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New year means a new robot for Tech High

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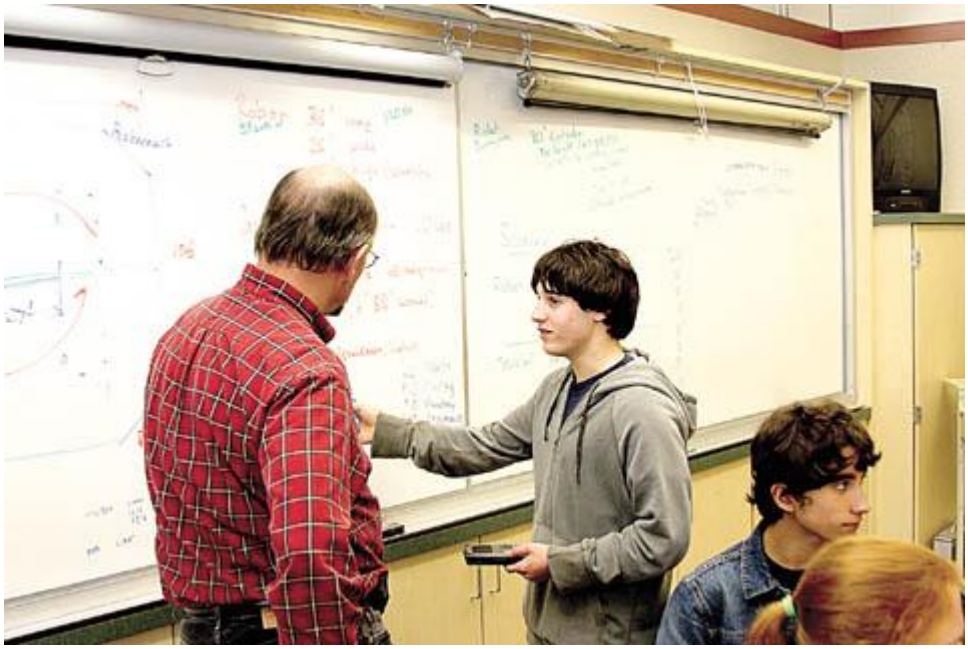

Proud Tech High parent Garth Antila uses his engineering background to coach Tech High's Junior Dylan Fields during the first day of the competition.
Kevin Walters

How many students can a robot control? Or is it they who control the robot?

If you ask Team Phantom Robotics at Tech High in Rohnert Park, the answer is a conundrum.

"It's horribly addicting," says head coordinator, Greg Weaver. "I wake up at night wondering if we remembered this or that. The stress towards the end is incredible but extremely rewarding.

"It's the highlight of my year."

Now in its eighth year, Weaver has been involved with the robotics program since its start.

On Saturday the team received its box of parts for building this year's robot for the FIRST (For Inspiration and Recognition of Sciences and Technology) Tech Challenge regional competition in March. Just like previous years, FIRST has added new twists and nuances that will challenge this year's rookies as well as veteran teams. Teams from across the country are sent identical kits and they will have just six weeks to analyze the game scenario, design and build a robot to fit the game. Given minimal instructions and limits on dimensions and weights, the teams can be creative in their designs. Seven days a week for the next six weeks this dedicated group will work on their bot, preparing for this year's regional competition in San Jose the first weekend in March and again at UC Davis the third weekend.

The design of the robot is left entirely up to the kids. Saturday they had their design day, forming groups to brainstorm ideas for designs. They then put their ideas out to the group as a whole and narrowed it down to one or two designs they are going to try to prototype. Though they receive a box of parts for their robot, they've been doing it so many years they have accumulated a nice collection of spare parts to incorporate if need be.

As long as they stick within FIRST guidelines, there's no limit on innovative design. The price tag to build a robot can reach close to $1,000 but the accumulative costs for fees, materials and additional items needed to compete can bring that figure way up. This year, 40 kids are participating and each is assigned to a specific group. Each group has one responsibility for the production and implementation of the robot and the competition.

With 10 groups total and close to 20 parents volunteering to work with each group, the end result is something out of a sci-fi movie. It walks, picks things up and follows internal commands.

It plays the game.

Last year Tech High Phantom Robotics earned a trip to the "Super Bowl" of robotics, the FIRST national robotics competition in the Georgia Dome, home of the Atlanta Falcons football team. The team finished in the middle of the pack - 41st out of 86 teams - in the April competition, and also met some industry specialists from major engineering firms and government agencies. Team members also met Dean Kamen, FIRST founder and inventor of over 150 products, including the Segway scooter.

The team earned the invitation after a strong finish at a regional competition in Davis. "Gloria Machina" (Translated roughly to "Glory to the Machine" from Latin) finished in the top eight and won the Regional Engineering Inspiration Award, the second-highest honor at the event. Local businesses then came in and helped pay for the trip as team sponsors. With the expenses reaching a whopping $58,000 this team depends on local sponsorship on top of money raised through fund raising efforts.

This year, one local business has challenged the team. If the team makes it to the finals this year, that business is going to match dollar-for-dollar any new corporate sponsors. Their current sponsors and money from fundraising are at a 50/50 ratio of needed funds. One of their goals this year is to build two identical robots: One to ship and one for practice. This will be the first year they will attempt to build two so fundraising has already started with an even greater effort than before.

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"Now that we've had a taste of what it's like to win, it's on for this year," says 17-year-old Blake Hooper. He first began robotics as a freshman not knowing anything about building, parts or robots. Now, in his fourth year, Hooper is the leader for the manufacturing group.

Aside from seeking local sponsors, this group is on the look-out for more mentors. Parent involvement is a great resource for them and currently, they have mentors covering each group except CAD and animation. Garth Antila, parent to freshman Shainia, is a mechanical engineer and mentors the manufacturing group. "I was quite impressed with the appetite for learning," Antila says of Hooper's leadership. "I'm only here to help keep their focus, not tell them how to do it."

Antila uses the "GEMO" approach. "Good Enough, Move On." That, he says, keeps them on task so everything can come together systematically in the closing stages. Mentor and parent, Meri Melani holds the Board of Directors chair for fundraising and is in her third year with her son in the program. "We won't give them the answers but we lead them to the right answers." Melani is in it for the duration as her daughter will be entering as a freshman next year.

On February 19 the team will be anxiously awaiting the arrival of the FedEx truck to ship off their newest creation. Until then, the clock is ticking and their hard work and imaginations are already merging together toward one common goal: To win.