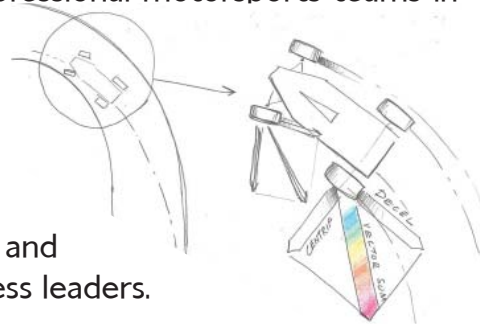


# Welcome to the FastTrack Racing Challenges

The educators, engineers and scientists of Ten80 welcome your team to our team. We are a growing national network of students, educators and STEM<sup>1</sup> professionals who are dedicated to advancing understanding of STEM subjects and career opportunities.

The FastTrack Racing Challenges (FTRC) is an integrated STEM program and league in which students build teams around 1:10 scale cars that mirror professional motorsports teams in almost every way. You can implement the FTRC as a:

1. Math course,
2. Physics or Applied Science class
3. Pre-engineering or technology modules.
4. FTRC Club that competes over the web or face-to-face and earns points for integrating artists, writers, future business leaders.



This first Booklet of your FTRC Team Manual is an introduction and provides examples of how some schools and community groups organize the FTRC into their program.

Booklet #1 is on Marketing & Project Management (PM). The marketing section provides you with tips for marketing your team to sponsors and an example marketing pack. The PM section provides you with common planning tools like Gantt Charts an example project plan.

The Pit Crew Log Booklet #2, Aerodynamic Design Booklet #3 and Mechanical Engineering & Fabrication Guide Booklet #4 are race engineering resources.

- Pit Crews optimize race performance through modifying and adjusting the chassis (gears, springs, tires, tire angles, etc.).
- Aerodynamics Teams improve speed and handling with more down force and less drag.
- Mechanical engineering can improve the strength & stiffness to weight of various parts.

Go green and charge your car's battery through alternative energies using Booklet #5, PIT NOW. Make a solar or wind charging station and learn how to take a major step toward Petroleum Independent Transportation, NOW.

Booklet #6 is the FTRC Points Race Handbook that tells you how to earn points and run competitions. Practice internally, compete within your school or district or host a regional competition using the Challenge tracks and scores provided.

Booklets #7 and #8 are collections of Physics and Math extension lessons.

The Middle School booklet integrates 'small' Math2Go cars with the 'big' FTRC cars for a grade-appropriate program that prepares students to excel in STEM through high school.

<sup>1</sup> STEM = Science, Technology, Engineering & Mathematics



# FastTrack RC

## Team Manual Contents

Visit the Team Web Site  
for more resources.

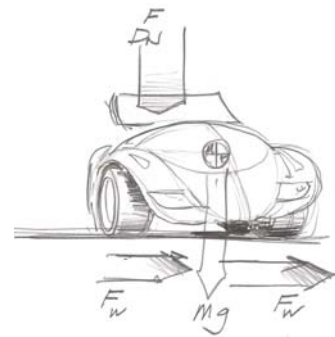
### Introduction, Welcome & Organization

#### 1. Marketing & Project Management

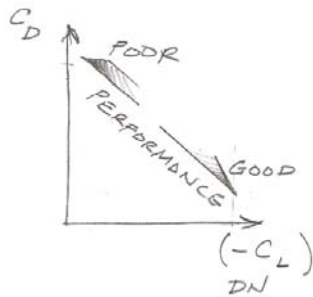


- Project Manager
- CFO
- Marketing
- WebDesigner
- Visual Designer
- Race Engineers (Pit Crew)
- 3D CAD Designer
- Aero Team
- Drivers

#### 2. Pit Crew Investigations



#### 3. Aerodynamic Design

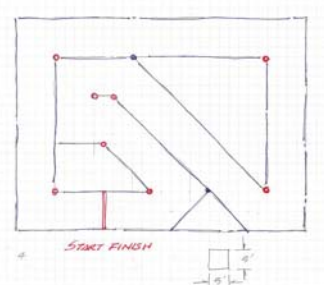


#### 4. Mechanical Engineering & Fabrication

#### 5. P.I.T. Now (Alternative Energies)



#### 6. Points Race Handbook



#### 7. Physics Extensions

#### 8. Applied Math Course

#### MS. FTRC for 6 - 8 Grades