



Where Skills and Talent Come From

By Miles Free, Director, Industry Research and Technology / mfree@pmpa.org



Recently, I had a chance to see the future of our craft when I was asked to serve as a judge of the Pennsylvania State Championship of the Formula One™ Technology

Challenge (www.flinschools.pitsco.com). I was surprised by the breadth and depth of skills displayed by the participants who were students ranging from fifth grade through high school seniors. *I was even more delighted to see the joy, pride, professionalism and competency displayed by each and every student that competed.*

The Formula One Technology Challenge involves a five-step process that meets the standards for technological literacy, the National Council of Teachers of Mathematics (www.nctm.org) and the National Science Teachers Association (www.nsta.org). The five steps are design, analyze, make, test, and race. The Formula One Technology Challenge was to

create and build a balsa racer that meets demanding specifications using CAD software, CAM software, CNC milling and testing for aerodynamics (virtual or actual). Competitors had to create documentation, make a verbal presentation, and of course, race their cars. Each group was also evaluated on their marketing, branding and sponsorship efforts as well.

I gleaned several lessons from the students' entries. For an example, changing from a 1/4-inch to a 1/8-inch ball nose cutter really improves surface finish, but increases machining time. Testing data helped several teams demonstrate the reason for their choice of steel, ceramic, and

(Continued on page 2)

In This Issue...

- Where Skills and Talent Come From
- Technical Member Profile: Prince Industries, Inc.
- Why PMPA? Grow!
- PMPA's 78th Annual Meeting Heads to Texas
- Listserv Topics
- PMPA Calendar

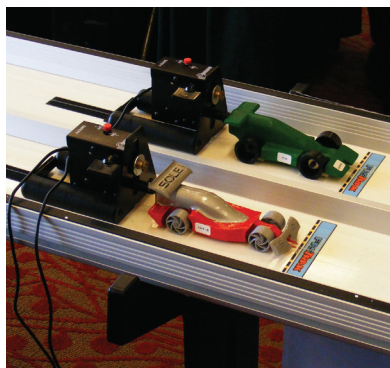


(Continued from page 1)

magnetic (!) bearings or alternate means of attaching wheels. Several teams performed extensive tests to show the differences between steel, aluminum, Delrin™ and carbon fiber for axle applications.

The iterations that most teams worked through to improve their designs as they used the testing data from their wind tunnel and simulation testing were very impressive. In my opinion, the ability to not only obtain data, but to analyze that data, make inferences from that data, and then execute the needed changes was the greatest takeaway for the participants in this event.

Major industry support included Denford Products (www.hitechinc.us/denford---cadcamcnc.html) and 484 Consulting, LLC, whose CEO, Paul Koontz, chaired the Pennsylvania State Championships. HiTechinc (www.hitechinc.us) sponsored the state event for Pennsylvania, and its president, Brian Haskell, coordinated the event. Synergis (www.synergis.com/home), the Autodesk software distributor, provided \$1,500 in award monies. Synergis' Tim Varner led the engineering evaluations of the submissions.



Each and every one of the students that participated demonstrated to me that they were qualified, thoughtful, skilled and competent practitioners in the field of Design, Analyze, Manufacture, Test and Perform.



Sixteen teams amounting to almost 100 students were on site in this competition. Five teams qualified to go to the National Championships. Pine Richland High School's entry, "Predator Racing," earned the state championship title. Elizabethtown Middle School's "Ninja's" entry took second place, and Donegal Middle School's "Twisters" entry took third place, earning their trips to the Nationals. Manheim High School's entry, "PA Hardcore," took a second place, and North Lebanon High School's entry, "AeroBreakerz," took a third place, and also qualified them for the U.S. National competition.

Each and every one of the students that participated demonstrated to me that they were qualified, thoughtful, skilled and competent practitioners in the field of Design, Analyze, Manufacture (Make), Test, and Perform (Race). Imagine meeting a fifth grader who knows his drag coefficient to the fourth decimal

place and understands what that means. Imagine meeting a graduating senior who has moved through positions as design engineer, manufacturing engineer, resources manager and team leader.

This event was as much about business as it was about racing. Imagine how many lessons each participant has mastered on how to contribute to a team, how to create digital designs, how to make inferences from data, how to get a machine to run, and how to solve whatever problems arise. These are skills that don't just qualify them to become good manufacturing employees. These are skills that will ensure them the chance to become great leaders and managers in whatever field they choose. Let's hope that they choose to stay in manufacturing. Their smiles say that just might happen! See more photos on our blog at <http://pmpaspeakingofprecision.com/2011/04/21/where-skills-and-talent-come-from/>