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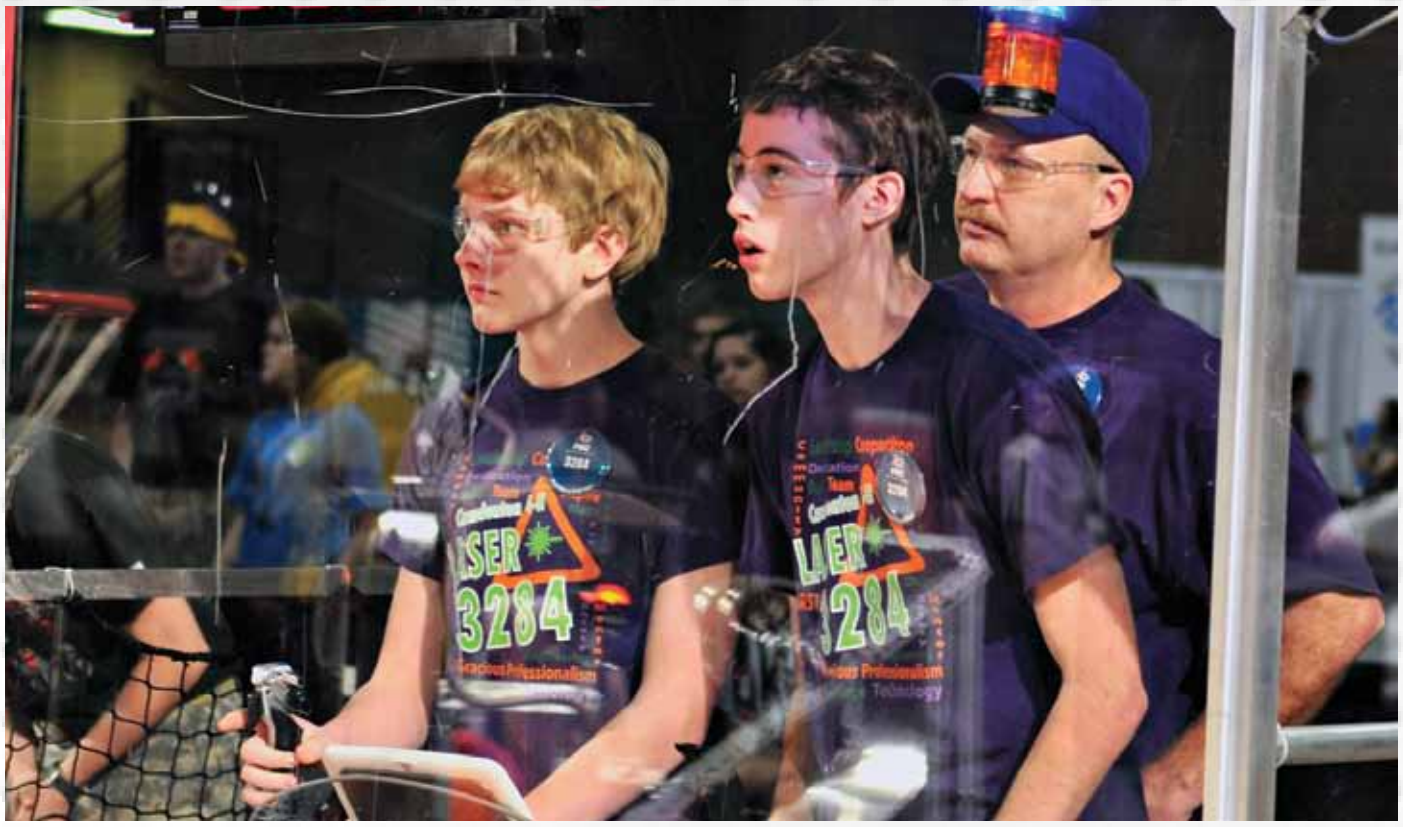

Programmers and drivers Kyle Gulshen, left, and Jacob Harmon, center, concentrate on driving their team's robot during a *FIRST* Robotics regional competition in Kansas City in March. Their team adviser, Mitch Comer, keeps tabs on their efforts.

The Hardest Fun Ever

Camdenton R-III's new, cool and afterschool' robotics program

Two minutes and 10 seconds is all the time they get. An arm goes up. *Swoosh!* A ball goes through the hoop. Then another. Then a bumper-car-like scramble ensues as players scoop up balls, drive to the basket, bank shots and rack up points for their teams.

The arena is packed with thousands of cheering fans. Team mascots roam the crowd while supporters chant and wave signs in support of their favorites. But these basketball devotees aren't here to watch players like Lebron James or Kobe Bryant. They're here to see a regional matchup at this year's Rebound Rumble, a hybrid basketball game played with robots built by high school students.

"We celebrate a guard that hits the 3-pointer at the buzzer, and everyone knows their name," says Mitch Comer, industrial technology instructor for Camdenton High School. "But do we know every kid's name that got a 34 on their ACT? Do we cheer and inspire them to push beyond their limits?"

Mitch is the coach for the Camdenton R-III robotics team. This is the third year the award-winning team is competing in this international robotics education program.

In the late 1980s, Dean Kamen, inventor of the Segway (a two-wheeled personal vehicle), saw that out of 65 developed nations, the United States ranked in the lower half in science and math, with fewer students pursuing careers in science, technology, engineering and math. So in 1989, he started *FIRST* — For Inspiration and Recognition of Science and Technology — as a way to inspire kids to choose these career paths.

Mitch also serves as faculty adviser for Project Lead The Way, a national pre-engineering college-credit program for students. Years ago, while working with mentors for that program, Mitch couldn't help but talk about another dream he had for students.

"I told them I'd really like to get involved in a robotics program. All the top schools in Missouri's metropolitan areas had a program, and the kids were flourishing in it," Mitch says. "Luckily, the mentors got my vision and said, 'Sure, we'll help you,' not really knowing what that would entail."

Mitch's wife, Sherry, director of Camdenton's after-school services, writes grants to fund the district's after-hours programs. With her help, Mitch landed several grants, and in the fall of 2009, *FIRST* Camdenton 4-H LASER 3284 team was established.

"We were one of the first schools in rural Missouri to get a program started," says Mitch, who's taught for the Camdenton district for 16 years.

Three years ago, he persuaded 21 students and five mentors into participating in the program. This year, Mitch has 54 students involved, with 30 mentors volunteering their time.

Each January, *FIRST* hosts a national kickoff, where participating schools find out what that year's robot will be expected to accomplish for competition. Once the project is announced, teams have only six weeks to build their robot. Then it's "bagged and tagged" with a special lock and cannot be touched until competition.

Mitch says the first few days after the announcement are spent brainstorming ideas. Once the teens know what they want their robot to do, prototypes are made and theories tested.

The students, grades nine through 12, produce everything from the robot's computer-generated 3D design to the final construction. Each student has a job that's integral to the team's success.

This year's robot is expected to sink as many basketballs as possible into any of four hoops set at varied heights at the end of the 27-foot-by-54-foot court. For the first 10 seconds of game play, robots are expected to run on their own, and any points made are doubled. For the remaining two minutes, the humans take control from behind Plexiglas walls at each end of the court, aiding the robot to gather balls and shoot baskets.

Points also may be scored by balancing a robot on any of the three small bridges that sit center court. Balancing by a single robot gets that team points, but teams who cooperate also are rewarded.

"Ultimately, it's not about the robots," says Sherry, who's also been with the Camdenton school district 16 years. "It's about the kids learning leadership and organization and what *FIRST* calls 'gracious professionalism'. Students are encouraged and expected to help each other any way they can so everyone succeeds."

Camdenton's robot, No. 3284, sinks a shot during a match at the Kansas City regional.

The six-week build season goes by quickly. Students work from 4 p.m. until late in the evening after each school day and even longer during the weekends. For mentors, who run the gamut from civil engineers to registered nurses, it's like leaving one full-time job for another.

Mitch estimates the students and mentors logged nearly 6,000 hours this year to build the robot they call the M1 Abrams, named after the U.S. battle tank known for its pinpoint accuracy.

Online Extra

See how the robot fires a shot in a video in the online edition at www.ruralmissouri.coop.

On March 1-3, the team tested its robot's accuracy as they took part in their first regional in Kansas City. There, they competed in 10 qualifying matches with robotics teams from across the United States.

After two days, the Camdenton team ranked 21st out of 64 teams and joined the eighth seed in the quarterfinals. Joining forces with two other teams, Camdenton finished with a tie and two losses, including a respectable 48-47 loss against the No. 1 seed.

Kyle Gulshen, a junior, thinks *FIRST* Robotics is "phenomenal.

"I believe this should be a model of education that's included in every school's curriculum," says the 16-year-old. "You're learning this in the classroom, and you remember it because you're applying it to real-life situations."

To find out how to start a FIRST robotics team at your school, contact Mitch at mcomer@camdentonschools.org or check out www.usfirst.org.

The FIRST championship will be held at the Edward Jones Dome in St. Louis on April 25-28. The event is free to attend.