

Team 122 members James Burton, 18, and Juliana Wu, 16, get metal pieces ready to be measured and cut to size Jan. 8 at the New Horizons Regional Education Center in Hampton. The team includes members from area schools as well as home schooled teenagers. PHOTOS BY DIANE CEBULA/DAILY PRESS

A finely tuned machine

A diverse group of teenagers is building a robot together in hopes of winning a national competition.

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Inside a classroom at the New Horizons Regional Educational Center, a dozen teenage kids sit at their desks, straining to pay attention to the adult talking in front of a blackboard.

Toes tap, fingers drum and teeth grind as these impatient young souls twist and squirm in their seats, eager to pick up their laptops, backpacks and messenger bags, then bolt out the door and down a long hallway.

It's just after 2 p.m. on a Friday afternoon. But instead of getting ready to head home, most of these teens have just arrived at the center's Hampton campus after driving from as far away as Gloucester. And when Joanne Talmage finally nods and gives them the go-ahead to leave, they practically run down the corridor and across a large welding shop before jostling into a cramped work space at the far end of the building.

Down go their bags as they push together in a mass, each one seeking the best spot in a jumbled expanse of work carts, tool racks and shelving jam-packed with mechanical and electronic parts.

Then up goes the volume of their voices as — virtually all at once — the members of the NASA Knights start airing some very definite, often contradictory opinions about how to design and build their entry for the 2009 FIRST Robotics competition.

It's a scene that will be replayed over and over again during the next few weeks as some 40 students from around the region gather here 6 days a week to conceive and fabricate a robot for a late March contest in Richmond.

If their creation is successful there, they could go as far as the nationals set for April 16-19 in Atlanta.

"These competitions are amazing. But until you get going, it's like 5-year-old soccer," says team co-captain Julia Thompson, 16, who drives in each day from Gloucester.

"It can be a difficult process at first. But if you figure it out, you'll have a great team — and a great robot."

Unlike most of the other six teams in Hampton Roads — and some 1,700 other teams across the nation, Team 122 draws its members from not just one but more than a half-dozen different schools,

Online
extra

Go to www.team122.org to learn more about the NASA Knights and the 2009 FIRST Robotics competition. To view video of the class, visit dailypress.com/robotics.

including private as well as public institutions. It also includes home-schooled kids such as lead fabricator David Holloway, 15, who lives in Yorktown.

That diverse mixture of minds is made all the richer by the team's long and successful record in the competitions staged by FIRST, which was founded in 1989 by internationally known inventor and entrepreneur Dean Kamen — creator of the Segway Human Transporter — to promote student interest in science and technology.

As the second oldest group of its kind in Virginia, Team 122's members have won nearly 20 awards in the past 11 years, including a division championship at the national level as well as numerous regional championships.

And that success has attracted regular interest every year, including students who have other team options.

"It makes it harder to run a

team when you don't have a single school to rally around," says Talmage, the New Horizons instructor who leads the team.

"But that diversity makes us really unique — and I think it's made us a lot stronger over the years."

Still, after nearly a week of raucous brainstorming, it's time for the members of the team's fabrication group to put aside their differences and come up with a design they can not only all agree on but also put down on paper.

This year's robot must be strong, mobile and responsive if it is to succeed in its task of weathering any blocking moves, then scooping up balls and tossing them into its opponents' hoppers. And because of the slippery, low-friction surface on which the 2009 contests will be played out, it must — above all — be stable.

"Problem number one is traction," Talmage explains. "Once the competition begins, we know a bunch of the robots are going to slip and fall onto the floor."

Breaking down into groups, the students begin by hurling words at each other instead of explaining themselves, then agreeing on solutions. When that approach fails, they turn to sketches scrawled on scraps of paper or a blackboard.

"Draw it. Make picture!" former team member and now mentor Ben San Juan commands, frustrated by the linguistic stalemate as he tries to work out the details of a ball-sweeping mechanism with Holloway and Thompson.

"Look — it's got to have a low center of gravity," says former Menchville High School team member Daniel Moodie — now a student at Virginia Tech as well as another young mentor — as he counsels the impatient subgroup designing the robot's base.

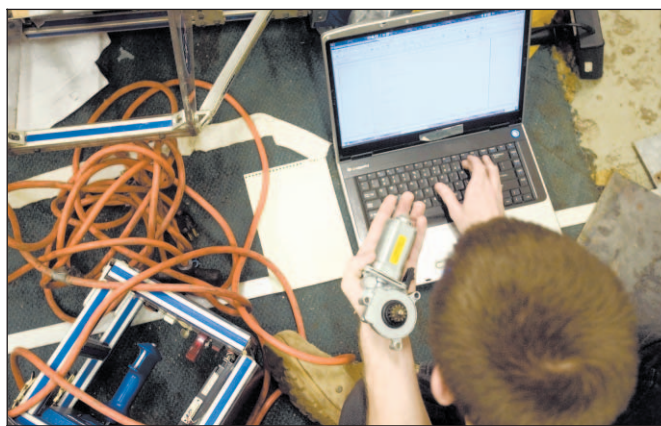
"We don't want to risk this thing being top heavy, then flipping over."

Eventually, all the different ideas will sort out and come together, says James Young, a retired systems engineer who has served as a mentor for the past five years. But with the clock ticking and time slipping away, the process has to speed up.

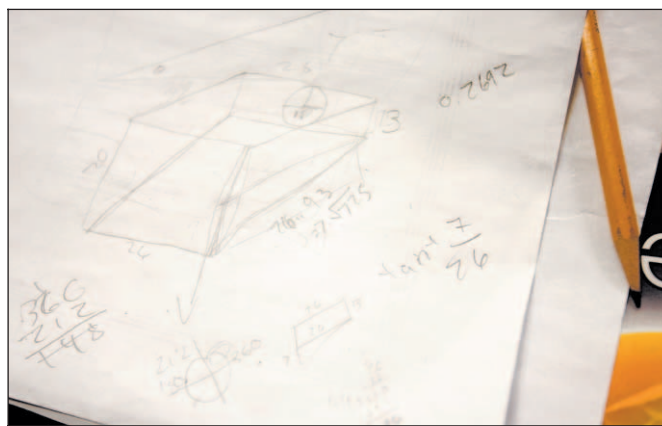
"As always, it's not just about all the ideas in their heads but learning to work together as a team," he explains.

"And until we can get them to work that out, it's like herding cats."

This is the first in an occasional series of stories following the NASA Knights robotics team as they create a robot for the 2009 FIRST Robotics competitions.



Bethel High School student James Barton, 18, inventories some of the assigned parts to look up their specifications online.



This drawing and dimensions for a basket portion of the robot is by York High School student Juliana Wu, 16.



From left, Daniel Moodie, Ben San Juan, David Holloway and Julia Thompson brainstorm.

First major illness gives 'Dad' new insight and name

It's nearly 3 p.m. on a Friday afternoon and — instead of finishing up my week at work — I'm just sitting down at my home computer.

One hand is pecking out letters on the keyboard, while the other is cradling the freshly diapered bottom of my little baby boy, rocking him back and forth as I try to string a few coherent sentences together.

It's not the way I expected to begin my first column on the adventures and misadventures of a first-time dad. When my former boss raised the idea a few months back, he argued — probably with some insight — that lots of readers might be interested in the triumphs and troubles of a baby boomer who — for reasons both clear and unclear — didn't join the



First-time
Dad

MARK ST. JOHN
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brotherhood of fathers until the age of 54.

But after the concept jelled — and the deadline approached for a column alternating with first-time mom and fellow Daily Press writer Nicole Paitsel — it didn't take long for my boy to make that train jump the tracks.

Owen Alexander Erickson may be only 5 months old. But his first illness quickly made it clear that he would get equal, if not top billing, in anything I wrote.

It wasn't just the 104-degree fever with which he re-arranged our day that cemented this realization. Equally telling was the speed with which I abandoned my lifelong reluctance to be ensnared by the medical world.

In most cases, I'm the kind of guy who puts off doctor's visits until he practically has to be carried in on a stretcher. Except for a traumatic car wreck years ago, I've checked myself into the emergency room only twice — once after grudgingly accepting the seriousness of a wildly inflamed appendix, then again when a severed fingertip needed a professional hand to stop the bleeding and sew it back.

But after the sadly lethargic Owie didn't respond as hoped to a squirt of baby Tylenol, I

set my usual phobias aside and picked up the phone without blinking. Then I hung on for more than 30 minutes, doggedly waiting my turn as the doctors' assistants dealt with their usual Friday deluge of sick baby calls.

When I finally heard a nurse's voice, my paternal determination was rewarded. She wanted to see the baby right away. She also showed me that — in the realm of pediatrician's offices — Owen is still Owen. But my new name is Dad.

It's not a word I've heard a lot in recent years. My own, much-missed father passed away two decades ago. But during the 4-hour gantlet of exams that followed our rush to the doctor's office, I found myself answering to it again

and again.

In most cases, "Dad" was preceded or followed by instructions to hold Owen still so he could be probed, pricked and X-rayed by the doctors, nurses and technicians. Short but searing roars of protest accompanied each violation — with Owen looking back both fiercely and plaintively as I carried out my role as a heart-sick accomplice.

That left me with no questions about sticking the car seat in a corner, then holding him in my arms as we went from stop to stop on our journey. Pacing gave us both the patience we needed, so — even after his 14 pounds began to feel like 40 — we walked back and forth each time until someone else opened the door and called out the words "Ow-

en" and "Dad" again.

In the end it was a big day for all of us — including the woman dealing with her own new experiences as Owie's mom.

But where the antibiotics that my wife raced home to deliver knocked out his suspected pneumonia quickly, what I got from his illness will be permanent.

At my age, there's too much of me to change completely. But I've been profoundly reshaped and remade — much more than I could have imagined — by the simple words that now mark me as a little boy's dad.

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