



## Meet Some Participating Schools

### Calculus Class

*Bald Knob High School (AR)* - To bring Calculus alive for students, all major concepts are introduced using the program. So all students could actively engage, an after school club was initiated in 2009.

### Engineering Course

*Eaglecrest High School (CO)* - Students needed a relevant challenge toward which to apply their 3D CAD skills. Now the class is fully based on the program curriculum, includes math modeling and is approved for college credits and SolidWorks certification.

### After School Science Club

*R.L. Turner High School (TX) and Pleasant Hill Middle School (SC)* - Students at each of these schools meet after school twice a week and aggressively go after every possible point in the annual points race.

### Traditionally Under-Served Youth

*Charlotte, NC* - Initiated by the Attorney General Crime Prevention task force and Charlotte Police Department, youth who were considered at-risk started a Ten80 Student Racing Challenge team. The program is in its 3rd successful year.

*Vienna, GA* - As an integral part of the Safe Schools Healthy Students initiative, the science club featuring the curriculum grew from 15 to 150 students, helped increase student retention, achievement and raise the age of first alcohol use.

## Ten80 Student Racing Challenge: NASCAR STEM Initiative™

STEM League • Mentor Network • Summer Camps • Clubs  
Tech & Engineering Courses • Physics & Math Lessons

*"And you have to take into account that toe angle decreases with speed, so at Martinsville where there is such a difference between cornering speeds and straight away speeds it is a real dilemma." 1*

*"Gear choices were a whole lot different at a place like Pocono." 1*

*"The front geometry choices of toe angle and Ackerman allows for a wide range of drive behavior to suit every driver and track." 1*



*"We have over a hundred different springs, spring rates, to choose from depending on which wheel of car and which track we'll be running." 3*

*"The tire that Goodyear has developed for California this year is such an improvement over anything we've had here before." 1*

*"Some of the teams may have been too aggressive on their choice of camber angle and now they're having tire issues early in the race." 1*

1. Larry McReynolds, and Chad Knaus on NASCAR Performance
2. Rusty Wallace on ESPN.com
3. Doug Duchart, VP of Development, Hendrick Motorsports



**A project-based STEM curriculum and practice league for future engineers, scientists, business, marketing and creative professionals**

# Ten80 Student Racing Challenge: NASCAR STEM Initiative

## What is it? How does it work?



The Ten80 Student Racing Challenge: NASCAR STEM Initiative™ is a project-based STEM curriculum around the themes of motorsports and sustainable, safe transportation. It is also a motivating National STEM League and support coalition for teachers and students.

Why motorsports? It is the only sport won or lost in real time with the application of STEM. Drivers only have a chance to win because the team as a whole makes good decisions.

### Project-Based STEM Curriculum for Grades 6 - 8 and 9 -12

The curriculum poses a motivating challenge to middle and high school students. Through lessons, investigations and projects, their mission is to optimize performance of their team and 1:10 scale radio controlled (RC) car, paralleling the arduous preparation of professional NASCAR® teams in the weeks and months leading up to every race.

#### Print & Web Resources Include:

- Monthly Challenges & Races
- Chassis Set-Up Investigations
- Aerodynamic Design Projects
- Mechanical Design Projects
- P.I.T. Now! Renewable Energy Projects (solar, wind, hydrogen fuel cell options)
- 'Robot Car' Projects (New in 2012)
- Marketing, Public Relations & Graphic Design
- Project Management
- Science & Math Lessons

#### Kit Designed by Engineers & Educators:

- Not Consumable!
- Modular format allows you to begin basic and add technology or functionality as necessary

#### Curriculum is Implemented In:

- STEM and science clubs
- Career-Technology and Engineering classes
- Science classes
- Math classes
- Summer camps

### National STEM League & Support Coalition

Ten80's coalition of partners, web resources and the National STEM League provide motivation and support to students and teachers as they engage in activities paralleling STEM, marketing, management and creative professionals. The curriculum provides the content around which mentors, students and teachers work together effectively.

#### National STEM League

In May, Charlotte Motor Speedway will host two days of intense collaboration and competition between Ten80 Student Racing Challenge teams. Teams earn invitations to the Ten80 National Finals through the following:

1. Project Submissions: Projects are submitted and presented via web. Winners are featured at the Nationals.
2. Points Race: Teams earn points between Sept and April by submitting work via the web. Points race winners make up half the teams at the National Finals.
3. Regional Competitions: In regions throughout the U.S., Ten80 and partners host a face-to-face competition. Regional winners make up half the teams at the National Finals.

#### Coalition to Support Teachers & Students

Ten80 and partners provide support to teachers & students through:

- Professional development institutes
- Pairing STEM mentors with schools
- Web training, meetings and email access
- Remote STEM mentoring through the web
- Distance learning networks and videos
- Public events at tracks, conferences, science centers and schools