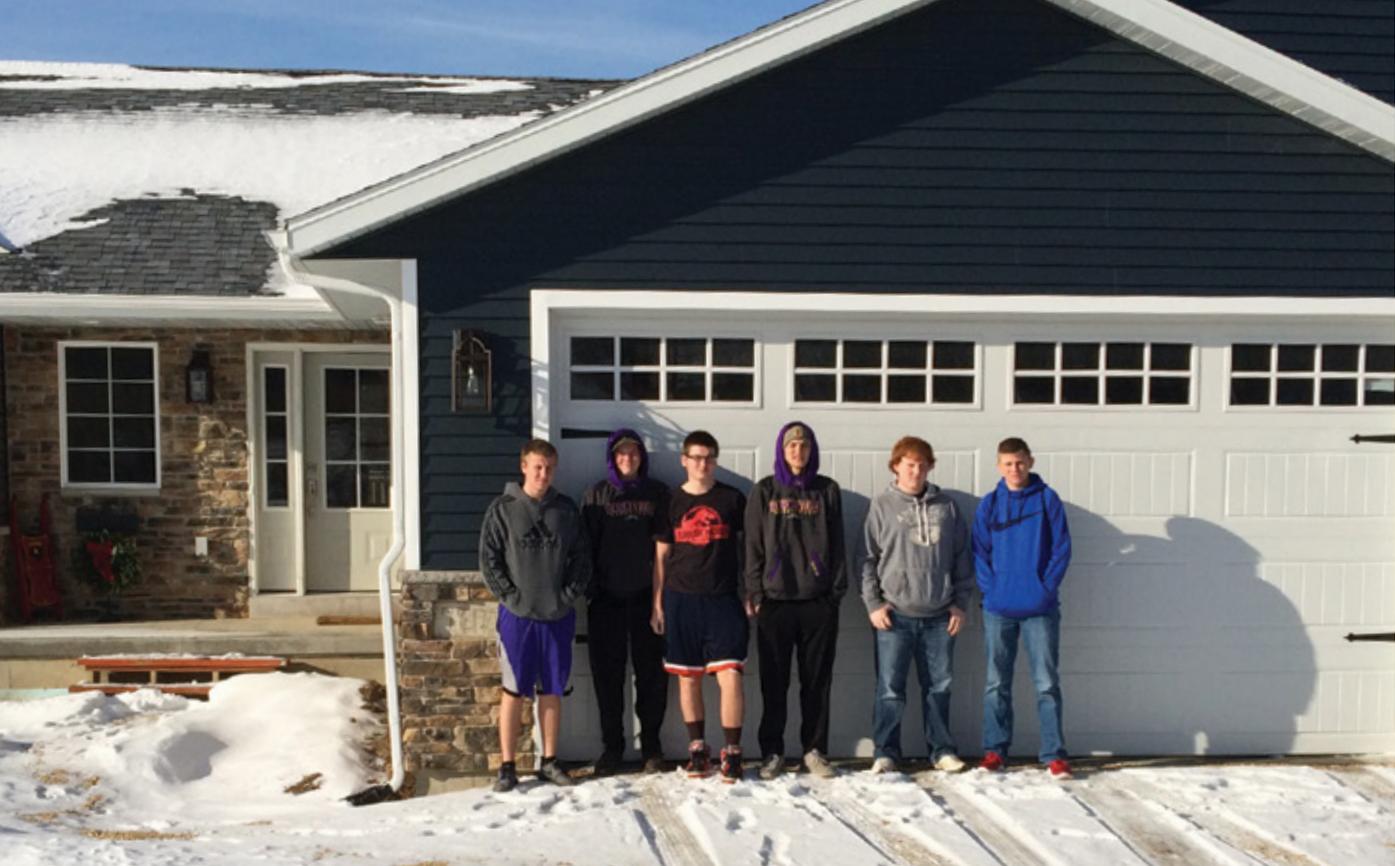
Qualified candidates hired by a school district are issued an initial three-year teaching license by the Department of Public Instruction (DPI). Once that license expires, DPI may issue a professional teaching license to the applicant as long as they have successfully completed the curriculum, which is determined by the school board.

When he signed Act 259 into effect, Gov. Walker said, "This law will make it easier for school districts to fill much-needed teaching positions with professional and experienced individuals, which will assist in allowing school districts to offer courses in vocational areas that may not currently be offered to help Wisconsin students learn about in-demand careers and better prepare them for the workforce."

Under Act 259, vocational education subjects include: agriculture; child services; clothing services; food services; housing and equipment services; family and consumer education; family and consumer services; home economics-related occupations; health care-related occupations; business education; and marketing education.

Technical education subjects covered in the budget provision include: architecture and construction, biotechnology, broad-based technology education, communication and information technology, electronics, engineering, environmental technologies, manufacturing, power and energy, and transportation.

Act 259 was authored by state Sen. Alberta Darling (R-River Hills) and state Rep. Daniel Knodl (R-Germantown) at the encouragement of a number of southeastern Wisconsin districts. □



for the students,” Elfering said. “They get a better idea of where their food comes from and how it’s produced.”

Elfering has also made an effort to expand the tech ed department to the district’s younger students. He offers a basic engineering course to

its middle school students. In addition, there is now a middle school high-mileage vehicle team that just started competing last school year.

■ Importance of Tech Ed

Working so closely with students on engineering and manufacturing

projects, Elfering said he sees firsthand the skills and knowledge that students gain by building a canoe, raising chickens or building a house.

“As a student, you become much more well-rounded,” Elfering said. “You learn that if you have motivation and a work ethic, you’re going to succeed.”

The success of Barneveld’s tech ed department is also apparent by the high rate of student participation. Elfering said that about half of all students in the district take a class or are involved with the department in some capacity. Elfering said he is also proud of the fact that the classes attract a wide-range of students.

“Tech ed used to attract a certain type of student,” Elfering said. “Now, we have college-bound students and everyone else. It’s just excellent to see.”

The demographic also includes a lot of female students. Elfering said about 40 percent of all students in the districts’ tech ed classes are girls. “Some of my best welders this year were girls,” he added.



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During the 2014-15 school year, Barneveld won the supermile category at the Wisconsin Energy Efficient Vehicle Association's (WEEVA) high-mileage car competition. The car built by Barneveld students averaged 560 miles per gallon of gas. The students designed and constructed the car as part of the school's engineering class.

For many Barneveld students, the work doesn't stop once they graduate. Many Barneveld graduates pursue careers or further their education in tech ed careers. Elfering estimates that almost half of the graduating seniors who were involved in the district's program are going into related careers in manufacturing, engineering, biotechnology, and others.

Most importantly, Elfering said he has learned that the hands-on,

real-world learning that takes place in his classes should continue to have a place in our schools.

"In today's education climate, everything is focused on reading, math, writing and tests," Elfering said. "In a lot of schools, tech ed has gone away but it's so important to our students' learning." ■

Shelby Anderson is editor of Wisconsin School News.



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