



**Tennessee Valley BEST**  
*(Boosting Engineering, Science and Technology)*  
**Middle and High School**  
**Robotics Competition**

**2008 Program Sponsorship:**  
**“Investors” Needed**





***“The other teachers at school were amazed at the student involvement and dedication we have in our [robotics] club. Students were begging me to stay after school every day during the six weeks of the competition... it’s been one of the most challenging and rewarding experiences of my thirty-two year teaching career.”***

*Nancy Brown  
Teacher, Lamar County  
High School, Vernon, AL*

## The Crisis Facing Our Economic Future

**“Insanity: doing the same thing over and over again and expecting the same results.” ~ Albert Einstein**

- **The U.S. ranks 17<sup>th</sup> in the world** in the number of B.S. in engineering degrees awarded.
- “Baby Boomer” engineers **are retiring in record numbers**, leaving industry with rapidly growing workforce shortages—**and there aren’t enough up-and-coming engineers to fill their ranks.**
- The number of students entering engineering in the U.S. **has remained flat for over 10 years.**
- **High school students lack understanding of what engineering is** and how engineers impact economic growth.

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- **Alabama faces a critical shortage** of the skilled, technically proficient workforce needed to sustain existing and attract new industries. **Its economy is at risk!**
- Alabama’s industries are competing for the same alarmingly small number of engineers. **Many companies are forced to go outside the state** to hire qualified, technically literate workers because there aren’t enough to meet their needs.

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**Together, business/industry and education must work **proactively and in new and creative ways** to attract K-12 students to careers in engineering, science, and technology.**

***Join us in being a part of the solution.***



***“In many ways, the BEST experience is like an education greenhouse; what happens during six weeks of competition would take an entire year in the classroom.”***

*Dr. Mark Conner  
Engineering Teacher  
The Engineering Academy at  
Hoover High School,  
Hoover, AL*

## **BEST Middle and High School Robotics Competition**

### **The BEST Mission**

The BEST mission is to **inspire students to pursue careers in engineering, science, and technology** through participation in a sports-like, hands-on, science- and engineering-based robotics competition.

### **Our Principles**

- ***Students are the primary participants and benefactors.***  
Students do all of the work themselves. Team mentors guide the students across the six weeks as they learn the “engineering design process.”
- ***Schools participate at no cost.***  
There are no entry fees or kit costs associated with the BEST competition. Corporate sponsors fund the program.
- ***BEST is an equal opportunity program.***  
Any accredited school is eligible to participate in BEST.

### **How BEST Works**

- BEST is an **annual, fall competition** for student teams. Each year’s game is different, unique, and challenging.
- Each team receives the same kit of raw materials from which to build their robot and the same kit of equipment used to power their robot.
- Teams have **six weeks** to design, build, and test their robots, which must weigh less than 24 lbs., fit within a 24” cube, and be built only from the materials provided.
- **Engineers and technical professionals from industry volunteer as team mentors.**
- Teams compete on “Game Day” in a series of three-minute, round robin matches, four robots at-a-time. Winning teams advance to a regional championship.



***“Why do I do BEST? Because it is simply the best extracurricular academic exercise at integrating science and technology with the real world applications. It provides my students with opportunities to solve engineering design problems using applied mathematics and science to solve them. I have never experienced anything like it in my twenty years of teaching.”***

*Scott Moody, Science Teacher  
Lee-Scott Academy, Auburn*

## Why is BEST So Effective?

- **BEST** inspires students to pursue careers in engineering, science and technology. This is critical given the dearth of engineers that industry is experiencing now and will continue to experience in the future.
- **BEST** helps prepare students to be technologically literate and thus better prepared to enter the workforce.
- **BEST** teaches teamwork, project management, and leadership development. Students develop analytical, decision-making, and problem-solving skills.
- **BEST** provides students experience in “design-to-market” product development—experience that is transferable to all disciplines and career pursuits.
- **BEST** provides participating students recognition and acclaim typically reserved for their peers in sports.
- **BEST** enhances teacher effectiveness in science and math.
- **BEST** is an outstanding educational program accessible to all students, schools, and communities.
- **BEST is free to schools.** Funding from sponsors provide materials and equipment teams use to construct and run the robots.
- **BEST provides a vehicle for business & industry in Alabama to become educational partners with education—K-12 through college!**



## **BEST – A Workforce Development Alliance between Industry, Higher Education, and K-12**

**“Several of our students were failing school and at risk of dropping out until they joined the robotics team and found their niche. The challenges of BEST Robotics were just what they needed to inspire them to do better in their studies so they could stay on the team. They are now some of our top academic students!”**

John Hoffmaster,  
Science Teacher  
Billingsley High School

### **Why is such an alliance critical?**

Business and industry leaders across Alabama have been bemoaning the fact that there isn't a more organized and effective effort to attract K-12 students to engineering, science, and technology fields. **Manufacturers in particular need a future workforce that is technologically literate**, yet they don't know how to find “that thing” that can help them connect to schools and reach students.

**BEST is that “thing”; it's a vehicle for reaching students.**

**It is a workforce development program** that can create a **dynamic alliance** between business/industry, higher education, and K-12 schools. Such an alliance reaches across corporate, city, and county lines to develop a community based program that reaches schools—and students—in a wide swath across Alabama. A single BEST hub typically hosts 20-30 schools—over 1000 students—from at least a 50-mile radius of the site.

**BEST is not about robotics. It's about thinking and learning.**

- Building robots is just the hands-on platform for teaching students how to analyze and solve problems, learn to work on a team and build consensus, and grow in both competence and confidence. **What BEST students learn is what industry needs in its future workforce.**
- **The BEST Award—an optional competition that is part of the BEST program**—incorporates oral presentations, technical notebook writing, public speaking, educational displays/exhibit designs, and sportsmanship into the competition. Thus, students who may not be mechanically inclined, but who might enjoy web design, CAD drawing, writing, art, and public speaking, have an opportunity to be a part of BEST. **It truly is a school-wide program, not just a robotics competition.**



## **2008 Tennessee Valley BEST**

**Co-Hosted by  
Calhoun Community College, Decatur  
and Auburn University's  
Ginn College of Engineering  
and College of Sciences and Mathematics**

**Kick Off Day** Saturday, September 20, 10am, Calhoun Community College  
**Mall Day** Sunday, October 19, 1pm – 5pm, Madison Square Mall  
**Game Day** Saturday, November 1, 9am - 5pm, Calhoun Community College

### **Participating Schools**

Academy for Arts and Science (Huntsville)  
Albertville City High School (Boaz)  
Athens Bible School  
Athens Middle School  
Austin/Decatur High Schools (Decatur)  
Bob Jones High School (Madison)  
Buckhorn High School (New Market)  
Decatur Austin Robotic Coalition (Decatur & Austin High Schools combined)  
Eva Middle School  
Excalibur and The Way Home Schools (Madison)  
Faith Christian Academy (Athens)  
Fort Payne Middle School  
Guntersville Middle School  
Holly Pond High School  
Madison Academy (Huntsville)  
Oak Park Middle School (Decatur)  
Ooltewah High School (Chattanooga)  
Priceville High School, Decatur  
Redstone Robotics (Huntsville) (Lee and New Century High Schools combined)  
Riverside Christian Academy (Fayetteville, TN)  
Sparkman High School (Harvest)

**[www.tennesseevalleybest.org](http://www.tennesseevalleybest.org)**



***“Eleven years after I was first introduced to BEST, I am sitting here in the CAD Lab at the University of Texas at Arlington waiting until it is time for my Robotics class to start. In two more months I will graduate with a degree in Mechanical Engineering. Had it not been for BEST, I doubt that I would be here now. But because of BEST, I’ve found my life’s calling.”***

*Jeff Getrum,  
Senior, Mechanical  
Engineering  
University of Texas at  
Arlington*

## **BEST—an Investment in the Future**

**Sponsoring BEST is not a quick-fix for a crisis that has been years in the making. It is an investment in your company’s or organization’s future.**

### **“Investors” Needed!**

BEST promotes its sponsors (“investors”) in many ways, **based on the amount of funding provided:**

- Ads and other publicity in print materials at both local competition and championship events
- Logos on event signage and staff t-shirts
- Inclusion in press releases to newspapers, radio, and television stations statewide
- Exhibit space for promoting career opportunities at events
- Special awards presentations on Game Day
- Links and logos on local competition and championship websites
- Opportunities to mentor local school teams
- Opportunities to speak in BEST classroom

**Platinum Eagle** (\$30,000)

**Golden Eagle** (\$15,000 - \$29,999)

**Silver Eagle** (\$5,000 - \$14,999)

**Bronze Eagle** (\$2,500 - \$4,999)

### **“Your Company/Organization Presents**

### **The South’s BEST Robotics Championship” (\$70,000 sponsorship)**

For sponsoring South’s BEST at the \$70,000 level, the championship will be named exclusively after your organization. Its name and logo will be prominently displayed and promoted in all championship materials, throughout the event venues, and in all press releases and promotional events.

## Why do we do our BEST?

Why do we do this? Why do teachers, mentors, and hundreds of BEST volunteers devote countless hours of their personal time to this program? What is it about BEST that is worth the effort?

One answer can be seen in a small piece of the event that often goes unnoticed. In this tiny slice of time, a student's actions become a microcosm of the entire reason for BEST. It happens only in the frantic few minutes before a round of competition starts. Those final few seconds when all eyes are on them, the crowd noise is deafening, and the time pressure is mounting. It happens when that student makes the sudden realization that their robot is not working.

What happens then reflects everything that student has learned in BEST. In that pressure cooker environment, young students walk through a cognitive detective process worthy of any NASA mission controller. Without their adult mentors to help, under time pressure and under emotional strain, they encounter a remarkable 60-second life lesson.

**Most push through.** They do it because in the proceeding six weeks of design, test, and redesign, they have learned a skill. They have learned how to break the problem barrier.

Breaking the problem barrier is the realization that a problem is not an endpoint, but only an answer not yet found. Being able to break the problem barrier divides students who can from those who can't. Each year BEST helps students push through that barrier.

**Life is a set of problems.** A broken water heater, a flat tire, a tax form to fill out, a jammed manipulator arm on a robot driving on the surface of Mars, two nations on the brink of war, they are all problems. Once the problem barrier is broken, problems are replaced with process.

**BEST changes mindsets.** BEST places students in a situation that conditions their mind. It is a situation that flows from concept, to physical structure, and finally to operational use. Using robot design and competition, BEST presents an opportunity for students to break the problem barrier.

BEST appears first as an almost insurmountable problem and ends with the accomplishment of a solution; in the middle, a process. That process is the key. Somewhere in that process the problem barrier is broken and, in these young minds, the perception of a problem is changed.

Our country, our world, needs these changed young minds. Young minds that understand problems are not endpoints, but undiscovered answers waiting for the correct process.

That's why we do this. **That's why we continue to do our BEST.**



Steve Marum and Ted Mahler  
Co-founders BEST Robotics Inc.





SAMUEL GINN COLLEGE OF ENGINEERING  
K-12 ENGINEERING OUTREACH

**For more information on sponsorship of the BEST program at Auburn University, contact:**

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