

FIRST

The COMPETITION

National Championship

TOROID TERROR

Orlando, FL

Triangle base

Galaxy tractor plank

Note Cut circle
4'-6" Diameter
carpet goes over
stapled down

(B) Goal Plan

 Autodesk  Honeywell  Procter & Gamble  CHRYSLER CORPORATION

 SMALL PARTS INC.



MOTOROLA

Johnson & Johnson

1997



Welcome

Dear Competitors and Guests:

Welcome to the sixth annual FIRST Competition--our largest and most exciting to date. Thanks in part to industry leaders like Motorola and Johnson & Johnson, and countless people from schools and civic groups, FIRST is breaking new ground in 1997 with the addition of two new regional events. This year, a record 155 teams from 30 states will participate in The Competition bringing the excitement and rewards of science, math and technology to thousands of students across the country.

Adding to The Competition's growth is a strong increase in the number of colleges and universities that will participate. Working with these schools, we have taken the participants out of the classroom and offered them a first-hand look at the world of science and technology. The teachers, professors and volunteers that support, and may someday teach these future scientists, deserve great thanks.

Our sponsors and suppliers are also integral to FIRST's success. As The Competition grows each year, their support and commitment has also greatly increased ensuring that each student is impacted in a positive and lasting way.

Finally, we are immensely grateful for the hundreds of corporations and individuals that unselfishly give of their time, energy and resources. Our mission of ensuring that every kid in America wants to learn science and math would not be possible without corporate America's unmatched powers of persuasion and leadership.

Inspiring today's youth, and creating a demand among them to excel in technology, is a great goal that also offers many challenges. Working together we are turning this goal into a reality and the challenges into rewards.

Thanks again for your continued support and commitment.

Dean Kamen
Founder, FIRST

Paul A. Allaire

Chairman and CEO
Xerox Corporation
Chairman, FIRST

John E. Abele

Founder Chairman
Boston Scientific Corporation

Norman R. Augustine

Vice Chairman and CEO
Lockheed Martin

Carol Bartz

Chairman and CEO
Autodesk, Inc.

D. Allan Bromley

Sterling Professor
of the Sciences
and Dean of Engineering
Yale University

Michael Bonsignore

Chairman and CEO
Honeywell Inc.

**FIRST
Executive
Advisory
Committee**

Francois J. Castaing

Executive Vice President,
International
and General Manager,
Power Train Operations
Chrysler Corporation

Peter Eio

President
LEGO Systems, Inc.

Steve Forbes

President and CEO
Forbes Inc.
Editor-in-Chief
FORBES Magazine

Ralph S. Larsen

Chairman and CEO
Johnson & Johnson

Vernon R. Loucks, Jr.

Chairman and CEO
Baxter International

William P. Murphy, Jr.

Founder
Cordis Corporation

Edward A. Parrish

President
Worcester Polytechnic Institute

John E. Pepper

Chairman and CEO
The Procter & Gamble Company

Roland Schmitt

President Emeritus
Rensselaer Polytechnic Institute

Gary Tooker

Chairman
Motorola, Inc.

**Congratulations
and Good Luck
FIRST Participants!**

The adventure is
about to begin.



National Championship JUDGES AWARDS

FIRST-The Competition list of winners includes the following awards presented by the Judges:

Honeywell

Leadership in Control Award

Awarded to the team displaying the most innovative control system or application of control components to provide unique machine functions.

Johnson & Johnson

Best Sportsmanship Award

Awarded to the team displaying the best sportsmanship and continuous gracious professionalism in the heat of The Competition.

Chrysler Team Spirit Award

Awarded to the team that exhibits extraordinary enthusiasm and spirit through an exceptional partnership which thrives on teamwork.

Motorola

Quality Award

Awarded to the team displaying the most robust design, that is, the project that best exhibits the relationship between quality of design, quality of construction and quality of performance.

Procter & Gamble

Creativity Award

Awarded to the team displaying the most creative design, use of a component or the most creative or unique strategy of play.

Best Play of the Day

Number One Seed

Outstanding Defense

Most Photogenic

Best Offensive Round

Featherweight in the Finals

Rookie All-Star

National Championship Awards

Autodesk Award

for Excellence in Engineering Creativity and Communication

Awarded to the team who clearly and creatively presents design solutions for The Competition-1997 through computer modeling and animation using the software provided by Autodesk.

Woodie Flowers Award

presented by Small Parts

Awarded to an individual participating in The Competition who best demonstrates excellence in teaching science, engineering, math and creative design.

Chairman's Award

The Chairman's Award is presented to the team which achieves excellence by working well together. Judging criteria include the level of student participation, teamwork, team spirit, creativity of effort and overall cooperation and effectiveness between school and partner. The judging panel reviews materials, which may consist of videos, photos, or written chronicles submitted by teams prior to the National Championship. The traveling trophy for this prestigious honor is a high-tech, custom crafted Dean Kamen clock, which the New York Times called "Art that Ticks."

WPI

Design Innovation Scholarship

All teams participating in The Competition-1997 will qualify for the WPI Design Innovation Scholarship. The winning team will be selected through a vote conducted by all the teams. All votes must be submitted to FIRST in time for the final awards ceremony to take place at the National Championship at Disney World on April 10-12, 1997. The scholarship award will be presented to the team who receives the most points.

Founder's Award

The Founder's Award is presented by Dean Kamen to the organization or individual that best promotes the ideals and goals of FIRST. Past winners of the Founder's Award include Motorola (1993), Honeywell (1994), and Walt Disney World's Epcot (1995). The 1996 winner of the Founder's Award was presented to the City of Manchester, New Hampshire for its contribution of a 150,000 square foot mill building to be the National Headquarters for FIRST and the home of a new science and technology center.

FIRST Founder

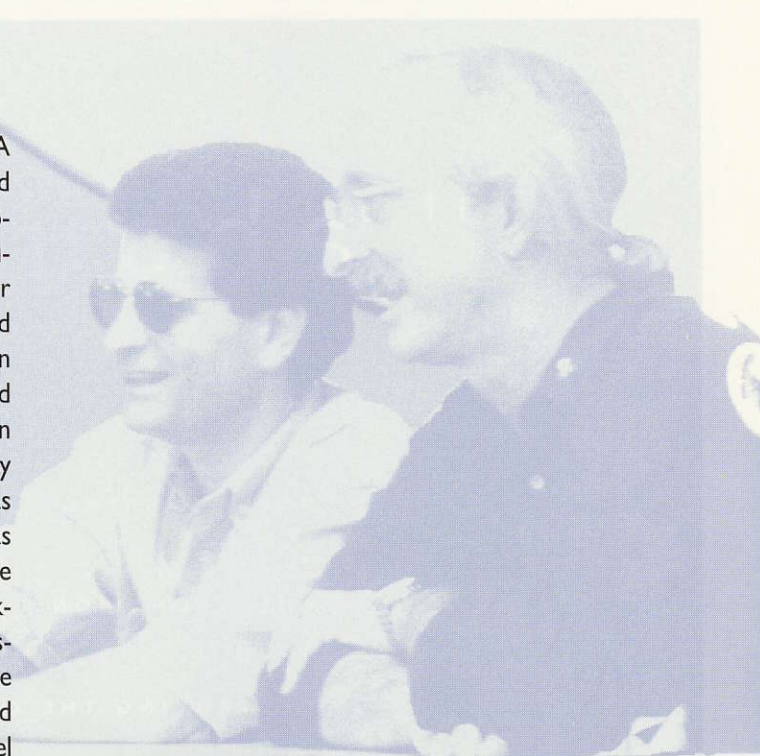
Dean Kamen

Dean Kamen is President and owner of DEKA Research & Development Corporation, a New Hampshire based company specializing in advanced technologies in medical equipment. He is chairman and owner of Teletrol Systems, Inc., a manufacturer of electronic environmental control systems for commercial and industrial buildings. A physicist, engineer, and inventor, he holds more than forty patents. In 1976, while an undergraduate at Worcester Polytechnic Institute, he founded Auto Syringe, Inc., to produce the world's first wearable infusion pumps. In 1988, Dean was named Entrepreneur of the Year by the New Hampshire High Technology Council. In 1994, he was named *Design News Magazine's* Engineer of the Year and was honored as a 1994 Kilby Award Laureate. In 1994, he earned the Hoover Medal for "Innovative and imaginative leadership in awakening America to the excitement of technology and its surpassing importance in bettering the lot of mankind," as stated by the American Society of Mechanical Engineers. Dean has received honorary doctorates from Worcester Polytechnic Institute, Daniel Webster College, and Rennselear Polytechnic Institute. Dean is a Fellow with the American Institute for Medical and Biological Engineering (AIMBE), and a member of the Engineering Society for Advanced Mobility, Land, Sea, Air and Space (SAE), the American Society of Mechanical Engineers (ASME), and the Society of Plastics Engineers (SPE). This year he was elected to membership to the National Academy of Engineering.

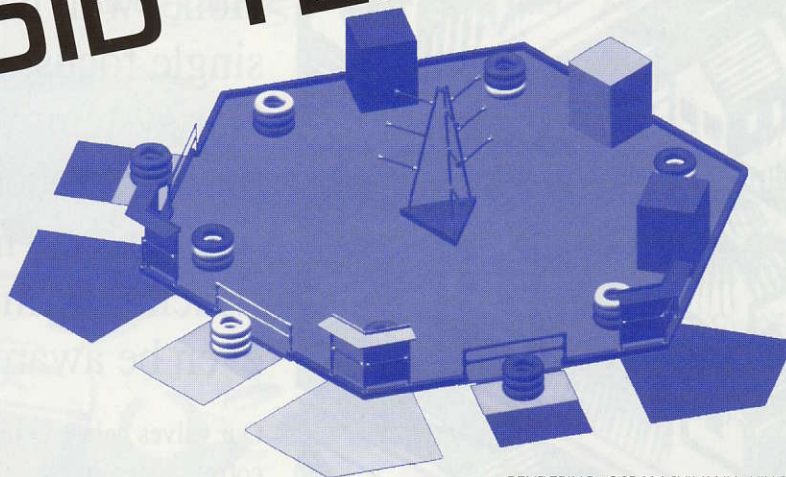
FIRST Advisor

Woodie Flowers, Ph.D.

Woodie Flowers is the Pappalardo Professor of Mechanical Engineering, Director of MIT's New Products Program, and Faculty Chairman of the Design Studio of the Future. He received a BS from Louisiana Polytechnic University and an S.M., M.E., and Ph.D. degrees from MIT. His current research includes work on the creative design process and product development systems. He helped create MIT's renowned course "Introduction to Design". Dr. Flowers also received national recognition in his role as host for the PBS television series *Scientific American Frontiers* from 1990 to 1993. He was recently elected to the National Academy of Engineering and received an Honorary Doctor of Humane Letters from Daniel Webster College. He is a MacVicar Faculty Fellow for extraordinary contributions to undergraduate education from MIT. Woodie was the Inaugural Recipient of the Woodie Flowers Award by FIRST. Currently, Dr. Flowers is on the Board of Directors of The General Scanning Corporation, NYPRO Inc., a National Advisor for FIRST, a Trustee for Boston's Museum of Fine Arts, and is a member of the Historical Commission in Weston, Massachusetts.



TOROID TERROR



RENDERING: OSRAM SYLVANIA, HILLSBORO NH

Over 150 schools, companies, and universities from all across the United States built "robo-gladiators" to compete in FIRST-The Competition 1997.

The Playing Field

The playing field is a carpeted, hexagon-shaped area with a central goal. Around the perimeter of the field are three stations for human players, who work with the remote-controlled robots on the field to score points. At the start of each match, each team has 3 colored inner tubes at their player station and six tubes on the field, located in stacks distributed evenly around the goal.

The Robots

The robots were designed and built by the school/engineering teams during a six week period and were constructed from a wide range of materials including aluminum, fiberglass, plywood, PVC pipe, and structural foam. Each robot can weight up to 120 pounds, and must start each match small enough to fit inside a 3' x 3' x 4' space.

The robots are powered by two Skil 12V rechargeable batteries and use motors from Skil, Delco, and Delphi Interior and Lighting, speed controllers from Tekin, pumps from McCord Winn Textron, air cylinders and valves from Numatics, and a programmable control system supplied by FIRST. Drivers use joysticks from CH Products and switches from Honeywell to remotely control the robots via a radio link which uses RNet wireless modems from Motorola.

Scoring Points

In two minute matches, the three robots and human players score points by placing the inner tubes onto pegs on the goal, or around the top of the goal. The tubes are color-coded to identify team ownership. Human players are not allowed onto the field, but they may hand tubes to the robots or throw tubes directly onto the goal.

At the end of each match, each tube on the goal is worth one point. Each tube on the top of the goal will double a team's score. In addition, each vertical row of three tubes on a corner of the goal will double a team's score.

The winner of the match is the team with the highest score. In the event of a tie, the team with the highest tube in a scoring position wins.

National Championship TEAMS 1997

3-DIMENSIONAL SERVICES & OAKLAND TECHNICAL CENTER, NORTHEAST
CAMPUS (OTC-NE) (ROCHESTER HILLS MI)

ALLIANT TECHSYSTEMS, INC. & WASHBURN HIGH SCHOOL (HOPKINS MN)

ALLIANT TECHSYSTEMS - MARINE SYSTEMS & KAMIAK HIGH SCHOOL
(MUKILTEO WA)

BARRICK GOLDSTRIKE / INDEPENDENCE MINING / NEWMONT GOLD
& ELKO HIGH SCHOOL (ELKO NV)

BAXTER HEALTHCARE CORPORATION & LAKEWOOD HIGH SCHOOL
CENTER FOR ADVANCED TECHNOLOGIES (ST. PETERSBURG FL)

BAXTER HEALTHCARE CORPORATION & MOUNTAIN HOME HIGH SCHOOL
(MOUNTAIN HOME AR)

BAXTER HEALTHCARE CORPORATION / MUNICIPIO DE ANASCO & LUIS MUNOZ
MARIN HIGH SCHOOL / RAUL IBARRA HIGH SCHOOL (ANASCO PR)

BAXTER HEALTHCARE CORPORATION / NORTHWESTERN UNIVERSITY &
JOHNSBURG HIGH SCHOOL (ROUND LAKE IL)

MIDWEST REGIONAL CHAMPIONS BEATTY MACHINE AND MANUFACTURING & HAMMOND SCHOOLS (HAMMOND IN)

BECTON DICKINSON AND COMPANY / NEW JERSEY INSTITUTE
OF TECHNOLOGY & ACADEMY FOR THE ADVANCEMENT
OF SCIENCE AND TECHNOLOGY (HACKENSACK NJ)

BELL HELICOPTER / AUTOMATION & ROBOTICS RESEARCH INSTITUTE (ARRI) /
RAINWATER FOUNDATION & APPLIED LEARNING ACADEMY (FORT WORTH TX)

BOSTON EDISON COMPANY / UNIVERSITY OF MASSACHUSETTS DARTMOUTH &
PLYMOUTH NORTH HIGH SCHOOL (PLYMOUTH MA)

BROOKS FAMILY / POLY VAC, INC. & PINKERTON ACADEMY (DERRY NH)

BUDD COMPANY, THE & OAKLAND SCIENCE, MATHEMATICS
& TECHNOLOGY ACADEMY (OSMTech) (AUBURN HILLS MI)

CENTRAL & SOUTH WEST SERVICES / PUBLIC SERVICE COMPANY OF OKLAHOMA
& JENKS HIGH SCHOOL (JENKS OK)

CHRYSLER CORPORATION & AVONDALE HIGH SCHOOL (AUBURN HILLS MI)

CHRYSLER CORPORATION - HUNTSVILLE ELECTRONICS
& BOB JONES HIGH SCHOOL (HUNTSVILLE AL)

CODERM SYSTEMS, INC. & DERRYFIELD SCHOOL (MERRIMACK NH)

CORDIS CORPORATION / JOHNSON & JOHNSON
& WATCHUNG HILLS REGIONAL HIGH SCHOOL (WARREN NJ)

DANIEL WEBSTER COLLEGE / BROOKFIELD RAPID SOLUTIONS /
HIGHLAND TOOL / LOCKHEED-MARTIN COMMERCIAL ELECTRONICS /
PREMIER INDUSTRIES & ALVIRNE HIGH SCHOOL (NASHUA NH)

DART CONTAINER CORPORATION & MASON HIGH SCHOOL (MASON MI)

DEERE & COMPANY / IOWA STATE UNIVERSITY
& AMES HIGH SCHOOL (AMES IA)

DELCO ELECTRONICS CORPORATION & KOKOMO HIGH SCHOOL (KOKOMO IN)

DELPHI INTERIOR AND LIGHTING SYSTEMS
& PONTIAC CENTRAL HIGH SCHOOL (TROY MI)

DRAWFORM, INC. & ZEELAND HIGH SCHOOL (ZEELAND MI)

EASTMAN KODAK COMPANY & FAIRPORT HIGH SCHOOL (ROCHESTER NY)

EMERSON MOTOR COMPANY & CARDINAL RITTER COLLEGE PREPARATORY
HIGH SCHOOL / NORMANDY SENIOR HIGH SCHOOL (ST. LOUIS MO)

ENSIGN-BICKFORD COMPANY & SIMSBURY HIGH SCHOOL /
BLOOMFIELD HIGH SCHOOL (SIMSBURY CT)

ENVIRONMENTAL TESTING LABORATORY & AUSTIN ACADEMY (GARLAND TX)

ETHICON & BOUND BROOK HIGH SCHOOL (SOMERVILLE NJ)

FLORIDA INTERNATIONAL UNIVERSITY
& MIAMI CORAL PARK SENIOR HIGH SCHOOL (MIAMI FL)

FORD MOTOR COMPANY / MOHAVE GENERATING STATION
& KINGMAN HIGH SCHOOL (KINGMAN AZ)

FOSTER MILLER CORPORATION / EMC2 CORPORATION /
ALLEGRO MICROSYSTEMS, INC. & BLACKSTONE VALLEY REGIONAL
VOCATIONAL TECHNICAL HIGH SCHOOL (UPTON MA)

GENERAL MOTORS POWERTRAIN GROUP
& PONTIAC NORTH HIGH SCHOOL (PONTIAC MI)

GENERAL MOTORS PROVING GROUND & MILFORD HIGH SCHOOL /
LAKELAND HIGH SCHOOL / HARBOR HIGH SCHOOL (MILFORD MI)

GRAGO, INC. & LAKE HOWELL HIGH SCHOOL (WINTER SPRINGS FL)

HAMILTON STANDARD SPACE SYSTEMS INTERNATIONAL / TECHNI PRODUCTS
& ENRICO FERMI HIGH SCHOOL (WINDSOR LOCKS CT)

HAMILTON STANDARD & WINDSOR LOCKS HIGH SCHOOL
(WINDSOR LOCKS CT)

HARRIS RF COMMUNICATIONS / ROCHESTER INSTITUTE OF TECHNOLOGY
& EDISON TECHNICAL SCHOOL (ROCHESTER NY)

HAWORTH, INC. & HOLLAND HIGH SCHOOL (HOLLAND MI)

HONEYWELL, INC. & NORTH COMMUNITY HIGH SCHOOL (MINNEAPOLIS MN)

HONEYWELL SPACE AND AVIATION CONTROL
& CORTEZ HIGH SCHOOL (PHOENIX AZ)

HONEYWELL'S MICRO SWITCH DIVISION
& FREEPORT HIGH SCHOOL / AQUIN HIGH SCHOOL (FREEPORT IL)

INTERNATIONAL FUEL CELLS & SOUTH WINDSOR HIGH SCHOOL
(SOUTH WINDSOR CT)

ITT AUTOMOTIVE & TROY HIGH SCHOOL (AUBURN HILLS MI)

JOHNSON & JOHNSON / UNIVERSITY OF PITTSBURGH
& STEEL CENTER VOCATIONAL TECHNICAL SCHOOL /
TECH-LINK PROGRAM OF PITTSBURGH (PITTSBURGH PA)

JOHNSON & JOHNSTON ASSOCIATES /
RDI & SALEM HIGH SCHOOL (SALEM NH)

KEYBANK / PARKER HANNIFIN PNEUTRONICS
& SOUHEGAN HIGH SCHOOL (AMHERST NH)

LEAR CORPORATION & BRANDON HIGH SCHOOL (ROCHESTER HILLS MI)

LEGO SYSTEMS & TALCOTT MOUNTAIN ACADEMY / AVON HIGH SCHOOL /
EAST GRANBY HIGH SCHOOL / GRANBY MEMORIAL HIGH SCHOOL /
SCHAGHTICOKE MIDDLE SCHOOL / JOHN WINTHROP JUNIOR HIGH SCHOOL /
STAFFORD MIDDLE SCHOOL / TERRYVILLE HIGH SCHOOL (AVON CT)

LENNOX INTERNATIONAL, INC. / UNIVERSITY OF TEXAS AT DALLAS
& ST. MARK'S SCHOOL OF TEXAS / HOCKADAY SCHOOL (DALLAS TX)

LIGHT MACHINES CORPORATION & MEMORIAL HIGH SCHOOL
(MANCHESTER NH)

LODAN ELECTRONICS / CRAFTSMAN CUSTOM METAL FABRICATORS /
MOTOROLA APD & ST. PATRICK'S HIGH SCHOOL (CHICAGO IL)

MARATHON ELECTRIC / UNIVERSITY OF WISCONSIN - MARATHON COUNTY
& WAUSAU WEST HIGH SCHOOL / WAUSAU EAST HIGH SCHOOL /
D.C. EVEREST SENIOR HIGH SCHOOL (MOSINEE WI)

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
& CAMBRIDGE RINDGE AND LATIN SCHOOL (CAMBRIDGE MA)

National Championship TEAMS 1997

McNEIL CONSUMER PRODUCTS / PHILADELPHIA COLLEGE OF TEXTILES AND
SCIENCE & STRAWBERRY MANSION / CARVER HIGH SCHOOL OF ENGINEERING /
MASTBAUM AVTS / BARTRUM HIGH SCHOOL (FT. WASHINGTON PA)
METAL FLOW CORPORATION & HOLLAND CHRISTIAN HIGH SCHOOL
(HOLLAND MI)

MOTOROLA, INC. / FLORIDA ATLANTIC UNIVERSITY & DILLARD HIGH SCHOOL /
CRYSTAL LAKE MIDDLE SCHOOL / WILLIAM DANDY MIDDLE SCHOOL
(PLANTATION FL)

MOTOROLA, INC. & RICHLAND HIGH SCHOOL (FORT WORTH TX)

MOTOROLA, INC. & ROLLING MEADOWS HIGH SCHOOL /
WHEELING HIGH SCHOOL (SCHAUMBURG IL)

MOTOROLA, INC. & SANTALUCES COMMUNITY HIGH SCHOOL
(BOYNTON BEACH FL)

NASA AMES RESEARCH CENTER & HENRY M. GUNN SENIOR HIGH SCHOOL
(MOFFETT FIELD CA)

NASA AMES RESEARCH CENTER & LOS ALTOS HIGH SCHOOL
(MOFFETT FIELD CA)

NASA AMES RESEARCH CENTER & PALO ALTO HIGH SCHOOL
(MOFFETT FIELD CA)

NASA AMES RESEARCH CENTER & WOODSIDE HIGH SCHOOL
(MOFFETT FIELD CA)

NASA HEADQUARTERS / DUQUESNE LIGHT COMPANY / CARNEGIE MELLON
UNIVERSITY & SCHENLEY HIGH SCHOOL (PITTSBURGH PA)

NASA HEADQUARTERS / KISS INSTITUTE FOR PRACTICAL ROBOTICS /
MRJ, INC. & SOUTH LAKES HIGH SCHOOL (RESTON VA)

NASA JOHNSON SPACE CENTER & CLEAR BROOK HIGH SCHOOL /
CLEAR CREEK HIGH SCHOOL / CLEAR LAKE HIGH SCHOOL (HOUSTON TX)

NASA JPL & HOPE ACADEMY / REDONDO UNION HIGH SCHOOL /
HAWTHORNE HIGH SCHOOL / MIRA COSTA HIGH SCHOOL (FRAZIER PARK CA)

NASA KENNEDY SPACE CENTER / McDONNELL DOUGLAS AEROSPACE /
INET / EE&G / FLORIDA INSTITUTE OF TECHNOLOGY & MERRITT ISLAND
HIGH SCHOOL / SATELLITE HIGH SCHOOL (KENNEDY SPACE CENTER FL)

NASA LANGLEY & PHOEBUS HIGH SCHOOL (HAMPTON VA)

NASA LEWIS RESEARCH CENTER / TRW, INC. / BATTELLE MEMORIAL INSTITUTE
/ CENTERIOR ENERGY & EAST TECHNICAL HIGH SCHOOL (CLEVELAND OH)

UNIVERSITY OF IDAHO & MOSCOW HIGH SCHOOL (MOSCOW ID)

NEW ENGLAND REGIONAL CHAMPIONS

NAVAL UNDERSEA WARFARE CENTER & MIDDLETOWN HIGH SCHOOL
(NEWPORT RI)

NEW VENTURE GEAR, INC. & HAMTRAMCK HIGH SCHOOL (TROY MI)

NYNEX & QUINCY PUBLIC SCHOOLS (WHITE PLAINS NY)

NYNEX / RENSSLAER & SHENENDEHOWA HIGH SCHOOL (TROY NY)

NYPRO, INC. & CLINTON HIGH SCHOOL (CLINTON MA)

OHIO STATE UNIVERSITY / AMERICAN ELECTRIC POWER
& GRANDVIEW HEIGHTS HIGH SCHOOL (COLUMBUS OH)

MID-ATLANTIC REGIONAL CHAMPIONS

ORTHO DIAGNOSTIC SYSTEMS & HILLSBOROUGH HIGH SCHOOL
(RARITAN NJ)

OSCAR MAYER FOODS & SHERMAN HIGH SCHOOL (SHERMAN TX)

OSRAM SYLVANIA / FLEET BANK & MANCHESTER CENTRAL HIGH SCHOOL
(MANCHESTER NH)

OTIS ELEVATOR & FARMINGTON HIGH SCHOOL (FARMINGTON CT)

PHD, INC. & WAYNE HIGH SCHOOL (FORT WAYNE IN)

PRATT & WHITNEY & THE BENJAMIN SCHOOL (WEST PALM BEACH FL)

PRI AUTOMATION, INC. / NEW ENGLAND PROTOTYPE, INC.
& TYNGSBOROUGH HIGH SCHOOL (TYNGSBORO MA)

PRINCE & WEST OTTAWA HIGH SCHOOL (HOLLAND MI)

PROCESS CONTROL AUTOMATION & MONTAGUE HIGH SCHOOL
(MONTAGUE MI)

PROCTER & GAMBLE COMPANY & WALNUT HILLS HIGH SCHOOL
(CINCINNATI OH)

PUBLIC SERVICE OF NEW HAMPSHIRE & MANCHESTER WEST HIGH SCHOOL
(MANCHESTER NH)

RAYTHEON E-SYSTEMS & EAST LAKE HIGH SCHOOL / BOCA CIEGA HIGH
SCHOOL / DIXIE M. HOLLINS HIGH SCHOOL (ST. PETERSBURG FL)

RAYTHEON E-SYSTEMS, INC. & GREENVILLE HIGH SCHOOL (GREENVILLE TX)

ROCKETDYNE DIVISION, BOEING NORTH AMERICAN, INC. / NMB, INC. /
FADAL ENGINEERING / AVG CORPORATION / DWA COMPOSITE SPECIALTIES /
CALIFORNIA STATE UNIVERSITY & CHATSWORTH HIGH SCHOOL
(CANOGA PARK CA)

SANDERS, A LOCKHEED MARTIN COMPANY & NASHUA HIGH SCHOOL
(NASHUA NH)

SCOTT B. PATTERSON, DDS, MS / GREEN COUNTY ENGINEERS
& MONROE SENIOR HIGH SCHOOL (MONROE WI)

SILICON SYSTEMS / CROSS DESIGN & APTOS HIGH SCHOOL (APTOS CA)

STRATUS COMPUTER / NAPA AUTO PARTS / CX COMPUTER EXCHANGE &
ASSABET VALLEY REGIONAL VOCATIONAL HIGH SCHOOL (MARLBORO MA)

STRUCTURAL DYNAMICS RESEARCH CORPORATION & GREAT OAKS INSTITUTE OF
TECHNOLOGY AND CAREER DEVELOPMENT, LIVE OAKS CAMPUS (MILFORD OH)

SYMBOL TECHNOLOGIES & PIERSON HIGH SCHOOL (SAG HARBOR NY)

SYSTEMS, TECHNOLOGIES AND RESOURCES (STAR) & EDMONDSON-WESTSIDE
SENIOR HIGH SCHOOL (LUTHERVILLE MD)

TEXAS TECH UNIVERSITY & LUBBOCK HIGH SCHOOL (LUBBOCK TX)

TEXTRON AUTOMOTIVE COMPANY & CASS TECHNICAL HIGH SCHOOL /
OAKLAND TECHNICAL SCHOOL (TROY MI)

TRW AUTOMOTIVE & HARRISON HIGH SCHOOL (FARMINGTON HILLS MI)

UNITED TECHNOLOGIES RESEARCH CENTER & EAST HARTFORD HIGH SCHOOL /
ROCKVILLE HIGH SCHOOL (EAST HARTFORD CT)

UNITRODE CORPORATION / FERROFLUIDICS / CONNOLLY CROWNS LABORATORY
& MERRIMACK HIGH SCHOOL (MERRIMACK NH)

UNIVERSITY OF MIAMI & MAST ACADEMY (CORAL GABLES FL)

UNIVERSITY OF NORTH CAROLINA, CHARLOTTE / WILLIAM STATES LEE COLLEGE
OF ENGINEERING & HARDING UNIVERSITY HIGH SCHOOL (CHARLOTTE NC)

UNIVERSITY OF WISCONSIN-PLATTEVILLE & PLATTEVILLE HIGH SCHOOL
(PLATTEVILLE WI)

VARO, INC. & SOUTH GARLAND HIGH SCHOOL (GARLAND TX)

VISTAKON, INC. / SALLY INDUSTRIES, INC.
& STANTON COLLEGE PREPARATORY SCHOOL (JACKSONVILLE FL)

WORCESTER POLYTECHNIC INSTITUTE &
MASSACHUSETTS ACADEMY OF MATH & SCIENCE (WORCESTER MA)

XEROX CORPORATION & JOSEPH C. WILSON MAGNET HIGH SCHOOL
(WEBSTER NY)

National Championship TEAMS 1997



3-Dimensional Services (Rochester Mills MI)
Oakland Technical Center, Northeast Campus (OTC-NE)
(Pontiac MI)

Arach-Na-Bot

"Real winners are ordinary people with extraordinary determination." Oakland Technical Center, Northeast Campus (OTC-NE) and 3-Dimensional Services

have come together as "The Scorpions", a robotics team that is headed for the FIRST National Robotics Competition at Epcot in Orlando, Florida. Our team consists of five engineers from 3-Dimensional Services, three engineers from the OTC-NE Advisory Committee, four educators from the OTC-NE staff, the 20 students from the six different high schools in Oakland County combining academic skills from desktop publishing, computer repair and robotics/automation. Our team designed, developed, and built a robotic creation we call the "Arach-Na-Bot". We approached this problem-solving challenge by establishing subteams based on individual strength. These subteams are responsible for body design, mechanical and electrical operation, 3D animation, and publications. Due to **determination, dedication, sincere effort, skills, and sound engineering**, our team is confident Arach-Na-Bot will lead us to victory. As we present Arach-Na-Bot in the FIRST Competition, we are going to showcase a robot that surpasses our competition in each and every way.



Alliant Techsystems (Hopkins MN)
Washburn High School (Minneapolis MN)

VMR

VMR: A hot idea born in the cold. Deep in the heart of Minnesota, 30 students from Washburn High School are teaming with specialists of Alliant Techsystems. Together we set out to design, fabricate,

assemble and test a winning robot. **The objective is simple: build a fast, stable, precise and cohesively integrated machine.** Each of us contributes our ideas, and then the team's collective concept emerges. The team divides into groups to work issues relating to the chassis, tube handling, controls, tactics, general planning and graphics. Armed with a seemingly endless supply of soda pop, we strive to achieve weekly milestones and execute the master plan. Hours of discussion and barely legible doodling are transformed through computer aided design. The **Virtual Miller Robot** is born. With Washburn care, the assembly of "VMR" begins in earnest. After review by engineers and testing by all, the robot's success is guaranteed.

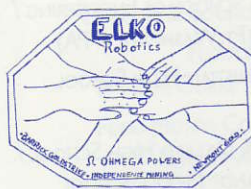


Alliant Techsystems - Marine Systems (Mukilteo WA)
Kamiak High School (Mukilteo WA)

Bad Dog

1997 is the fourth year that Alliant Techsystems has sponsored Kamiak High School in the FIRST Competition. This year, the team consists of twenty students (including three seniors who have been on the

team for four years), nine Alliant employees, and two teachers. The team began meeting three times a week in October, designing and building different types of drive systems to see which one worked best. This was a valuable experience for the whole team, especially those who had not participated in FIRST previously. As soon as we received the rules for this year's competition, we began meeting five to seven days a week. By the end of the first week, we had a solid idea of our strategy and had begun prototyping subsystems of the robot. During the second week, we broke into subsystem groups and began designing and building the subsystems of our machine. **Our winning strategy is to have a machine that is very versatile, including the ability to score tubes on any level of the goal** (including the top), as well as remove our opponent's tubes from any level of the goal. **Following the competition we're sure our rivals will say, "That was one Bad Dog!"**



Barrick Goldstrike (Elko NV)
Independence Mining (Elko NV)
Newmont Gold (Elko NV)
Elko High School (Elko NV)

Ω OMEGA POWERS

This is the **first year** that we have participated in FIRST and the first time Nevada has been

represented at The Competition. Robotics is no stranger to us because of our extensive electronics course at our high school. Our team is made up of 13 students, three engineers, and two teachers. We have all been diligently working on this competition on a daily basis. **We have built, redesigned, and scrapped seemingly hundreds of ideas and have come up with a machine that represents the creativity, ingenuity, and skill of our team members.** Our team has experienced many difficulties while working on this project. Sponsorship was a problem until, through phone calls and meetings, we were able to gain the support of three of the mines located near Elko. Namely, Independence Mining, Newmont Gold Company, and Barrick Goldstrike. Another problem that certainly inconvenienced our team was the fact that we did not hear about this competition until right before the deadline. By overcoming these obstacles, **our team has strengthened, and we are prepared to compete in the National Championship in April.**



Baxter Healthcare Corporation
(Pinellas Park FL)
Lakewood High School Center
for Advanced Technologies
(St. Petersburg FL)

BAXCAT

What do you do with over 50 excited students ready to get started on the 1997 project? You look for a white knight! After an exhaustive search, a last minute rescue team arrived from Baxter Healthcare Corporation of Tampa Bay! BAXCAT was born! Baxter Healthcare Corporation of Tampa Bay enters The Competition for the first time. Their school partner, the CAT team from Lakewood High School, placed second in the 1996 National Competition with another sponsor. **The BAXCAT team has revved up to speed** with the students and the new sponsor, getting to know each other quickly. Over 50 students and 18 engineers participate on the team. BAXCAT teams include: Administration, Operations, Controls, Strategy, Arm, Drive, and Public Relations. The design process has been completely from scratch with a new compartmentalized design process and custom programming. Watch out competitors. **We took second place at nationals last year. We are going for number one.**



Baxter Healthcare Corporation (Mountain Home AR)
Mountain Home High School (Mountain Home AR)

Baxter Bomb Squad

Contrary to the popular hillbilly stereotype, all members of the Baxter Bomb Squad wear shoes on a daily basis. We have indoor plumbing, and we do not wear overalls to our team meetings. Because we hail from a community of only 10,000, we quickly formed a close working partnership between school and industry. **And, despite our small-town heritage, we have decided to think big.** Our team has developed a **daring defensive strategy** that is sure to be a success in the FIRST Competition. The Squad, composed of 20 students, three teachers and more than 30 engineers and business professionals, is committed to exemplifying a winning attitude. We've formed several groups to reach our goal: the Robot Design and Construction Committee, the AutoCAD/Animation Committee, the Public Relations Committee, and the Chairman's Award Committee. **As a team, we have focused on communication in our learning partnership, and we're eager to put our creation to the test.** Good luck and see ya'll in Disney World.

National Championship TEAMS 1997



LUIS MUÑOZ MARIN, H.S. RAUL IBARRA, H.S.

Baxter Healthcare Corporation (Anasco PR)
Municipio de Anasco (Anasco PR)
Luis Munoz Marin High School (Anasco PR)
Raul Ibarra High School (Maricao PR)
The COQUI

Baxter CVG PRO team is composed of 19 high school students, six technicians, four engineers

and two high school teachers working together as a family. Our mission is to encourage leadership through the active participation in a project of new technology. Though it is small in size, Puerto Rico is known as the heart of the Caribbean. Our robot is a result of long working hours, brainstorming, creativity and innovation. As a way to promote the protection of our living planet, we selected as our logo THE COQUI (Eleutherodactylus coqui). The coquis (amphibian specie unique from our island), are those who add that special feeling to nighttime in Puerto Rico. It is the males, who by calling the females and establishing territory, put us to sleep with their melodious singing and keep visitors intrigued. **Be prepared!** Our loud song will get the competitors out of our territory. We are entering this competition to show the whole world what we are made of. Remember the future lies on the hands of the young people of today, so that's why we must help them in anyway we can, so we can have a better future. **As Abraham Lincoln said, "Always bear in mind that your own resolution to succeed is more important than any one thing."**



Baxter Healthcare Corporation
(Round Lake IL)
Northwestern University
(Evanston IL)
Johnsburg High School
(Johnsburg IL)
BIO-BEAST

The BIO-BEAST team represents a partnership formed by Baxter Healthcare Corporation, Johnsburg High School Skyhawks and Northwestern University Wildcats. The team consisting of 15 Baxter engineers and support staff, 26 students and 10 staff members from Johnsburg, and four Northwestern University engineering students meets several times a week at Johnsburg High School and the Baxter Technology Park facility (both located approximately 60 miles northwest of Chicago). The Bio-hawk team of last year has been strengthened by the addition of the Northwestern crew. **The evolution of the BIO-BEAST from the Bio-hawk is a result of this new and improved alliance. Our objectives for the 1997 FIRST Competition include not only creating a robot, but establishing long lasting relationships between the students, teachers, engineers, and community.** One of our main goals this year is to strengthen our relationship with the community. We are staging a pep rally, an open house and other engagements that the community can participate in to make sure this goal is achieved. We are going to make this year's FIRST experience even more successful and memorable than the last by creating greater excitement and learning opportunities for all.

Don't let our name fool you! Before this competition is over, we will no longer seem like "the alien" — everyone will know who we are. We include 28 middle schoolers, 4 educators, and 10 Bell Helicopter Textron engineers as well as six technical masterminds from ARRI. **Our middle name is teamwork.** Our Development Team works on acquiring grants, raising funds and promoting FIRST, THE ALIEN. Animation, photography, videography/editing, and project book design are the responsibility of the Technology Team. Our dynamic Design & Assembly Team pairs students and professional engineers who design and construct the robot. **How do individuals from such diverse backgrounds and ages meld into a well-oiled machine, working together to problem solve, promote and have just plain fun?** We invest time together to learn our content and, equally important, to learn what strengths each team member can contribute to the project. Participating in the 1996 Dallas BEST Robotics Competitions gave us a chance to experience designing and building our own robot. Our success was recently documented in a segment for Video Journal. We are happy to return for our **second year** at FIRST and wish all of our competitors the best of luck!

MID-WEST REGIONAL CHAMPIONS



Beatty Machine & Manufacturing (Hammond IN)
Clark High School (Whiting IN)
Gavit High School (Hammond IN)
Hammond High School (Hammond IN)
Morton High School (Hammond IN)
Team Hammond

Excited about their second year of participation, Team

Hammond, still enjoying the success from The Competition in their novice year, is confident and **ready to "KICK BOT"**. These four city high schools in combination with Beatty Machine & Manufacturing are energized for a "totally tubular" competition at Epcot. Based in Hammond, Indiana, Beatty Machine is a small company with big ideas for this year's contest. Bill Beatty, Sr., company President, along with his son, Bill Beatty, Jr., plant manager, are leading a talented group of their experienced engineers and machinists to make this project a success. Physics/Chemistry teacher from Clark High School, Pete von Werder and the twenty plus students from the four city high schools have invested numerous hours in the brainstorming of project ideas and in the organization of this year's team. **In 1996, Team Hammond, in their first appearance at FIRST, earned the top seed trophy** by going undefeated the preliminary rounds of competition, winning 10th place overall with "BeattyJuice." **In 1997, Team Hammond aspires to surpass last year's success with a little help from "The Robot Formerly Known as BeattyJuice."**



Becton Dickinson & Company (Franklin NJ)
New Jersey Institute of Technology (Newark NJ)
Academy for the Advancement of Science
and Technology (Hackensack NJ)
VIC

Grounded on the principle that students acquire skills most effectively by doing, AAST's vision fearlessly changes current educational practices. Therefore, though this is **our initial effort in FIRST**, The Competition, its principles of teamwork, cooperative and collaborative learning perfectly coincide with our mission. **One of our primary objectives is outreach to corporations and businesses outside of our school walls who enhance our curriculum with hands-on projects.** Our partnership with Becton Dickinson and New Jersey Institute of Technology is yet another opportunity for sharing resources, expertise and vision. Our team consists of 42 students, seven engineers and nine faculty. Our robot is a winner because it is a true collaboration in design, in strategy, in its purpose, and in form. Win or Lose, **VIC, Victory in Cooperation, is our mantra.**



Bell Helicopter TEXTRON (Fort Worth TX)
ARRI (Fort Worth TX)
Rainwater Foundation (Fort Worth TX)
Applied Learning Academy (Fort Worth TX)
FIRST, THE ALIEN

National Championship TEAMS 1997

Boston Edison Company (Plymouth MA)
University of Massachusetts Dartmouth (Dartmouth MA)
Plymouth North High School (Plymouth MA)

Our team is comprised of five Boston Edison engineers, three faculty and six students from the University of Massachusetts Dartmouth, 34 students and 10 faculty from PNHS, and 10 Parent Committee Chairpersons. Our team hosted the "Rumble at the Rock" (Hexagon Havoc revisited) on July 13, 1996, the day 15 teams showed up during a hurricane; was **among the 5 finalists for the coveted Chairman's Award in 1996**; and **won a Rookie All Star Award at the 1995 National Competition** in Orlando. We are fortunate this year to have the engineering resources of a major University. Our team models the parental support, high school achievement, higher education goals and career options that are vital to survival in today's society. **The success of our FIRST program is evidenced by the fact that we are concurrently building two robots in our "War Room," the FIRST Competitor and the "Marian Rover Project" which will be on display in the NH Regional this year.** It was designed and fabricated primarily by high school students using leftover parts from past FIRST events. Both the Rover and our FIRST robotic gladiators are used by our team at numerous public events and school exhibitions to help ensure our area's growing appreciation of the need for excellence in math and science.



Brooks Family (Londonderry NH)
Poly-Vac, Inc. (Manchester NH)
Pinkerton Academy (Derry NH)

RAW CHAOS

Pinkerton Academy, the Brooks Family, and Poly-Vac, Inc. have joined together for the **second year** to create RAW CHAOS. With a team of 30 students, eight teachers, five engineers, and four parents, we have combined our ideas to create a unique robotic design. After first receiving the problem, Chris Fowler, head engineer, said this, "What I would like you to do is to go home and think of ways of scoring." That is exactly what we did. A day later, we had already come up with several strategies upon which to base the robot. Many **ideas were discussed, points argued, and less than a pint of blood lost** in what Chris affectionately dubbed "the design process." To our surprise, it worked! With its tank drive system and helical spiral arm, **RAW CHAOS will be a fierce competitor. Watch out, we're not rookies any more!**



Budd Company, The (Auburn Hills MI)
Oakland, Science, Mathematics & Technology
Academy (OSMTech) (Clarkson MI)

OSM Budds

Our team consists of 15 OSMTech Students, 22 Budd engineers and 5 coaches & assistants.

Students come together from 5 different school districts and grades 9 - 12.
Many of us have sacrificed jobs, sports, vacations and school activities for FIRST.
The project began with brainstorming and dividing into specialized teams.
Each team then combined at the end of the day for a group discussion.
Competition among opponent team members (that also attend OSMTech) is never a problem.
However, battles will be fierce on the playing field. Not only do we have an equal number of boys to girls,
But we also have a diverse group.
Uniqueness is the epicenter of our team.
Determination is the heart.
Dedication and teamwork are the nuts and bolts that will hold us together and keep us coming back!



Central & South West Services (Tulsa OK)
Public Service Company of Oklahoma (Tulsa OK)
Jenks High School (Jenks OK)

Louie the Lightning Bug

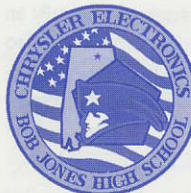
Meet **Louie the Lightning Bug**, PSO's feature **creature**, who's wearing the Trojan Helmet of Jenks High School.

He is the proud mascot of **Oklahoma's first and only FIRST team**. Our team consists of three engineers, five parents with technical backgrounds, 41 students, and one chemistry teacher, all working to produce the most efficient scoring machine at the competition. Since September, 1996, we've been fundraising, publicizing, learning, planning, building, and preparing for **our Rookie Year debut**. We acknowledge the support of Central and South West Services, Public Service Company of Oklahoma, Chevron, Bama Pies, Fisher Products, Jenks Public Schools Foundation, and the administration and staff at Jenks High School. We are supported by the parents and spouses of our members as we say "Jenks FIRST is #1"



Chrysler Corporation (Auburn Hills MI)
Avondale High School (Auburn Hills MI)
I.M. Force (Impossible Mission Force)

Twenty four students, five teachers and thirteen Chrysler team members comprise the I.M. Force, the second FIRST team for the Chrysler Corporation and Avondale High School. This year's project started in September 1996 with a few returning students, engineers, and faces and fresh ideas. Our focus in this our second year went beyond just the robot project, primarily centered around spreading the word about FIRST, recruiting new teams, and getting other businesses in our community involved with our team. **As a result of our efforts, and that of our Executive Vice President, Mr. Francois Castaing, over 10 new teams from the Detroit area have joined the FIRST family.** We have many local businesses (restaurants, print shops, etc.) proudly displaying signs stating that they are "Proud Sponsors of the 1997 Chrysler/Avondale/FIRST Team" and our parent team members, who meet every few weeks, are extremely active in providing assistance (and food) to the team members. The team was represented at a local mall event aimed at highlighting the programs offered at Oakland County's public schools. Also, a few of the student team members who work on the student radio station (which has about a 10 mile broadcast radius), have conducted on-air interviews and made "commercials" about our FIRST team. **Because of our efforts, FIRST is becoming a household name in our school, in our company, and in the Auburn Hills / Oakland County community.**



Chrysler Corporation - Huntsville Electronics
(Huntsville AL)
Bob Jones High School (Madison AL)

As the **only team from Alabama**, we have eighteen Chrysler volunteers, nineteen students, and six educators who are proud to represent our state in the sixth FIRST Competition. We have joined creative forces in **our inaugural season** to link education and business. Our team efforts started when we met with the parents, students, and teachers. We attempted to give them a preview of "things to come". The team then started weekly working sessions, in which we reviewed past competitions, held mock strategy-based competitions and just got to know each other in general. After the kick-off meeting, **the team formed what we believe will be the winning concept.** We developed the design through rule reviews, strategy sessions, the building of scale models, and the building of a full size playing field. Once the robot's main mission was determined, the team divided into detailed design groups, each working on a separate section or subsystem. With the final design concept on paper and prototype tested, the groups reformed to build **the final machine, affectionately known as Patriot.**

National Championship TEAMS 1997



Codem Systems Incorporated (Merrimack NH)
Derryfield School (Manchester NH)
Codem Cybercats

The Derryfield School is entering its **third year** of FIRST Competition and its second year as the Codem Cybercats, with the goal of proving that student driven design and construction of a robot can compete against engineer-built robots. We have learned from our mistakes last year, and several motivated students got started ahead of time to design & produce drive train part drawings for our machinist before Christmas. With this behind, we moved on to design and build our scoring/defense system...**we're armed and dangerous! The Troll is back, and its ready to rumble!** Keep an eye out for it's star appearance in our 30 second animation, again done completely by three students.

Cordis Corporation (Warren NJ)
Watchung Hills Regional High School (Warren NJ)
The Warriors

The generous sponsorship by Cordis has stimulated interest and support from our entire community located in the foothills of the Watchung Mountains of New Jersey. Over sixty students, engineers and teachers have been joined by parents and local business; supporting us with **talent, time, money, materials and lots of spirit**. We have organized ourselves into special teams responsible for the various tasks of designing building and competing. Interest was generated with a Kick-Off dinner at Cordis where we captured the spirit of FIRST with a mini-battle of refitted remote controlled cars designed to capture baby toys strewn across the cafeteria floor. Newspaper reports of this event focused attention on our project and brought more interest and participation. Currently **we expect our robot to control the top tower so that we can redefine the field according to our own game plan** where our robot will place just enough tubes on the rack to win by one or two points. Of course we will have a back up strategy should our initial plan need immediate revision. Regardless of what happens at the Regionals or at Epcot, we know that **our robot has already made us winners** with the new knowledge gained, team work, new skills and for all of the opportunities opened up to us on the road to the main event.

Daniel Webster College (Nashua NH)
Brookfield Rapid Solutions (Hudson NH)
Highland Tool (Nashua NH)
Lockheed-Martin Commercial Electronics (Hudson NH)
Premier Industries (Hudson NH)
Alvirne High School (Hudson NH)

Our team focus is the interaction that brings a project from concept to reality. The team is a collaborative effort between a wide variety of partners. They are, however, two very distinct groups. One group has **a passion for engineering**. The other group has **a passion for learning**. The first group has spent much of their adult life practicing their vocation. The second group is just entering adult life and about to make decisions on what vocation they will practice. Many in this second group are receiving for the first time interaction on a real project where the effort is visible to everyone. **What makes our team a winning team is the team effort that goes into designing, building and competing.** The manifestation of winning, for our team, is the attitude of our students. When the students have a positive attitude and a strong work ethic, we know we have won. There are 28 high school students, five college students, 15 engineers, and 14 parents, teachers, and business persons on our team, a total of 62 people. The team is organized into a Technical Group and a Business Group. Each group has small work groups with specific charges and responsibilities. The work groups have an adult and student leaders. These leaders are responsible for carrying out the mission of the work group.



Dart Container (Mason MI)
Mason High School (Mason MI)
Dart Vader III

Twelve students, two teachers and eight engineers put their minds together to create Dart Vader III. This team is a combination of Mason High School students and teachers conjoined with Dart Container Corporation. Meetings in early January began **the adventure of building Dart Vader III**. Our team split into three groups. The Drive Group was responsible for the chassis and drive systems. The Scoring Group developed both the method of picking up tubes and placing them on the goal. This group also worked out the strategical defensive plan. The third group is the Documentation Group. This team is responsible for putting out a bi-weekly newsletter, keeping pictorial and video documents and putting together the Chairman's Award presentation. This year's fundraising consisted of candy bar sales, indoor car washes and business and personal donations. **We wish good luck to all teams, and hope to pose a challenge to all teams who meet the wrath of Dart Vader III.**



Deere & Company (Ankeny IA)
Iowa State University (Ames IA)
Ames High School (Ames IA)
Team AARDVARC

This is team AARDVARC's **FIRST year** in the FIRST Competition, and we're excited to bring a 3-way partnership to the arena. FIRST up we have a dozen juniors and seniors from Ames High School, a mid-sized institution in a university town. They are joined by 10+ members of the Iowa Alpha Chapter of Tau Beta Pi, a national engineering honors and service society, and others from ISU: student engineers who are FIRST in their class! Our eight professional partners come from Deere & Company and other **corporations in the area who put their community FIRST**. Tau Beta Pi members have led the group from the FIRST; providing facilities, organization and communication. **We have learned in the design process that our FIRST idea probably won't be our last, and creativity is an important as experience.** We have divided into Drive, Manipulation, Logo, Fundraising, Electronics and Strategy groups in an attempt to make the problem more manageable. AARDVARC I has gone through intense training alongside DEERE tractors, while dodging our native CYCLONES. **AARDVARC I will be the FIRST robot to journey to Orlando from Iowa**, and we plan to return home to display our android in the annual spring festival at ISU.



Delco Electronics Corporation (Kokomo IN)
Kokomo High School (Kokomo IN)
KHS First

Our **sixth year** in FIRST Competition brings us back to the drawing board asking, "How do we deal with a ball that's not a ball any more?" The core Kokomo-Center/Delco Electronics team of 10 engineers, six teachers, and 45 students is ready to face this new challenge. In our local third annual Pop Can Regatta, we challenged ourselves with a similar kind of shake up. Once again, the problem was to build a pop can vessel that floats in a pool while supporting a person who collects balls from the pool surface. Rather than our usual head-to-head battle format, we changed to a timed slalom race format that forced everyone to think a new direction and revitalized our competition. We're looking forward to two specific new adventures this year. **Thanks in good part to our recruiting, we will be one of four Indiana teams in the competition this year, and we're excited to meet our "state mates" in the contest.** We also plan to attend the Chicago Regional competition for the first time, and hope to make the most of this opportunity for practicing and fine-tuning. **Practice makes perfect, after all.** Good luck, and we'll see everyone in Florida.

National Championship TEAMS 1997



Delphi Interior & Lighting Systems (Troy MI)
Pontiac Central High School (Pontiac MI)
Chief Delphi

Top 10 reasons you should get to know our 1997 TEAM:

- #10 If your machine is having troubles, we could always refer it to an alumni, Dr. Jack Kevorkian.
- #9 We're "huked on foniks" (Hooked on Phonics).
- #8 We're about innovative thinking: The Breakfast Club, a Website PCHS-DELPHI.CPM, a class called FIRST, The First Annual Chief Delphi Invitational, and a Rookie Camp for new teams.
- #7 Our corporate sponsors provides interiors and lighting for millions of vehicles each year.
- #6 We have had three Olympic medalists and one Special Olympian who attended Pontiac Central.
- #5 Our CADET program (Children Aspiring to Develop Engineering Talent) reaches out to children in grades 4th - 8th.
- #4 With 36 students, 7 teachers, and over 30 engineers all working together, we are definitely making a difference in our community.
- #3 Although our original Chief is Native American, our team has Euro-American, African American, Asian American and Latin American Chiefs.
- #2 In 1996, we won the Regional and National Rookie All-Star Awards.
And the top reason you should get to know our team.....
- #1 We're BAAAAAAAAAACKKKKKKK, just like we said. Look for us again in '98!



Drawform (Zeeland MI)
Zeeland High School (Zeeland MI)
The Drawform-Zeeland Chix

For the second year running, Drawform has teamed up with Zeeland High School students to **tackle and conquer the FIRST challenge**. Their identification of the team mascot as the "Tube Hawg" sums up their vision of the upcoming competition. The All-Terrain-Tube-Transport team, better known as AT³, is comprised of 12 Drawform engineers and over 25 students. The mission of these 37 people is certain to be due to the structure and approach of the team, not to mention the brilliance of the invention of their brainchild, the telescoping ladder. The consideration and combination of both offensive and defensive strategies is one of the team's central focuses. **Ritual and intense brainstorming session as well as everyone's willingness to compromise make the "Hawg" a truly personal project for everyone involved.** We came up with a wonderful design which was a combination of everyone's ideas and working together helped everyone open up to each other. **Our robot is a winner simply because we believe in ourselves.**

Dedication, Innovation, Determination, Perseverance, The Thrill of Competition...

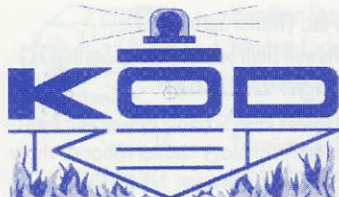
Let the Games Begin!

Emerson Electric Co. is a proud supplier and sponsor of the **1997 FIRST Competition.**



Emerson is the industry leader in the advanced development and manufacturing of electric motors. Our fractional motors are found in appliances throughout the home; our subfractional motors are used in technology based machinery; our integral AC and DC motors are used in agricultural and industrial applications throughout the world.

National Championship TEAMS 1997



Eastman Kodak Company
(Rochester NY)
Fairport High School (Fairport NY)
KOD-RED

The **first year team** from Fairport, KOD-RED (pronounced "code-red;") is looking forward to the

competitions. The robot building team is made up of 15 students in grades 9-12, who share an interest in having fun with science, and two Fairport teachers. They are joined by a team of Kodak volunteers consisting of engineers, machinists, technicians and an education coordinator. All have committed their **time and energy to help the team achieve their goals.** The entire team is more than just these 32 people, though. Students in the district designed team logos, other teachers devoted time to student art contests for use in designing our team T-shirt. There were library displays and research, and teachers from various subjects incorporated the FIRST Competition into classroom activities. Members of the community donated goods and services. **The robot R2-K2 is the commutative effort of all these team members, because "it takes an entire village to build a robot."**



Emerson Motor Company (St. Louis MO)
Cardinal Ritter College Preparatory HS (St. Louis MO)
Normandy Senior High School (St. Louis MO)

Arch Rivals

The "Arch Rivals" is a mix of 25 students from two diverse high schools, five faculty advisors and 26 Emerson employees from a variety of engineering disciplines and other expertise. Regardless of our backgrounds, we quickly blended into a team with common goals: to explore science and technology solutions; to meet new people and challenges; and of course, to go to Disney World! As a **second year** participant in the Competition, we took full advantage of the learning curve and **hit the ground running, or shall we say rolling!** During the initial FIRST meeting subgroups were determined, tasks assigned and detailed time line established. We meet at least three times a week, not only to develop strategies and create our robot, 'Tubular Tornado,' but also to build friendships. **On the stormy road to the final round, the "Arch Rivals" and the "Tubular Tornado" promise a path of destruction for the competition.**



Ensign-Bickford Company (Simsbury CT)
Bloomfield High School (Bloomfield CT)
Simsbury High School (Simsbury CT)

Natural Disaster

Taking down the mountain that stands between the towns of Bloomfield and Simsbury, these two schools are joined together to form the Natural Disaster. This group combines 20 students of diverse backgrounds and many individual talents from each school to form into three divisions: engineering, journalism/public relations, and graphic arts. To aid us in **our quest for victory** we have support from several teachers from both schools and are working with the support of corporate sponsors such as Ensign-Bickford Industries. **The team, with the success of fundraisers, promotional tools, and unique engineering prowess, will certainly storm any competition out of our paths.** Working together cooperatively, the Bloomfield-Simsbury team of **Natural Disaster** is a force to be reckoned with.

Environmental Testing Laboratory (Dallas TX)
Austin Academy (Garland TX)

Totally Tubular Team

Austin Academy's 'Totally Tubular Team' is ready to roll into victory at this year's FIRST Competition. **For the past two years, we have been one of the few middle school teams to compete.** That has not intimidated us in the least. As a matter of fact, we are Dyn-O-Mite, and **our TNT robot is ready to explode into action!** Teamwork is the name of our game that will lead us to fame. We have 47 student engineering specialists in court construction, chassis design, scoring mechanism design, control system programming, robot operation, strategical tactics, and computer animation. **Our engineers are awesome team members** who help us turn our ideas into realities while teaching us how to solder wires and spot weld parts. We're learning what "prototype" really means. You'll know us by our hats, you'll know us by our cheers, **you'll know us by our robot that knows NO FEAR!**



Ethicon, Inc. (Somerville NJ)
Bound Brook High School (Bound Brook NJ)
Cruisin' Crusaders

Back for a **second year**, Ethicon is proud to announce Bound Brook High School as it's 1997 partner. Stepping up to this year's challenge are thirty students, five faculty members and a half-dozen parents. They join fifteen Ethicon associates in building this year's partnership. **Focused primarily on building excitement for science and technology, our team stressed the need to involve all students.** From arts to sciences, special-ed to gifted, **our only prerequisite was willingness to commit to a team effort.** We're proud to field **a spirited and dedicated team of students and teachers** from diverse backgrounds who cross grade levels and curriculums. Following a few team building activities our group divided itself into three major sub-teams: Robot Design, Computer Applications and Marketing. Students, teachers and parents are coupled with engineers who provide the technical guidance that enables an idea to blossom into a mature component, animation clip, web page, logo design or fundraising effort. Whether your interest is mechanical, electrical, artistic or computer-based, the Cruisin' Crusaders have a place for you on our team!

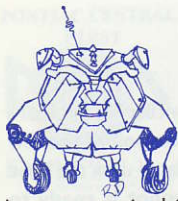
RAMTECS



Florida International University
(Miami FL)
Miami Coral Park Senior High (Miami FL)
The Raging Rams

The partnership between Miami Coral Park Senior High and Florida International University symbolizes the real meaning of FIRST. The students are the true heads of this team. We design and construct every component that goes into our robot. We are also responsible for the total organization of our team. This is quite amazing when you consider the fact that **most of our students wake up anywhere from 4:00 a.m. to 5:30 a.m. in the morning and still put in 14 hours a day into school and our robot.** **Our assisting engineers have 110% faith in the work we do as we have 110% faith in the advice they give.** This whole experience is very educational in that it gives us, the students, a realistic simulation of what it is like to be engineers. For example, having a big hand in prototyping and final construction gives us a good feel as to how the field of engineering works. **Our goals, just as our robot, are very simple...arrive at Epcot and RAM the competition!**

National Championship TEAMS 1997



Ford Motor Company (Yucca AZ)
Mohave Generating Station (Laughlin NV)
Kingman High School (Kingman AZ)
BIONIC BULLDOG

This is our **inaugural year** of competition with FIRST. We started this project in great chaos and have since become organized. Our team consists of one teacher who is a clone of Bill Nye the Science Guy, several motivated parents, a few engineers from Ford and Mohave Generating Station, and a dozen or so students who can't agree on anything. **After three confusing weeks of staring at a box full of parts, we have finally agreed on a design and have begun the fast-paced construction process.** We look forward to The Competition and feel we will go far. **The Bionic Bulldog should provide a challenge for even the best of teams.**



Foster Miller Corporation (Waltham MA)
EMC² Corporation (Milford MA)
Allegro MicroSystems, Inc. (Worcester MA)
Blackstone Valley Regional Vocational Technical
High School (Upton MA)
Eliminator II

The Eliminator II team consists of approximately twenty students, four faculty advisors, three machinists, and five engineers. This is the **third year** that the team has competed in the FIRST Competition. Beginning in September of 1996, the student team members began having weekly meetings to start the process of fund raising, sponsorship solicitation, and also to review and critique past performances in The Competition. On the Monday **following the Kick Off, all team members met and discussed this year's playing field and the unique challenge which it posed.** Five teams were formed using volunteers from the pool of students, engineers, machinists, and faculty members. Each team consisted of at least one engineer or advisor. The teams were: Autodesk Animation Team, Shipping Strategy Team, Tool and Robot Carrier Team, Playing Field Team, and Robot Design Team. Each team was able to solicit assistance from the various shops in the school. **Our goal is to improve each year and have fun doing it.**



General Motors Proving Ground (Milford MI)
Milford High School (Highland MI)
Lakeland High School (White Lake MI)
Harbor High School (Highland MI)
H₂O
(Hyper Hex Offender Team)

Our team includes 30 engineers, technicians, administrators, managers, computer professionals, and other career specialists from General Motors, as well as 79 students and three faculty members representing the Huron Valley high schools listed above. **This diverse combination of enthusiastic and dedicated talent is not only unique, but will prove a force to be reckoned with, even in this our rookie year.** As other teams, we are "under the gun" to come up with a working and winning robot within the six weeks allotted. We conducted brainstorming sessions to get all our ideas on the table. The students provided fresh ideas that the engineers and technical professionals used in working their magic. The students and GM professionals divided into separate engineering teams. Each of the four teams had a sub-assembly of the robot to design and build. Another team developed our logo and animation entry. Other teams specialized in building the practice playing field and performing the various administrative functions vital to coordinating the complete project. **This combined effort produced a robot and animation entry we believe will be strong contenders, and positively demonstrated through teamwork how engineering can be challenging and fun.**



Grago Inc. (Winter Springs FL)
Lake Howell High School (Winter Springs FL)
Orange Crusher

Lake Howell High School's Power and Transportation Technology classes robotics show was profiled in the February, 1996 issue of the publication NEA TODAY. The photographer sent to do the layout mentioned that he had covered the FIRST 1995 robotics competition at Epcot the previous spring. He thought that we should check into the opportunity for our students. Through this serendipitous comment, the seed was planted for our eventual entry into this year's competition. **Inspired by seeing FIRST's promotional video, Grago, Inc. decided that Lake Howell High School would field a team for the 1997 competition.** Motivated by both present and past creative and energetic students, the team-building process began. The first week was spent brainstorming. As a result, we determined what areas the participants would be most interested in pursuing. Interests, as well as capabilities, became important factors in forming special units. Five engineers and seventeen other adults working alongside fourteen students created the workforce needed to power the eight special units within the team. Our robot is already a winner because our team is so excited and involved. **Get ready to "put the squeeze" on the competition!**



General Motors Powertrain Group
(Pontiac MI)
Pontiac North High School (Pontiac MI)
Huskie Brigade
GM Powertrain Group and Pontiac North High School left the door

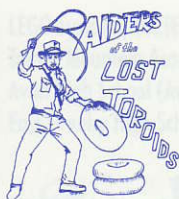
opportunity open and THE DOGS ARE IN THE HOUSE! Our Huskie Brigade of 18 students, nine teachers, and seven engineers, with the support of Northern's administration and Powertrain's employees, is bringing a winner to the arena! Our relatively late start hasn't dampened our enthusiasm or creativity - it has made us depend more on each other, and **the resulting teamwork is producing a powerful design ("this ain't no dogsled!").** Our team members are true neighbors; in fact, GM Powertrain Headquarters is just a dog whistle away from Northern. Our diverse team draws people from many ages, backgrounds, interests, and points of view. By working together, we have discovered that we're not just these labels called teacher, student, and engineer; we have many things in common in our personal, educational, and professional lives. **We are truly a team, all pulling in the same direction.**



Hamilton Standard Space Systems International
(Windsor Locks CT)
Techni Products (East Longmeadow MA)
Enrico Fermi High School (Enfield CT)
BUZZ II "The Falconaut"

This is our **second year** of The Competition. Because of the quality of the relationship we forged between Hamilton Standard and our partner school, Enrico Fermi, and the success of our robot in the national competition exceeded everyone's expectations. We have incorporated lessons learned from last year's efforts in the areas of project organization, time/task management, and community outreach. **We have invited a small, women-owned business, Techni-Products, to be part of our team.** Many of the engineers and students have returned to take up the challenge again this year. We have constructed a replica of the playing field and have modified last year's robot "Buzz" as a working prototype for "Buzz II." The families of our students are pleased to see their children in such a constructive and educational event. **Learning in this non-traditional forum enables students to apply classroom lessons to real-world problems, work in a team environment, and build self-confidence.** The real reward is that each day we witness many little victories for both students and engineers. **We anxiously await this year's competition and the excitement that consumed us last year. Buzz II is coming!**

National Championship TEAMS 1997



Hamilton Standard (Windsor Locks CT) Windsor Locks High School (Windsor Locks CT) **Raiders of the Lost Toroids**

Have you lost your Toroid? **The Raiders of the Lost Toroid are here!** We are a **second year team** looking forward to another exciting year of competing. This year our team has expanded to include 25 enthusiastic

high school students, 10 motivated engineers, three dedicated teachers, and two inspiring parents. Many teams will probably mention the relationship between the students and the engineers/teacher, but ours is unique. Each team member has developed a true friendship with every other member on the team. Our robot, The Roid Raider, equally reflects the ideas of each member on the team. Though we are divided into small specialized groups to work on the technical aspects of the robot, we have managed to keep everyone involved and interested. **Some things to look for at the competition are our exciting animation, our colorful "Jelly Bean," and much more...**



Harris RF Communications (Rochester NY) Rochester Institute of Technology (Rochester NY) Edison Technical High School (Rochester NY) **Tigerbolt**

The Harris RF Communications, Rochester Institute of Technology and Edison Technical High School, FIRST Trio, Team Tigerbolt, makes its **third appearance**

in the FIRST Competition. Our team is made up of 30 Edison Tech students, five Edison Tech faculty, 15 RIT students, one RIT advisor, and ten Harris RF employees. The **students are also involved with programs such as Edison's Rochester Engineering Entry Program (REEP), developed with RIT's Engineering department.** This has given Edison Tech students an introduction to engineering practices and principles. Keeping with the goals established by the FIRST Competition, the REEP program provides the students with a stepping stone to higher education and opportunities for interaction with the corporate world. Some of last year's Title-winning ideas have resurfaced in the this year's Tigerbolt, ready to try and prove their effectiveness once again. Opponents beware! **This year's TIGERBOLT Team is fired up and ready to STRIKE!**

P.E.S.T.

Haworth, Inc. (Holland MI)
Holland High School (Holland MI)
P.E.S.T.

(Pulling Engineers and Students Together)

This is the third year Haworth and Holland High have teamed up to compete in the FIRST Competition. This year on our team, we are proud to have 25 great students, 3 wonderful

teachers, 8 outstanding engineers, 2 of the best marketing specialists, and 4 superb model makers. Our Marketing, Fund raising, Chairman's Award, and Animation teams started very early this year. We found this very useful. The Engineering team started the day we got the kit and have been going **full speed** ever since. New for us this year will be competing in a regional. We look forward to it! **The Competition this year with the inner tubes is devious, diabolical, and difficult, but we plan to win!** See ya'll in Florida.



Honeywell, Inc. (Minneapolis MN) North Community High School (Minneapolis MN) **The Tubenator**

This is the **fifth year** that North Community High School has teamed up with Honeywell, Inc. to compete in the FIRST Competition. On this year's team there are more than 40 students (grades 9-12), four teachers and staff, 11 engineers, eight HRVP (Honeywell Retired Engineers Program), and 23 support staff. Team work is a high priority for our team this year. We want all of our members to participate in all aspects of the robot building process. To accomplish this we have divided into groups; documentation, design, building fundraising, and activities. The members of these groups are divided in four teams, this is so all members are informed at our two weekly sessions. **Our goals are: to apply math, science and technology while we explore the field of engineering; to publicize FIRST, to work as a team while building a quality robot, and to have fun.** We are working hard to accomplish these goals and we know **this will be the best year ever.**



Honeywell Space and Aviation Control (Phoenix AZ) Cortez High School (Phoenix AZ) **The Phoenix**

Cortez is a relatively small school in Phoenix, Arizona. With about 900 students in our entire school, RoboColt has become an asset to our community. Because of our school being so small, the students on the team also are involved in many different clubs, but we believe the team to be an extremely beneficial program for everyone. This is our **fourth year** in the FIRST competition, and definitely will be a good one. This year's team is composed of 24 students, eight engineers, one teacher, and many other wonderful people all **working for the betterment of the team.** We all met to start brainstorming in early January and had many ideas for our robot, "The Phoenix." This name was chosen with great consideration. Last year, we did not do as we would have liked to, and decided that this year we would start off with the rebirth of everything, including our attitudes. **We know that we have gained a lot through the program, including new knowledge, new friends, and many new experiences.** Winning is in the heart of the beholder!



Honeywell's MICRO SWITCH Division (Freeport IL) Freeport High School (Freeport IL) Aquin High School (Freeport IL) **Pretzelator III**

After our great success last year it was time to expand our program and let others in on the excitement! This was accomplished two ways: First, another school, Aquin High School, became part of Freeport's FIRST team. The new students and teachers from Aquin entered the program in the fall and have become enthusiastic partners. Second, changes were made to an existing local program which partners engineers from a corporate sponsor with middle and junior high school students. This program, TEAMS (Together, Education and MICRO SWITCH), was modified to more closely resemble the FIRST Competition and team structure. Also FIRST student members now actively participate in recruiting younger students into the TEAMS program. As a result, **we have in place a feeder program which provides hands-on problem-solving experience for soon-to-be FIRST team members.** This year's FIRST team is the largest ever, numbering 69 students and 15 advisors. We divided into six sub-teams with specific areas of responsibility, but we strive to be cross-functional by actively seeking input from all team members. Everyone is a resource. All teams have been active since September focused on a variety of training, publicity and fundraising activities. But when it's time to compete, **a common goal unites all Team members - WIN!** You will see us at both the Midwest Regional and the National at Epcot. **Stay on the lookout for Pretzelator III: "The Bulldog".**

National Championship TEAMS 1997



International Fuel Cells (South Windsor CT)
South Windsor HS (South Windsor CT)
Torroid Terminators

The Torroid Terminators consists of 35 students, 10 engineers from International Fuel Cells and three faculty members from South Windsor High School. This is our **third year** of involvement in the FIRST Competition, and our prior experiences have proved invaluable. The Torroid Terminators placed and emphasis on student involvement. Students were primarily responsible for the design documentation and manufacturing of robot components. The cooperation among the students and engineers was an important asset to the team. First, the team focused on building the playing field and analyzing the game. **After many hours of diligent work, our team developed the Ring Wrangler, a rugged, rowdy robot.** The Ring Wrangler utilizes speed, agility and **a lightning quick gripper to dazzle the competition.** Our team also hosted a scrimmage for United Technologies teams involved in the FIRST Competition. This was a full-scale tournament which included practice time, seeding rounds, and championship elimination matches as well as media coverage. The top executives of United Technologies were invited, and **a good time was had by all.** We hope that next year will be as successful as this year.



ITT Automotive (Auburn Hills MI)
Troy High School (Troy MI)
Colts

This team is a diverse group of students and engineers. But, they share at least one thing in common, all are excited about the prospects of winning the FIRST Competition at Epcot. Although the team had a slow start due to exams the first week after receiving the kits and instructions, significant effort has been placed on leap-frogging The Competition. **This team believes it has hit upon the winning formula, combining offense and defense into a unified strategy.** The team's approach is to place its inner tubes in such a manner as to prevent the competitors from placing theirs. This strategy is being accomplished by dividing the group into robot subsystems such as drive train, lift, and delivery. There are usually 12 students and eight engineers involved. A captain has been assigned to each team to coordinate their efforts. Another person is responsible for resolving interface issues. Each day a joint meeting is held at 3:00 p.m. This brings everyone up to speed on the progress made and also provides a forum to discuss administrative issues. The group then breaks up into subsystem teams to work on their part of the project.



Johnson & Johnson (New Brunswick NJ)
University of Pittsburgh (Pittsburgh PA)
Steel Center Vocational Technical School (Clairton PA)
TECH-LINK (Pittsburgh PA)
The Steel Shadow

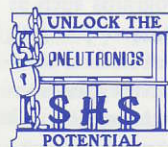
As **first year competitors**, we have 25 high school students from Steel Center Votech and **TECH-LINK Program of Pittsburgh, an organization which promotes students with disabilities in technical fields.** Support is provided by six engineers from the Human Engineering Research Laboratories at the University of Pittsburgh. five Pitt graduate students and volunteers from the Pittsburgh area also provide technical support. We have received generous contributions from Johnson & Johnson, and local sponsorship is pending.

HEXAGOD

Johnson & Johnston Associates (Hampstead NH)
Salem High School (Salem NH)

HEXAGOD

The world's leaders could become inspired by watching Salem High School's FIRST Team. Although the team is composed of different personalities, genders, races, and views, it is unified in one aspect, **we all have the same goal regarding this competition, to achieve victory** and prove to ourselves that we are the geniuses we believe ourselves to be. We put aside our selfish tendencies, differences and minor issues to assist this project. **We are the proud parents of the child we have created, HEXAGOD. We are determined to keep our eyes on the prize.** We could not, however, accomplish all we have and all we plan to without the assistance of others. We would like to acknowledge, with the highest appreciation, our corporate sponsors. Johnson and Johnston Associates are the foundation of our efforts. Without them, there would be no team. Further thanks go to the engineers and support group at Renaissance Design Incorporated. Without their wisdom and guidance, HEXAGOD would be nothing more than a figment of our imagination. We would like to thank our advisors for their willingness and dedication. Senior advisor and Director of Salem High School's vocational Department, Bob Pariseau, along with Dr. Frank Quatriello, Mr. Tom Pelletier and Mr. Jim Slobig have volunteered for the thankless job of team advisors.



KeyBank (Bedford NH)
Parker Hannifin Pneutronics (Hollis NH)
Souhegan High School (Amherst NH)
Souhegan Zoo Keepers

Souhegan aspires to be **a community of learners born of respect, trust and courage**—a mission that holds true with the FIRST Competition. The Souhegan Zoo Keepers are made up of 15 students, eight engineers from Parker Hannifin Pneutronics, a manufacturer of small pneumatic valves in Hollis, NH, and three Key Bank team members including the President of Key Bank New Hampshire and the Public Relations/Marketing team. Pneutronics, Key Bank, and Souhegan High School are experiencing the power of a corporate/school partnership. **The Souhegan Zoo Keeper's edge in The Competition comes from the positive and very important effects of teamwork and partnership** so crucial in today's business world.



Lear Corporation (Rochester Hills MI)
Brandon High School (Ortonville MI)
LearHawks

Through the first time efforts of Lear Corp., Brandon High School has the opportunity to participate in the FIRST Competition for their **second year.** Our team goal is to involve businesses, education and local communities in sharing our enthusiasm for science and technology. The team consists of 13 high school students, 1 middle school student, two high school teachers, three parents and 28 employees from Lear Corp. Last year's experiences provided the team with valuable information and the LearHawks are ready to capture the title in 1997. In pursuit of that goal, we immediately divided into six groups to focus our efforts on designing, building, computer animation, rules, weights and measures, marketing and travel and the Chairman's Award. Our team is dedicated to working together in the true meaning of team spirit. **We have combined the best of talent, skill and ingenuity to create the winning robot and develop dazzling offensive and defensive strategies.** We fully expect to live up to our motto and when the competition is over, the LearHawks will be saying: "We came, We saw, We conquered."

National Championship TEAMS 1997

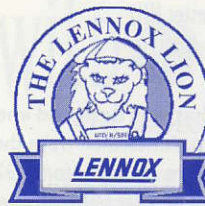
LEGO Systems, Inc. (Enfield CT)
Talcott Mountain Academy of Science and Mathematics (Avon CT)
Avon High School (Avon CT)
East Granby High School (East Granby CT)



John Winthrop Junior High School (Chester, Deep River & Essex CT)
Granby Memorial High School (Granby, CT)
Schaghticoke Middle School (New Milford CT)
Stafford Middle School (Stafford Springs CT)
Terryville High School (Plymouth CT)

Maniac

Maniac (ma'neōak): 1. Having a mania; raving. 2. Characterized by ungovernable excitement or frenzy. If that doesn't describe us, nothing does! The LEGO team is ready and raring to go at the 1997 FIRST Competition! After what passes for careful thought on a tight timeline we've got our robot unfolding, scampering, tearing up the course as you read this. We are a **first-year team**, but that won't stop us from coming to Epcot and trying our best to win the 1997 FIRST Competition. With a mix of 17 talented junior and senior high schoolers from all over Connecticut, five fearless teachers, an amazing squad of LEGO engineers (not to mention superbly supportive parents and families) designing, building, and testing, we feel that we've got a great shot at this. **From our humble beginnings after the Kick-Off Workshop, and with a great deal of time, effort, and pizza, we've been meeting whenever we can to put our MANIAC machine together.** Whether we're meeting for marathon work sessions, braving blinding brainstorming, or zapping e-mail and web ideas back and forth, we're working hard for this competition. We've got style, finesse, and yes, even a cool name. We'll see you at the FIRST Competition, and may the best 'bot win!



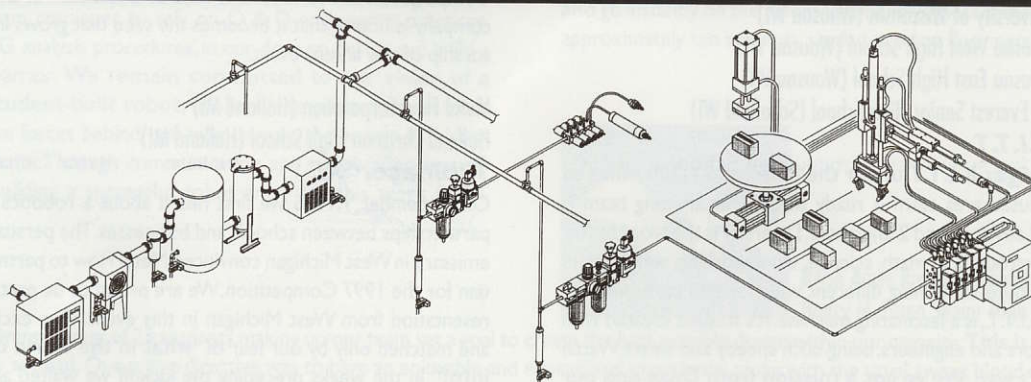
LENNOX International, Inc. (Richardson TX)
University of Texas at Dallas (Dallas TX)
St. Mark's School of Texas (Dallas TX)
Hockaday School (Dallas TX)

The LENNOX LIONS

This year looked hopeless for the St. Mark's FIRST team. With SMU as a former sponsor (1994 1995), last year, the St. Mark's team had to "go it alone," without engineers or funds. The task to "go it alone" again this year loomed impossible. **Two days before the registration deadline, the team still had no structure or money; however, freshman Max Klein persevered. He refused to give up.** Like the soldiers in Stone Soup, Max encouraged everyone in the St. Mark's village to pitch in—starting with the coach, Richard Abbondanzio, the Library Director, Polly Gilbert, and his own family. Everybody supplied vital ingredients. Max urged this year's veteran Seniors to recruit younger students zealous to build a robot. Mrs. Gilbert contacted LENNOX who donated the registration fee, engineers, and a huge R&D lab. Some Seniors, who could not attend the Epcot competition, served as design-phase mentors. **Hockaday, an independent girls' school, added four students to our team.** The University of Texas at Dallas added a machinist. Parents, grandparents, and others added funding. The LENNOX LIONS are 23 students, seven engineers, one machinist and two teachers. The team focused on speed, caliper arm, and topping the tree. We had "TOP TUBE" pilot tryouts. **The team is definitely "souped up."** 'Atta boy Max. Look out for the LENNOX LION!



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National Championship TEAMS 1997



Light Machine Corporation (Manchester NH)
Memorial High School (Manchester NH)

The BLITZ

If you want to see a machine that was designed and constructed completely by students, then we're the team for you! Although our team is small, (only 37 students) and we have but one engineer, we will crush you! Our seven groups: Scoring, harvesting, locomotion, electronics, Chairman, animation and strategy, have been working many drowsy yet caffeinated hours to eliminate all our "fumbles" to make our goal. We started training for the big game early in the year so when we received our starter kit we were ready for our grueling pre-season of practices. **Beware of the BLITZ—we play to win.**



LoDan Electronics, Inc.
(Arlington Heights IL)
Craftsman Custom Metal Fabricators
(Schiller Park IL)
Motorola, Inc. (APD)
(Arlington Heights IL)
St. Patrick's High School (Chicago IL)

STRIKER

STRIKER (St. Pat's Tactical Retrieval Interfaced Kombat Engaging Robot) is the product of hard work and dedication. The Team is composed of 30 students and three teachers from St. Patrick's High School in Chicago, Illinois, as well as engineers and resource members from our sponsoring companies: LoDan Electronics, Inc.; Craftsman Metal Fabricators; and Motorola, Inc. (Advanced Products Division). These world-class resources have provided the knowledge and expertise needed to compose this project. The first step in creating STRIKER was to strategize. We produced numerous models and tested them to provide a combination of offense and defense strategies. STRIKER is unique because it encompasses different backgrounds and experiences of all Team members. The inner tubes that STRIKER will place on the central goals are protected from being knocked over by a clamp system. STRIKER is also capable of attaching itself onto the platform to prevent the intervention of the other robots. **Building STRIKER proved to be a great learning and team building experience for all of us. STRIKER is NOW ready to challenge the competition and WIN!**



Marathon Electric (Wausau WI)
University of Wisconsin (Wausau WI)
Wausau West High School (Wausau WI)
Wausau East High School (Wausau WI)
DC Everest Senior High School (Schofield WI)

K.I.T.T.

We've got a tank full of gas, K.I.T.T. under the hood, and 1,200 miles to Disney World. The Wausau area team is ready to go. Our amazing team is made up of 12 students, 2 advisors, and 2 engineers. Diversity is the word for us, we all have different backgrounds in math, science, woodworking, welding, and engineering. We all contribute something different which makes each member essential. Our machine, K.I.T.T., is a fascinating machine. It's student created with little help from our advisors and engineers, being both speedy and smart. Watch out! Knight 2000 is on it's way! **We've got a mission from Dean and our mission is accomplished!**



MIT CR&LS TSUNAMI

Massachusetts Institute of
Technology (MIT) (Cambridge MA)
Cambridge Rindge & Latin High
School (Cambridge MA)
Tsunami

The first meeting of this year's MIT FIRST team occurred on Jan. 6, 1997. Organizing a high school and sponsor before the kick-off was just one of many adventures. The team has about 10 MIT members and 15 high school members. We also consult with some professional mechanical engineers. Everyone is very excited about the project. **Our never ending belief that we can overcome any obstacle put in our path makes our team great.** Even in our low times, there is faith that **our ingenuity and energy will pull through.**



McNeil Consumer Products Company (Ft. Washington PA)
Philadelphia College of Textiles and Science
(Philadelphia PA)
The School District of Philadelphia's School-to-Career System
(Philadelphia PA)
Jules Mastbaum AVTS (Philadelphia PA)
Strawberry Mansion High School (Philadelphia PA)
John Bartram High School (Philadelphia PA)
George Washington Carver High School of Engineering
and Science (Philadelphia PA)

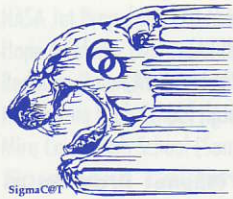
Philly's Phearsome 4

We, the group from Philadelphia, are known as Philly's Phearsome Four. This is our team name because we represent four of Philadelphia's finest high schools, each united by a common thread—all of the student and teacher participants belong to one of the School District of Philadelphia's Schools to Career Program. **Distance has posed some travel and communications problems which we've solved by connecting partners via Email and a lot of enthusiasm.** Further, each school was assigned the oversight for one of four major task areas: Communications, Strategy, Project Management, and Robot Development. Although this is our **first year** in the competition, we're hoping to be a winner. Without giving away any secrets, we can tell you that **the robot has unique telescopic arm and it is designed to dock with the "tree"**, enabling us outstanding defensive control. We have eight engineers, a college engineering laboratory and a growing number of teachers working with thirty three students. The engineers were supplied by McNeil Consumer Products Company. This is McNeil's first time as a sponsor of the FIRST team and the company is hoping that it becomes the seed that grows into a continuous sponsorship of this annual event.

Metal Flow Corporation (Holland MI)
Holland Christian High School (Holland MI)
Tubinator XL

On December 1, 1996 we first heard about a robotics competition involving partnerships between schools and businesses. The persuasive abilities of FIRST's emissary in West Michigan convinced Metal Flow to partner with Holland Christian for the 1997 Competition. We are proud to be part of the substantial representation from West Michigan in this event. Our excitement level was high and matched only by our fear of **"what in the world did we get ourselves into?"** In the weeks preceding the kickoff we waited anxiously to learn what would be involved. We established teams for public relations, strategy, design, and building we felt ready! Little did we realize that the reality of accomplishing all of these tasks in six weeks was much greater than we had anticipated. A group of 17 students, three engineers, two toolmakers and **many supporting cast members have worked feverishly to make our first endeavor in FIRST a successful one.** For both the students and adults it has been refreshing to see the enthusiasm and commitment to completing this task. By itself this makes the Metal Flow/Holland Christian team a winner.

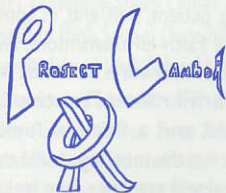
National Championship TEAMS 1997



Motorola, RPG (Plantation FL)
Florida Atlantic University (Plantation FL)
Dillard High School (Ft. Lauderdale)
Crystal Lake Middle School (Plantation FL)
William Dandy Middle School (Plantation FL)

SigmaC@T

Don't count on your experiences in Biology I, because dissecting this "CAT" will not help you to understand the team's unique synergy of experience, creativity and knowledge. SigmaC@T's vital organs include two middle schools, as well as the veteran high school, corporation and university who have collaborated in FIRST Competitions of 1995 & 1996. **Sigma C@T's components are a living network of 125 unique human resources** from Motorola, Dillard High School, Florida Atlantic University, and our rookie partners: Wm. Dandy and Crystal Lake Middle Schools. Just as the high school team members are trained and mentored by corporate engineers and coached by university staff, these same high school students are training, mentoring and coaching the middle school team members to keep the FIRST spirit alive and growing. **The ninety-two students received corporate training in team-building, project management and statistical process control** to prepare them for the pressures of their individual and group deadlines as Regionals and Finals approached. Subgroups developed communications strategies to contact and update all participants as designs and strategies evolved. **Team members from all organizations planned together, trained together, and devoted evening and weekend hours to the development of each other's strengths, with the quest for perfection as the unifying goal.**



Motorola, Inc. (Fort Worth TX)
Richland High School (Fort Worth TX)
The Plier Mechanics

The 1997 Motorola/Richland High School "Plier Mechanics" are preparing for **our third venture at FIRST**. Continued sponsorship from Motorola has enabled us to return to the Competition.

Three teachers, one mechanical engineer, a mechanic, and several enthusiastic parents are guiding 21 students in the hands-on design and construction of our robot, "Project Lambda". High school seniors act as team leaders for smaller groups devoted to documentation, computer animation, and the design and construction of components. **Twelve returning students bring with them not only a number of ideas, but also lessons learned in the previous competition.** Our team continues to rely on Q & D engineering practices, combined with S.W.A.G. analysis procedures, in our drive to design and build a competitive robotic warrior. **We remain committed to our vision of a student-designed, student-built robot.** While adults guide, instruct, train, and critique, the motive forces behind our team remain the energy and ideas generated by the students. Through communication and cooperation, we will achieve our goal of building a successful robot entry for this year's FIRST Competition.

The diverse group of 25 students making up our team set a goal to create the best possible design within our capacity. **This is a new experience for or school.** Our prime directive was to have an enjoyable and educational experience, along with the usual sweat, blood and tears associated with this competition. **We are part of a four school NASA-sponsored team** that worked together on common areas, such as mobile base design and construction, ways to get sponsorship, and how to organize our overall effort. Each of the schools has a unique strategy and design for the manipulation subsystem on the robot. Each school has a team made up of students, parents, community volunteers, industry sponsored engineers, and teachers. NASA provided a project management structure that each school followed so that everybody had the experience of going through all project phases including: writing proposals, planning, conceptual design, preliminary design, detailed design, fabrication and test. Each school could practice on an actual course in the blimp hangar at NASA. **The NASA support team included a well-known roboticist and an engineer from Raychem, who was on the 1995 FIRST winning team.** NASA also provided manufacturing help on some complex parts. Our robot was built at Gunn in the Industrial Academics Tech. Room. We were successful in recruiting engineering advisors from GE, Xerox PARC, and Stanford. We also had the most awesome, enthusiastic teacher who was with us all the way.



Motorola, Inc. (Schaumburg IL)
Rolling Meadows High School
(Rolling Meadows IL)
Wheeling High School (Wheeling IL)
WILDSTANG

Students from Rolling Meadows High School and Wheeling High School in North-west Illinois have put aside inter-school rivalries and competition, creating the WildStang Team. 25 volunteers from all areas within Motorola are supporting a strong contingent of 76 students and 10 Faculty Members. The Motorolans try to make the project fun and exciting, while also providing the students with an unique learning experience. The Motorola volunteers have been assisting with engineering classes since August, teaching students the basics of electronic and mechanical technologies. Armed with this knowledge, the students approached the initial project design by developing three prototypes in parallel. Following evaluation, key elements from each design were chosen to create **the optimal robot** which matched the students' strategy. **Achieving project goals and meeting deadlines are dependent upon everyone's ability to work together as one cohesive organization.** Students and Motorola volunteers alike are establishing new friendships, having fun, but most importantly, **learning and growing.** Best of luck to all in the competition!



Motorola (Boynton Beach FL)
Santaluces Community High School
(Lantana FL)
S.A.M.E.T.S.

Santaluces Community High School and Motorola-North America Subscriber

Paging Division (NASPD) have joined forces to share resources, learn from one another, and compete in the FIRST Competition. The team name is S.A.M.E.T.S. (Santaluces and Motorola Engineering Team). **The robot's name is Robo Chief.** The team is unique in the following ways: At the Motorola NASPD site, compressed cycle times and cross-functional teams are common. **Students will be given security clearance so they can meet with their engineering teammates at the Motorola facility to learn more about the world of engineering.** In Florida, Motorola and Santaluces Community High School have been partners in education for many years. The uniqueness of our robot has come from our team's brainstorming. We have envisioned **a robot design that should be simple, yet fast and highly maneuverable.** Our strategy is to have highly trained operators that can score as many points as possible and also go instantly on the defensive whenever necessary. The team is comprised of approximately ten students, six Automation Engineers, and one teacher.



NASA Ames Research Center (Moffett Field CA)
Henry M. Gunn Senior High School (Palo Alto CA)

National Championship TEAMS 1997



NASA Ames Research Center
(Moffett Field CA)
Los Altos High School (Los Altos CA)

Los Altos High School has the advantage of an ethnically, academically, and socially diverse student body. However, the potential of this variety was never

realized until our **FIRST Robotics Team** was formed, the first in our school history. The vast appeal of this technological challenge to build a robot from scratch initiated our team of over fifty students. Each contributes his creative solutions, unique abilities, and intellectual vigor into the various divisions, from arm mechanisms to computer animation. We are privileged to have the guidance and expertise of engineers from NASA Ames Research Center and Failure Analysis in pushing the team's victory. Still, the strength of our team lies in the emphasis on student initiative and ownership in each stage of this competition. **This experience combines the talents of engineering-oriented students and students with less experience in the applied sciences, enriching the school community while developing our ability to successfully meet a practical, "hands-on" challenge.**



NASA Ames Research Center (Moffett Field CA)
Palo Alto High School (Palo Alto CA)
Solar Flares

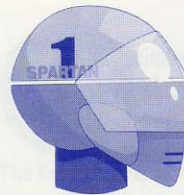
Our team of about 25 students is called the **Solar Flares** and we named our robot, **Fusion**.

Our goal was to have a hands-on learning environment in which students could have fun and an educational engineering experience. We wanted to learn how to build a robot and also how an engineering team works together. **We are part of a four school NASA-sponsored team** that worked together on common areas, such as mobile base design and construction. Each of the four schools has a unique strategy and design for the manipulation subsystem on the robot. Each school has a team made up of students, parents, community volunteers, industry sponsored engineers, and teachers. Each school could practice on an actual course in the blimp hangar at NASA. The NASA support team included a well-known roboticist and an engineer from Raychem, who was on the 1995 FIRST winning team. NASA also provided manufacturing help on some complex parts. Our robot was built at Palo Alto High in the Engineering Technology Lab. **Much of the team got credit for doing this projects within the Engineering Technology class.** We were successful in getting support from Sun Microsystems and Tencor Corporation. We also had the benefit of some students and our teacher who were in last years competition.



NASA Ames Research Center (Moffett Field CA)
Woodside High School (Woodside CA)
BORG (Bayarea Organization for Robotic Games)

The NASA-Ames/Woodside Team is looking forward to this year's competition. We have radically changed our program in this, our **third year** of competition. We were happy when NASA-Ames became our sponsor. It has been an interesting year and a positive learning experience for all concerned. They set a standard for all our meta-team members. We have a very student-centered and student-run organization. **Our philosophy is to have students take the forefront on all activities. It's THEIR robot.** They have designed, manufactured, and constructed the robot with a minimum of help from the professional engineers. We had the assistance of a wonderful group of engineers from Lockheed-Martin who really believe in and encouraged the students to this end. They have taken the students' ideas and helped them engineer them into a working robot. We hope to have a good time and share a great experience with the other teams.



NASA Headquarters (Washington DC)
Duquesne Light Co. (Pittsburgh PA)
Carnegie Mellon University (Pittsburgh PA)
Schenley High School. (Pittsburgh PA)

Spartan I Team

The High Technology Magnet Program at Schenley High School in Pittsburgh, Pennsylvania has a history of successful collaboration with NASA. It began with the 1988 "Name the Orbiter" contest for the space shuttle Endeavor for which Schenley took first place in Pennsylvania. For the 1997 FIRST Competition, NASA Headquarters is sponsoring our team through four graduate students from the Robotics Institute at Carnegie Mellon University, a leader in robotic technology, and the generous funding of Duquesne Light Company. Other contributors include Sentient Systems Technology, Inc. and ADtranz. Technical support is being provided through engineers from Duquesne Light, RedZone Robotics, Sentient Systems Technology and the Carnegie Science Center. The Art Institute of Pittsburgh assisted our students in the computer animation project and to prepare our Chairman's Award entry. **Our SPARTAN I team can't lose because of the great experience our twenty-eight students, three Schenley staffers, our sponsors and advisors will gain from this project.** Internet site: <http://www.eng.rpi.edu/WWW/USFirst>

NASA Headquarters (Washington DC)
South Lakes High School (Reston VA)

In our **second year** of FIRST robotics competition, our team is composed of twenty-six pumped, crazy, strapped, organized (that's a first!), apologetic, hungry, tired, fun-lovin' students, fifteen or so hard-working, patient, buff, and, in some cases, hairy engineers, one caterer extraordinaire, a Faith-ful team mom, and one enthusiastic, Travolta-esque, wild, gyrating teacher. **It's a sure bet that no other team can boast having in its ranks a former llama rancher, a bureaucrat, the daughter of an ex-egg farmer, and a flock of funky chickens.** On our team, students do everything...we run the meetings, build the robot, write the profile (couldn't you tell?), plan weekend activities (like Jackie Chan movies, bowling, paintball, invading the Air and Space Museum)...and anything else there is to do. We're divided into various groups to build the robot, but you probably don't care, so we won't bore you with the details. One last comment: **STUDENT BUILT, STUDENT BUILT!!! If you are interested in joining our League of Student Builders, please contact us.**



NASA Johnson Space Center (Houston TX)
Clear Brook High School (Friendswood TX)
Clear Creek High School (League City TX)
Clear Lake High School (Houston TX)
Integral

Listen up! We are emerging, so Wussup! From Seattle to Dover, we're gonna take over! So pack your bags and go back home, We're from H-town with the Astrodome. So beware, all you techno-wannabes 'cause we got connections with JSC. Twenty engineers have the know how and expertise to start the war and create the peace. Our presence will be felt, so take a good look, there's about forty of us from Creek, Lake, and Brook. We've divided into groups to subtract the problems and multiplied our efforts for you to solve'em. NASA and the students: we're working side-by-side while systems integration lets us enjoy the ride. Get out of our way, and clear our path, we'll show you the product of engineering and math. Many will suffer and many will die, our sword and shield will make you cry. **But we do not sleep, we do not rest, as our pneumatic arm will finish our quest.** You may have brains, diligence, and tact, get all you can, for we are all that! But don't think we're cold, we don't wish you the worst, just remember one thing, you won't ever place first. **This terror to tubedom 'type that seems so technical goes by a moniker: it's name is "Integral".** So spread the warning, and spread the fear, and spread the word that we are finally here!

National Championship TEAMS 1997

NASA Jet Propulsion Lab (Frazier Park CA)
Hope Academy (Hermosa Beach CA)
Redondo Union High School (Redondo Beach CA)
Hawthorne High School (Hawthorne CA)
Mira Costa High School (Santa Monica CA)

Southern California Circuit Breakers

The Southern California robotics team consists of students from five different schools, namely Hawthorne High, Hope Academy, Mira Costa High, Redondo Union High, and North Torrance High Schools. We are **first-time competitors**, and we're well aware of the challenge that we're going to encounter in designing and building the robot. Although we're going to face tough competition, **our team work, cooperation, perseverance, and determination to learn will help us achieve our goal.** With the guidance of our teachers and engineers from JPL, Northrop, TRW and the Aerospace Corporation, our team will be able to face and overcome these challenges.



NASA Kennedy Space Center (Kennedy Space Center FL)
Florida Institute of Technology (Melbourne FL)
McDonnell Douglas (Kennedy Space Center FL)
EG&G (Kennedy Space Center FL)
INET (Kennedy Space Center FL)
Satellite High School (Satellite Beach FL)
Merritt Island High School (Merritt Island FL)

Space Coast First Team

The Space Coast First Team is comprised of more than 20 students from Satellite High School and Merritt Island High School located in Brevard County, Florida, near the world's threshold to space — Kennedy Space Center. Ten facilitators from industrial and university partners hail from organizations with **rich histories in space and technology** including: NASA-Kennedy Space Center; Florida Institute of Technology; McDonnell Douglas; EG&G; INET. Because **engineering and science is a way of life for us here**, our team approaches The Competition '97 with confidence in our technical proficiency and unique team make-up: including university, industry, government, and school system participants. This diverse approach allows our team to look at the project from different perspectives and receive input on everything from design to team morale. We decided to come at the project, under NASA's leadership, by breaking it down into tasks and groups that focus on those tasks. Weekly meetings allow us to share our ideas and progress, and integrate our tasks. With Florida Tech's extensive and successful history in academic competitions, the industrial partners' track record in major engineering projects, **NASA's commitment to project leadership and the spirit of our student's, we feel we have a winning approach.**



NASA Langley (Hampton VA)
Phoebus High School (Hampton VA)

Michael's Team

CHT Robotics is a magnet program at Phoebus High School. The class is researching an ocular tracking device to aid quadriplegics. The device will enable quadriplegics to operate a computer by using their eyes.

This project is funded by a grant, awarded by Virginia Assistive Technology Systems (VATS). The students have joined up with NASA Langley, making up a team of 30 to 40 students and engineers. The team is divided into five groups: logistics, spirit, the gripper, the mobile base, and video production. Logistics handles the travel plans and other paperwork. The spirit group keeps up the **morale and momentum**. The gripper group are in charge of designing the upper part of the robot. The lower portion of the robot will be designed by the mobile base group. Video production will produce a fifteen minute video showing how the robot is assembled. **This project has exposed the class to the difficulties that engineers come across while fabricating, and designing a robot.** Through hard work and dedication, the class and engineers have high expectations for our robot. **Our robot will win because of our team and dedication. Put simply, we are a team with a common goal.**



NASA Lewis Research Center (Cleveland OH)
TRW, Inc. (Cleveland OH)
Battelle Memorial Institute (Cleveland OH)
Centerior Energy (Cleveland OH)
East Technical High School (Cleveland OH)

Scarabian Knights

This is our **fourth year** participating in the FIRST Robotics Competition, and East Tech High School is once again proud to have NASA leading the way. The Scarabian Knights consist of 34 students, 20 engineers and technicians and six advisors. In addition to our core team, this year we welcome the following new sponsors to our team: Battelle Memorial Institute, Centerior Energy and TRW. East Tech is an urban, comprehensive, thematic engineering school that offers students a variety of programs that emphasizes the importance of engineering, science and math. Team members represent all levels of academic success. Their **participation in FIRST allows them an exciting learning experience that expands their understanding of possible career choices in science and engineering, as well as technical occupations.** Our team consists of seven support groups: Illustrations, Profiles, Public Relations, Graphics, Electrical, Mechanical and Strategy. We have all united, and have developed a wonderful sense of teamwork and camaraderie. This has resulted in the inevitable—the creation of a CHAMPION Robot. With the encouragement and support of NASA, our sponsors, parents and teachers, we will be the winning team of 1997. **TEAMWORK MAKES THE DREAM WORK!**

NEW ENGLAND REGIONAL CHAMPIONS



Naval Undersea Warfare Center (Newport RI)
Middletown High School (Middletown RI)

Islanders

The Naval Undersea Warfare Center Division Newport (NUWCDIVNPT) and Middletown High School have partnered to form another formidable team.

Our team name is the Islanders, which is the High School's alter-ego, derived from the fact we are located on Aquidneck Island. **Our robot's name is Aquatred.** With our island roots, and our Navy involvement, our team name spun from this year's tire tube challenge. Although **our sights are set very high**, we don't have any misconceptions about the magnitude of the challenge. We are a **second year team** that is made up of five teachers, 21 gracious professionals, and 60 diverse students from all grades. **We were greatly honored last year at the regional competition, winning the prestigious Procter & Gamble Creativity Award.** Middletown High School has matched the NUWC engineers and technicians by providing a coordinated combination of enthusiastic teachers and students. Integral to the team is both the Physics and Career Education Departments. The students have and are continuing to leverage school resources to build the field and the many strategic offensive and defensive prototypes. We are the original Robo-cam. **Wait to see what we have this year!**

National Championship TEAMS 1997



New Venture Gear, Inc. (Troy MI)
Hamtramck High School (Hamtramck MI)
Cosmo Force

New Venture Gear, Inc. and Hamtramck High joined together as rookie competitors for the 1997 FIRST Competition. Our team consists of 32 students, 6 high school faculty and 46 NVG employees. We came to the competition with unique characteristics. NVG

is a joint venture between Chrysler Corporation and General Motors. **Hamtramck High School students have a multitude of ethnicity with 29 different languages and dialects between them! We decided to use our diversity and uniqueness to our advantage**, especially during our brainstorming sessions. When we first received the kit, we were a bit overwhelmed at the task at hand. But we quickly collaborated ideas, and then divided into sub-teams to get ourselves organized and develop our winning attitude. Some of the sub-teams included the strategy team, engineering/design team, construction team, finance/fund raiser team, media/community support team and finally the celebration team (after we return to Michigan for a job well done). Dedication was shown by all team members by the many hours and extra efforts put in beyond the usual work and school days. However, **through all the hard work we have become even more inspired. We have high hopes to win, but feel we have already won because of the learning, fun, and friendships that have developed due to the opportunity to participate in the FIRST experience.** We are very proud of our team!



NYNEX Corporation (Boston MA)
Quincy High School (Quincy MA)
North Quincy High School (Quincy MA)
Center for Technical Education (Quincy MA)
NYNEXUS

For the **second year** NYNEX & Quincy Public Schools have partnered to form a

winning combination - the NYNEXUS team. NYNEXUS is comprised of 150 Quincy students, 14 teachers and eight NYNEX engineers. **The traditional rivalry among the three schools (QHS, NQHS, and CTE) has been channeled into a creative energy that enabled the team to secure a third place finish in the 1996 New England Competition and fourth in the Nationals.** Our first year achievements have led to a 70% member retention rate and a host of new recruits. Everyone is encouraged to contribute to any aspect of the project, whether it be design, construction, animation, playing field maintenance, or the web site. Engineers, students, and teachers work side by side. **The emphasis is always on cooperation, safety and fun.** In addition, twelve system-wide departments ranging in diversity from Electro-mechanical Technology to Culinary Arts have contributed technical resources and fund raising to support the team effort. The team has sponsored a dinner theater, bottle collections, faculty/student volleyball and basketball games and canning drives to send 100 people to the FIRST National Championships in Orlando.



To success, the future, and Team Greenville

The future stretches before us, and the possibilities are endless.

At Raytheon E-Systems, we seize the future and make it our own. We take dreams and make them realities.

The future—the best and the brightest in math and science—is here. We want to recognize the determination and the inspiration not only in the outstanding students from Team Greenville, but from all the teams competing at the FIRST competition.

May your thoughts be driven, may your dreams take flight, and may you grab on to all the possibilities that await you.

Raytheon E-Systems

Greenville

National Championship TEAMS 1997



NYNEX (Albany NY)
Rensselaer Polytechnic Institute (Rochester NY)
Shenendehowa High School (Rochester NY)
NYNEX Team-X-treme

Shenendehowa and Rensselaer are very proud to have our corporate sponsor, NYNEX, on our team this year. **The overwhelming enthusiasm that the team experienced throughout last year's competition was a driving force in our determination to take it to the next level.** Team members worked throughout the summer and fall getting the word out to New York State's Capital Region community. Members of the NYNEX Team-X-treme include over 65 high school students (double the number involved last year), 12 Rensselaer students, two high school faculty, and two university faculty. In addition, we received help from NYNEX, parents, and community mentors, all working together to accomplish the team goal. The entire team began the brainstorming process together, and then broke into eight specific task teams. All were **willing to go to the extreme to get things done and clearly earned the name Team-X-treme.**



NYPRO (Clinton MA)
Clinton High School (Clinton MA)
Gael Force

As the size of the FIRST Competition grows globally, so do the efforts and participation of this year's Clinton / Nypro partnership. 75 enthusiastic students along with a dozen parents and community members have teamed with over 50 NYPRO employees to form what has become **the single largest Clinton High School / Community program in this small town's history.** Clinton High School, with a student body of just over 400, has almost 20% of its entire student body involved with this year's program. We take **a great deal of pride** in the support and participation of our close knit community. Our total team is made up of 17 sub-teams ranging from inventory control to food to finance to design and manufacturing. One of our new teams this year, Communications, has been a great addition, publishing a weekly newsletter, creating a **FIRST telephone informational hotline and producing, directing and running a monthly cable television program dedicated to this year's FIRST effort where students serve as hosts, camera persons, directors and producers.** Everyone's selling skills were definitely tested! Once again we will have a machine capable of performing multiple functions simultaneously with speed, power and agility. **Watch out New Hampshire and Orlando, there will be a Gael Force blowing through your area soon!**



Ohio State University (Columbus OH)
American Electric Power (Columbus OH)
Grandview Heights High School
(Grandview Heights OH)
Brutus

TOGA, TOGA, TOGA... This mindless fraternity chant may be more familiar to some of our team members than to others, but for this year's FIRST Competition, TOGA PARTY takes on a whole new meaning. To us, **TOGA PARTY stands for "Team OSU-Grandview-AEP Preparing And Readyng Today's Youth".** Our amazing acronym composing ability is but one of the things that makes this team unique. We are unique in a plethora of ways; for instance, we use words like plethora. We are composed of 27 high school students, 22 college students, five engineers, and a faculty advisor from both Grandview and Ohio State. We are led into this our inaugural FIRST Competition by a fearless college student unwilling to accept defeat. **So just because this is our rookie season at FIRST doesn't mean other teams should look to kick us and our robot Brutus around.** After a sparring round with us, opposing teams will leave asking, "Et tu, Brute?". For more information about our cool team and robot, check out our web site at <http://www.toga-party.com>.

MID-ALTANTIC REGIONAL CHAMPIONS



Ortho Diagnostic Systems, Inc. (Raritan NJ)
Hillsborough High School (Belle Mead NJ)
Robo Raiders

With nearly 50 devoted students and about 16 experienced engineers, **the ROBO RAIDERS are looking forward to a successful competition.** After gaining invaluable wisdom from last year, the Hillsborough High School Students expect to use that knowledge to further their success with Ortho Diagnostic Systems, Inc., their new sponsor. The expansion of the robotics team allows for a more flexible working schedule, increased input, and specialization in certain design areas. **The work ethic of this year's design team along with their fervor to supersede last year's results in national competition will propel this team into victory.**



Oscar Mayer (Sherman TX)
Sherman High School (Sherman TX)
Texas Big Dogs

The 1997 Sherman High School Engineering Team has grown to 22 students, seven engineers, and four faculty coaches. This is **Sherman High School's fifth year to compete in FIRST, and our second year to be sponsored by Oscar Mayer Foods.** The Big Dogs began preparing for the 1997 competition by competing in N.T.BEST, a local engineering contest sponsored by Texas Instruments. This year's team members feel that by joining the Engineering Team, they have greatly improved their ability to work with others as a team. In addition, they have improved their communication skills by going through the brainstorming and design process. The engineers helping with the project have done an excellent job of taking students through this process, from the brainstorming sessions on through prototyping and fabrication. Most of the students have learned how to use the tools and machines required to fabricate Oscar II more efficiently and safely. **They have also gained much insight into the field of engineering and have made some new career decisions.** Although everyone wants to win the game, having fun, while expanding their knowledge of engineering and meeting new people from around the country with similar interests, are equally important. **The Sherman Big Dogs are more than ready to meet their opponents head-on and show them just what they are made of.**



Osram Sylvania (Manchester NH)
Fleet Bank (Manchester NH)
Manchester Central High School
(Manchester NH)
C.H.A.O.S.

This seasoned team returns for yet another year to do battle on the robotic field of honor. This is our third year of this partnership and this team's **fifth year** of participation. We are also appreciative of our additional partner for this competition Fleet Bank and the efforts of Mrs. Cara Donnelley in helping to meet the team's financial needs. We were here at the humble beginnings of Maize Craze and continue to participate in competitions. **We have evolved** to meet the new challenges of The Competition 1997. Our team is comprised of six dedicated OSRAM employees, four teachers, and sixty-three students working diligently to provide the final solution to this year's contest. **We have intentionally tried to remain a group of young men and women from an inner city school who represent the best aspects of cultural, gender and ethnic diversity.** The team is committed to goals of the FIRST organization through student participation in all phases of the machine's development. We are ready for the test and look forward to competing on the "Robotic Field of Honor". We are hopeful that the spirit of cooperation that unlocked all of our ideas will prove to be the solution for a successful entry into this year's event. Till then **we remain in CHAOS! Let the games begin.**

National Championship TEAMS 1997



Otis Elevator (Farmington CT)
Farmington High School (Farmington CT)
GIZMO

Farmington High School and Otis Elevator have teamed up to take it home.

With the expertise of the dedicated engineers joining minds to make this a successful endeavor, FHS is sure to stand out in the race for first! Throughout the last few weeks, FHS has kicked into high gear to complete the mission. We have forty-eight dedicated, hard-working and interested students who are actively involved in the construction of "Gizmo," the robot. During our nightly meetings for the past few weeks, **our team has evolved a plan and strategy for the robot and has begun constructing models, calculating torque, and, most importantly, having fun while learning valuable life skills.** The robot is starting to take physical form and we are proud of all our accomplishments.



PHD Incorporated (Fort Wayne IN)
Wayne High School (Fort Wayne IN)
Nemesis

We are **rookie competitors** to the FIRST Competition. Team Nemesis consists of 14 students, two teachers, and five engineers. We are one of only four teams from the

state of Indiana, which makes us feel great that we can be used as an example for next year's students, as well as students from the surrounding area. **We have realized that to do well in this competition you must be willing to put in every bit of time that you can** in order to design and build the robot in time for the competition. The majority of the class has had experience in Computer Programming, along with strong backgrounds in math and science. We are heading towards this competition with little experience, but **full of anticipation and pride.** Our expectations are high, and we are looking to score big against numerous competitors. We have put in a lot of hard work and time. We plan on having a good time while making a name for our school.



Pratt & Whitney (West Palm FL)
The Benjamin School (North Palm FL)
BUCS

The Benjamin School and Pratt & Whitney Team is a **rookie team** in the '97 FIRST Competition. Twenty 9th to 12th grade students enrolled in a college preparatory school have partnered with project and design engineers.

Student team members are involved due to their interest in the world of engineering. We have structured our team into sub-teams focused on products and services related to Project/Budget, Communications/Publicity, CAD/Mechanical Design, Facilities/Logistics, Strategy/Game Participants and Research. We began working together in December, 1996 to define a mission statement; examine roles and responsibilities; review past competitions; identify desirable robot design features and strategies; and determine best utilization of resources. A full-size playing field has been constructed for robot test, evaluation, and practice. Component mockups began just two days after receiving the rules and kit of materials. A prototype chassis/drive system was in motion 14 days of kit receipt. **Our robot's design was influenced by strategic analysis of the game, desire to keep the robot's mechanisms simple, and offensive and defensive considerations.** Our team's primary strategy is to quickly dominate the central goal position. After six and a half weeks of intense discussion, prototyping, testing and evaluation, **the Indestructible BUCS are ready to show our fighting colors.**



PRI Automation, Inc. (Billerica MA)
New England Prototype, Inc. (Dracut MA)
Tyngsborough High School (Tyngsborough, MA)
PRIDE FIRST

Our team is composed of students from grades 9 through 12 who represent many different levels of experience in math, science, and technology. Because we are a small school, many of our students are involved in other activities during this six-week project, such as sports, debating club, and music programs. Tyngsborough is a small community with a small business base. PRI Automation, our partner in the competition, is located a few towns away and has no connection to our school or our community. **Last year, our school built a robot and competed without a partnership. This year, teamed up with PRI Automation, students' enthusiasm and expectations are high.** There are 28 students, 12 engineers, teachers, support staff, and parents involved in this effort. Our teams are student driven. The students have created the concepts, designs, and strategies. The engineers have pointed out where students' ideas are strong or weak and have offered alternatives. The final decisions, however, have been made by the students. **Our robot demonstrates how important each person's contribution is to the total success of the project.** It represents total team effort and the students' best ideas.



Prince Corporation (Holland MI)
West Ottawa High School (Holland MI)
The Panther

Our mission is to provide a positive and educational experience for all involved, and to design and build a competitive robot,

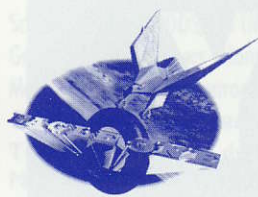
utilizing Prince resources and knowledge to that end. Consisting of 32 students, a faculty advisor, and Prince teammates representing various disciplines, the Panther team began meeting in late December to begin the team-building process. Brainstorming, bench marking, and prototyping quickly became the norm as **we powered through the design and build process.** Our robot promises to **combine the best strategies and technologies of the last three competitions, utilizing the talents of the entire panther team.** We are confident we will meet the objectives of our mission statement. Go Panthers!



Process Control Automation (Montague MI)
Montague High School (Montague MI)
Montague RoboCats

The RoboCats are one of the many **newcomers to FIRST** this year. Though we come from a small town, a small school and a small company, we are big on team spirit and technical expertise. **We plan on making a big splash** onto the national scene this year. The RoboCat team is made up of twenty students and seven engineers. The students are from Montague High School, a school of about five hundred students that is known for its state-of-the-art Technology Department. The engineers are from PCA, Inc. a subsidiary of CMI International. We operate as three dedicated teams: Design, Construction, and Communications. The Design team has come up with **a robot that has not one, but two separate systems for picking up the inner tubes.** The Construction team has worked hard to build the robot and arena quickly leaving plenty of time to practice and perfect our strategy. The Communications team has put out a weekly newsletter, along with writing press releases and other documentation. **Even though we work as three dedicated groups, the RoboCats are a unified team,** as shown by our student-written mission statement that we begin every practice by reading.

National Championship TEAMS 1997



Procter & Gamble Company (Cincinnati OH)
Walnut Hills High School (Cincinnati OH)

Eagle One

After Walnut Hills High School/Procter & Gamble won the **National Championship (1994)** and the **Chairman's Award and Autodesk Animation Award (1996)**, this

year's 24 new students decided to fashion design our team into fun, fantasy and a fabulous robot building machine. (But the 30 engineers and five teachers can just call us fantastic!) During October, we spent five weeks making various gadgets out of ordinary household objects. Who knew pipe cleaners could hold water?? Dedication and creativity separated the best from the rest, giving us the 1997 FIRST team. We divided into the Chairman's Award sub-team and the CAD Animation sub-team, according to our interests. Students from both teams became intimate with 90's technology in the eight weeks to follow. **We prepared by the Kick Off, we thought of modeling the robot after everything from a can-opener to a hair dryer.** The craziest ideas lent themselves to the best solutions. After we presented a multitude of ideas, elimination came down (smile everyone we're going to Disney World). It was a joyous occasion seeing our ideas meshed and merged and married into one. **It is our robot, our eagle, our Eagle One.**



Public Service of New Hampshire (Manchester NH)
Manchester West High School (Manchester NH)

Team Blue Lightning

West High is one of four Manchester schools and 18 New Hampshire schools entered in this year's competition.

We have been very successful in the past and expect to do even better this year. Our team has grown to 38 students, five teachers and 15 professional mentors. PSNH is an ideal partner because they have the shop facilities and technical personnel to help us produce a quality machine. They are very open to our ideas and encourage us to ask questions so that we can better understand the capabilities of the materials and the processes required to construct a finished product. Our machine design relies on tracks for motive power. We have fabricated a tower and arm system to handle the scoring tubes. **Our machine is simple, strong and dependable.** "Team Blue Lightning" members have been intensely involved in this project and look forward to competing in the New England Regional and National Competitions. We hope to extend our list of past successes which include awards for creativity, design, quality, appearance and sportsmanship. **As runner up in last year's Regional Competition, we have a reputation to defend.**



Raytheon E-Systems (St. Petersburg FL)
Dixie M. Hollins High School (Kenneth City FL)
Boca Ciega High School (Gulfport FL)
East Lake High School (Tarpon Springs FL)

D.E.E.P. Thunder

Our growing team consists of 30 engineers and business professionals from Raytheon E-Systems and 14 teachers, 20 parents and over 60 students from our three schools spread across Pinellas County, FL. **The name "DEEP Thunder" is in recognition of Tampa Bay being the lightning (and thunder) capital of the world and our mission of Developing and Encouraging Engineering Professionals.** DEEPThunder is dedicated to spreading FIRST and has established as a goal creating one new FIRST team in the Tampa Bay area every year. **DEEP Thunder has created student based presentation teams to carry the message to all the corporations, civic and government organizations, colleges, and classrooms in the County.** Major exhibits are planned for the Universities of South Florida and Central Florida, and Eckerd College during their annual Engineering Expositions. The team is also planning an annual robotics competition for Pinellas County high schools and expects to have a trial competition with a small number of schools this year.



Raytheon E-Systems, Inc. (Greenville TX)
Greenville High School (Greenville TX)

Monthly meetings began in August to form the partnership between Raytheon/E-Systems and Greenville High. Our first goal was to introduce FIRST to the community and our parent group. **25 students, ten engineers, and a support cast of 100 community sponsors have made sending a team to a regional and a national competition a top priority.** Half our students and engineers are new to the FIRST program, which makes team dynamics and communication all the more important between the 'rookies' and our all-stars. **Raytheon/E-Systems takes the growth of young engineers seriously, as a previous student team member is now an intern with Raytheon/E-Systems.** With scale machines to serve as brainstorming models, we saw our ideas take form. Raytheon/E-Systems built the control systems for Competition 1997. Raytheon not only gave us engineers who donated their time to complete the machine, but also gave engineers to teach us the CAD and Autodesk programs. **Through the knowledge and friendships gained from this program, no matter what happens at competition, we will already have come out ahead.**



Rocketdyne Div., Boeing North America, Inc. (Canoga Park CA)
NMB Inc. (Chatsworth CA)
Fadal Engineering (Chatsworth CA)
AVG Corp. (Valencia CA)
DWA Composite Specialties (Chatsworth CA)
California State University, Northridge (Northridge CA)
Chatsworth High School (Chatsworth CA)

We are a **first-year team**, comprised of approximately 30 students, 12 engineers/adults, and our science teacher. We have been meeting weekly since October to review past FIRST Competitions and develop strategies and designs. We have divided our project into several sub-systems teams, including Radio Control, Inner Tube Pick-up, Lift & Cylinder Team, Structure, and Steering & Propulsion. Ideas have been generated by the students and narrowed down to the most likely ones by the engineers. **We are unique in that one of our team members is a mechanical engineering graduate student from CSUN. This competition is his graduate engineering project.** We are focusing on a **simple, yet robust machine with superior strategies.** A detailed project schedule has been developed, leaving us sufficient time at the end to practice with and test our robot. The students and adults are looking forward to the national competition.



Sanders, a Lockheed Martin Company (Nashua NH)
Nashua High School (Nashua NH)
Groovin' Toobin'

The 1997 Competition represents our **fifth consecutive year** of participation in the FIRST program. While our membership significantly changes each year, our commitment to our team values gets stronger each year. **Our first commitment is that all members participate as equals in the design, development, and competition strategy processes, as well as all fundraising activities.** This year's entry into the competition, Groovin' Toobin', is a direct result of this integrated effort. Our second commitment is focused on increasing the local community's awareness and support of our team and FIRST objectives. We have more than tripled our efforts regarding community involvement. Nashua, NH has indeed become a true FIRST community. Our third commitment involves giving to FIRST our continuing support of the organization's objectives. **We have set up a fund to help rookie teams who are having difficulty with competition financing.** Fundraising activities are continuing to support this endowment. We heartily encourage other teams to join us in this effort. **Let's all have a great time, renew old acquaintances and make new friends at the 1997 competition. We are all winners!**

National Championship TEAMS 1997

Scott B. Patterson, DDS, MS (Monroe WI)
Green County Engineers (Monroe WI)
Monroe High School (Monroe WI)

The Cheddarheads

The Cheddarheads developed as a result of a demonstration in Monroe High School by the Freeport, Illinois FIRST team. We are a rookie team consisting of ten awesome students from two rural communities located in one of Wisconsin's dominant cheese-producing counties. The leading industries employ no more than a few engineers each, but we've been fortunate to recruit six engineers and three machinists to support our efforts in several ways. With only two engineers employed in the same location, it's been a challenge to coordinate design ideas to develop a single, united plan. On the other hand, we've definitely benefited from a variety of engineering backgrounds and areas of specialization. Key features of the robot reflect ideas brainstormed by our students and refined by our engineers. For example, **our method of using pneumatic pressure to maximize traction was inspired by a team member but required the expertise of our key professionals to become a reality.** Our group is organized as an Explorer Team, the coeducational career-exploration division of the Boy Scouts of America for high school students. This facilitates our operating as a school club in two schools simultaneously, each with its own teacher as club advisor.



Silicon Systems, Inc. (Santa Cruz CA)
Cross Design (Aptos CA)
Aptos High School (Aptos CA)
Riptide

The Aptos High School Robotics Team is great simply because we value this competition as a learning experience for all involved. Our team consists of 35 students,

six engineers, one physics teacher, and many parents. **We set out to learn about engineering and teamwork, and if we come away with new knowledge, we will come away as winners!** Our team is unique in that we do not have one large corporate sponsor. Instead we have mobilized a community network of support that includes many small businesses. **Our engineering support comes primarily from individuals who are self-employed and are working without release time or compensation of any sort.** Our team, Riptide, is divided into smaller sub-teams, including pneumatics, electronics, mechanical, conceptual design, and system management. The parents of the students are donating their time to help with travel arrangements, fundraising, and publicity. Our physics teacher works with both the engineers and parent committees to coordinate the overall project. All of those involved are giving lots of time and hard work toward reaching **our goal, which is to see concepts and ideas become a successful reality.**

Lord of the Rings



Stratus Computer (Marlboro MA)
NAPA Auto Parts (Hudson MA)
CX Computer Exchange (Northboro MA)
Assabet Valley Regional Vocational High School (Marlboro MA)
Ring Lords

Assabet Valley is once again proud to be a part of the 1997 FIRST Competition. FIRST represents a school-wide integration project representing the efforts of over 50 students in 12 shops and several academic areas. **As a vocational school, Assabet Valley is capable of manufacturing the entire robot in-house with the direction and guidance from staff and engineers.** Last year, **our school was extremely proud of winning the 1996 Regional Motorola Quality Award and the National Photogenic Award** because these awards reflect the efforts of the entire school. This is the third year that Stratus has supported us. In addition, several local businesses, have contributed materials to help defray the cost of the project. The Assabet Valley "Ring Lords" would like to extend our greetings to all the teams competing this year. **We are looking forward to the challenge of being "Lord of the Rings".** Good luck and may the best team win.



Structural Dynamics Research Corporation (Milford OH)
Great Oaks Institute of Technology and Career Development (Milford OH)

Interdimensional Destroyers

The Interdimensional Destroyers is a team of 15 Great Oaks vocational students, 2 SDRC engineers, 1 SDRC technical writer, SDRC university co-op students, and 10 faculty/staff from the Live Oaks Campus. We come from many different vocational areas which adds uniqueness to our team. Due to the diversity of backgrounds, as we approach the project, we have many new and varied ideas as to how to place the inner tubes on the goal. We all pull together when needed, help where needed, and always remember that we are a team. **We believe that "one dimension is never enough" so our robot is both offensive and defensive.** Our team leader is devious which leads to **a strategy for winning that is diabolical and sure to frustrate our competition.**

MISSION IMPOSSIBLE



Symbol Technologies (Bohemia NY)
Pierson High School (Sag Harbor NY)
Operation Harpoon

What do thirty-seven high school kids, six teachers, a retractable claw, and Daren Babula have in common? DISNEY WORLD! Besides that, the chance to work cooperatively together to reach the ultimate goal of stacking tire tubes on a rack; because, of course, we can't do it ourselves. In other words - "Operation Harpoon" for FIRST. **The tedious process of fund raising began with an optimistic start. They all said, "No!" It got better when Symbol Technology started the ball rolling.** The ball was then passed along to our first period Robotics class, who started building a prototype using the guidelines given to us by FIRST. Soon **our collaboration of intelligent minds was dubbed "Operation Harpoon".** With our goals, plans, and ideas set in line, we began to build our robot named Mission Impossible. All of our dedicated actions and on-task work was being filmed by our cinematographer, Frank Smith. What was our goal? Well, **with a lot of hard work and determination our little snow ball started an avalanche and together we created Mission Impossible.**

Edmondson-Westside High School



Systems, Technologies and Resources, Inc. (Lutherville MD)
Edmondson-Westside Senior High School (Baltimore MD)

REDSTaR

Team REDSTaR is a merger of academic excellence and technologies expertise. The alliance of the Redskins of Edmondson-Westside High School and Systems, Technologies and Resources, Inc. (STaR) has created team REDSTaR. Edmondson-Westside, Baltimore's citywide technical magnet, is providing academic excellence and innovative ideas via the 10 students two administrators and 14 faculty members assigned to the team. STaR contributes technological expertise with the dedicated support of 10 multi-talented engineers. The team is organized with the engineers supporting REDSTaR Task Forces. The Task Forces are Platform, Arm/End Effector, Controls/Software and Systems Engineering. Each team member determined where his/her area of expertise could be used effectively, and time lines were established. Students constructed a prototype of the playing field and the revolving tower. Students also simulated the action of the robot in competition. **Our robot will be the winner of The Competition because of our unique defensive/offensive mechanisms.** Defensively, the robot is able to be lowered or raised to avoid obstacles. We have installed anti-tipping, anti-skidding and stabilization devices. Offensively, the robot will have telescoping arms providing access to the entire tower. **Through dedication and commitment, the REDSTaR team has gained a wealth of knowledge and memorable experiences.**

National Championship TEAMS 1997



Texas Tech University (Lubbock TX)
Lubbock High School (Lubbock TX)

Instead of being funded by just one company, the Lubbock High School team gathered its support from the community as a whole. This kind of cooperation is echoed in the team itself, as **everyone has pulled together to do the job** in record time. The team's cohesiveness stems from the close relationships between the members who have been friends for years. As a gesture of goodwill, **Texas Tech University has lent their top mechanical and electrical engineering students to advise the team, as well as two of the most prestigious professors at the University for supervision.** The Lubbock High School students are Kailas Narendran, Wayne Dunkel, Anson Thompson, Seth Miller, Jeffrey Wischkamper, Jeffrey Barrick, Joel Mann, Sandra Anuras, and Colin McRoberts. The Texas Tech students are Jason Bivens, John Casall, Chad Norris, Mark Zuerker, and Jason Harris. The Texas Tech faculty advisors are Darrell L. Vines, professor of Electrical Engineering, and Dr. Walt Oler, professor of Mechanical Engineering. Lubbock High students are also advised by their teachers Jeffrey Barrows and Bruce Charboneau.



Textron Automotive Company (Troy MI)
Cass Technical School (Detroit MI)
Oakland Technical School (Royal Oak MI)
Hurricane XT

As an experienced FIRST competitor, having won consecutively the **"Rookie All-Star" Award in 1995** and the **"Team Spirit" Award in 1996**, the successful Textron Automotive/Cass Tech Robotic team's magnifying force has drawn in another extremely talented colleague, Oakland Technical Center. Together, **"Hurricane XT" is generating vicious waves leading toward a major tropical force in its third year of competition.** The triad partnership has been broken down into individual groups collectively working to obtain one ultimate goal—obliterate the competition. Following our in-depth business plan, we all work as a team to obtain our goals, being able to visualize the strategic planning that is involved in product development, from project conception to completion. In addition to conveying a positive image, gaining experience and learning the elements it takes to produce a product, **we also learned that science and math can be exciting as well as fun!** So, stop, listen and be forewarned. This is no gentle spring breeze blowing in. What you feel is an arctic blast from the Motor City that will blow the competition away. Prepare yourself for....Hurricane XT!



TRW (Farmington Hills MI)
Harrison High School (Farmington Hills MI)
Robo Hawk

This super team was conceived in mid November, 1996, born on January 9, 1997 at 5 p.m., and named Robo Hawk. Boy what a birth! The team has 57 members consisting of 27 TRW engineers, 8 high school faculty members, and 22 high school students ranging from freshmen to seniors. Following a brief introduction of who we are, we broke into groups for team building exercises. At the next session each person was asked to choose which of the four development sections (public relations, animation, electronics, or mechanical) they wanted to be a part of. Once the sections were formed, brainstorming sessions began. Out of these sessions came the ideas for five manually operated robots which were created and brought to the next meeting. The mechanical team evaluated each model, and one was selected to be mocked up. Again, brainstorming sessions were used to refine the design. **This competition is helping students to better understand the value of meeting scheduled dates and working as a team.** The relationship between the individual sections has led to a real camaraderie. If someone needs help, they just have to ask, and someone from one of the other sections responds. **This is our first year to compete in The Competition, and we are confident that we will return home winners regardless of the outcome.**



Robotics And Gadget Engineering
East Hartford High School
Rockville High School
United Technologies Research Center

United Technologies Research Center
(East Hartford CT)
Rockville High School (Vernon CT)
East Hartford High School (East Hartford CT)

RAGE

The leader of our group is engineer Bruce Hockaday. Bruce has been active with this program for years. He **works day and night** with the students to make sure that each student receives a learning experience from the program. The three teachers involved are Chuck Nystrom and Joe Pappalardo from East Hartford High School and Matt Kibbe from Rockville High School. **These teachers continue to amaze us with their enthusiasm.** Bob Triggs, and Robin Guthrie, as well as a Mother's booster club, are parents involved and active in the program. Parents are truly the backbone to any successful student program. Thanks to these parents, the composition of this team is well-balanced and tightly reinforced. We have several other support personnel involved in the program. Engineers, technicians and model shop employees such as Tom Hardy, Connie Ekstrom, Jim Palmer and Cindy Fagan. Last, but not least, are the students who raised 80% of our funds. Their dedication and just plain hard work bring this program to life and give it true meaning. Without their participation, there would be no reason for the program. **These students may just be the engineers and scientists of the future workforce.** We should all be very proud of them.



Unitrode Corporation (Merrimack NH)
Ferrofluidics (Nashua NH)
Merrimack High School (Merrimack NH)
Ringleader

For the 1997 FIRST season, Ferrofluidics Corporation, Unitrode Corporation, and Merrimack High School have teamed up to create the Ringleader. The Ringleader was created through the teamwork of 18 corporate engineers and nearly 40 students from the high school. Smaller groups were assembled in order to design the ball handling, drive train, and remote control systems. They also cooperated to develop the team strategy. **A student and an engineer were joint leaders of these smaller groups, and they lead other students and engineers in the planning and development of every aspect of the robot.** The strategy they developed was based on exactly how many points can be scored depending on how many tubes are on the field. The Ringleader takes enough tubes away from the opposing teams so that **when the Ringleader scores its four tubes on top of the tower, it can't lose.**



University of Idaho (Moscow ID)
Idaho Space Grant (Moscow ID)
Moscow High School (Moscow ID)

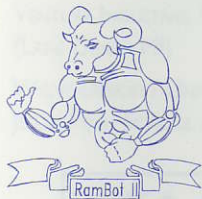
Returning for our **second year**, Idaho is back and booming. Our team is built on group dynamics, creativity, and active high school student participation. The University of Idaho (UI) has provided generous support through the NASA-Idaho Space Grant Consortium which paid the registration fee and purchased parts for the robot and playing field. The UI Department of Mechanical Engineering donated a significant amount of faculty time and expertise and provided a team of enthusiastic undergraduate and graduate students to guide the design and construction of the robot, and the UI College of Art and Architecture computer software specialist and students helped the team with their video production. **We are one of the few teams from the Northwest, and the first in Idaho, to enter the FIRST Competition.** Our team consists of 18 high school students teamed with 14 UI students and 2 engineering faculty pooling their strengths. Our goals are to have fun, to compete, and to gain knowledge of the design process, project management, and teamwork.

National Championship TEAMS 1997



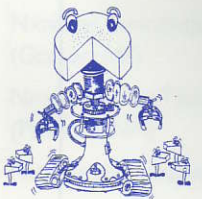
University of Miami (Miami FL) MAST Academy (Miami FL) **TORUS**

Six-and-a-half weeks ago, we embarked on an epic adventure of concepts, designs and engineering. Our team consists of 42 MAST Academy Senior High School students, one teacher, three University of Miami College of Engineering Professors, 5 undergraduate students, 5 graduate students and 2 parents. This is MAST Academy's **third year** of participation in the FIRST Competition. Hopefully, this year will be the best. Following the Kick-Off, we split into a series of concept and design groups. After initial concept discussions and finalization of the plans, we separated into five engineering/design groups: Electrical/Telemetry, Small Arm/Gripper, Propulsion, Ladder/Retractable Extension and Peripheral Design. Our team bonded together as a family for the sole purpose of building our robot and winning this competition. **Our robot, fondly referred to as "TORUS — NO BULL," is a machine that demonstrates the determined effort of many of our teammates and mentors.** We want to give special thanks to our generous sponsors: The Edward H. Arnold Foundation and Cabletron Systems, without which, none of this would be possible.



University of North Carolina Charlotte (Charlotte NC) William States Lee College of Engineering (Charlotte NC) Harding University High School of Math, Science and Technology (Charlotte NC) **RAMBOT II**

Returning for a **third year** to the FIRST Competition, the Harding University High School team has been joined by **a group of students from the University of North Carolina Charlotte College of Engineering who have been given the option to participate in FIRST as a part of a course in mechanical design.** Fifteen high school students, five college seniors and one enthusiastic freshman have come together to design and build this year's entry under the supervision of Dr. Steve Patterson. Several of the high school team leaders spent a week at the university last summer learning about design principles, design, team management, and other skills such as mechanical drawing and precision machining. **This knowledge and the experience gained in earlier competitions has provided a boost in the team's confidence that has helped to speed progress.** Manufacturing is carried out by the students at both the university and at Machined Components, Inc. In addition to help from the university, the high school students have sought and received financial support from a number of businesses as well as from very involved and supportive parents



University of Wisconsin (Platteville WI) Platteville High School (Platteville WI) **The Cheese Curd Herd: Steering Technology to Greener Pastures!**

We take our "tongue in cheek" name from a regional dairy delicacy! The '97 team is comprised of 12 high school students, 90 UWP students in Engineering and Public Relations, and seven advisors. The students this year truly are a team; every individual has worked cooperatively to brainstorm, create, evaluate and construct designs. The team has a project manager, project leaders in production, a rules expert, and treasurer. **Expect our robot to be intensely competitive based on strategy, agility, speed, strength, and professionalism.** The public relations students have developed press releases, slogans and logo, promotional events and publicity, web page, radio-video-public service spots to enhance the community's awareness and excitement for the robot. **We're "always sharp, never cheesy!"** We have mentored a new team in our region and continuously focus on encouraging others to participate in The Competition. It seems adversity builds strength. Every year we struggle to obtain funding. Never fear, we are very competitive and intend to remain a force to be reckoned with! **Think "small town, big cheese!"**



Varo, Inc. (Garland TX) South Garland High School (Garland TX) **COLONELS**

With 39 days to go before shipping a finished robot, Varo and South Garland High School teamed in their inaugural year of FIRST Competition. There are 18 science students, three science teachers, four parents, and 17 engineers and employees form all facets of Varo's business. **Varo embraces the TQM concept in its business practices and the Colonel team is also using this technique.** We began by brainstorming during a general meeting for **the team name (Colonels)**, team colors, team hat and **the robot's name (General Lee).** The team continued to brainstorm on the fundamental form and requirements of the robot, and the basic offensive and defensive strategies to be used. The group broke into subgroups to begin designing and bring General Lee to life. Amid pizza and subs, **the students are learning many aspects of the business/engineering world they would not learn through classwork.** The adults and students are enjoying being partners in this worthwhile endeavor and look forward to challenging the other teams and robots in this competition.



Vistakon (Jacksonville FL) Sally Industries (Jacksonville FL) Stanton College Preparatory School (Jacksonville FL) **The Dare-Devs**

Our team is glad to be back at the FIRST Competition this year. Despite all our troubles before, the Dare-Devs reappear. **Our sophomore venture is sure to be a success—new sponsors and engineers—just the best!** **The project started slowly, but now we're on a roll.** Building team ahead of robot will make a better show. **In seven groups we've labored; we've screamed and yanked our hair.** We are bald today, but better for the friendships we now share. **We raised funds and found great sponsors to make the project work.** Despite the late nights and weekends we never went berserk. (Well not quite.) **We look for you at Epcot so we can show you how, our robot will save hunger and bring World Peace right now.**



Worcester Polytechnic Institute (WPI) (Worcester MA) Massachusetts Academy of Math & Science (Worcester MA) **Extensor**

We are back again for another exciting year. Since Mass Academy is a school with an enrollment of only 68 students, all juniors and seniors, FIRST is a new process every year. WPI and Mass Academy this year organized FIRST around a campus activity that welcomed anyone interested in The Competition. After two kick-off meetings in December, there was a list of over 60 participants consisting of WPI professors, Mass Academy faculty, WPI graduate and undergraduate students, and high school junior and seniors. **Many FIRST alumni from all over the country, presently attending WPI, are part of our team. We hope to capitalize on all this expertise and experience.** Whole group meetings take place twice a week where the initial brainstorming was done. Many smaller groups work independently: powertrain, framework, control system, playing field, 3-D Studio animation, team logo, game strategy, accumulation of rules, reservations, scouting, scorekeeping, driving, and just plain helping when necessary. These responsibilities are shared among all levels of involvement. **Our collaboration is a prime example of the unique educational relationship which exists between this public high school and a university.**

National Championship TEAMS 1997



Xerox Corporation (Rochester NY)
Joseph C. Wilson Magnet School (Rochester NY)

X-Cats

The X-Cats are truly a unique family. **Over 80 team members come from all walks of life: Bosnia, Cambodia, Puerto Rico, India, Vietnam, Kenya, and the United States.** We value what each person can bring to the team, whether it be their first year or

their sixth. All suggestions are taken into consideration. We are a devoted group who puts other activities on hold while we focus on the X-Cats and our new goals. We know the adults are there to teach the students about engineering and science, but **it really is a learning experience for life. For everyone. Guaranteed.** Four subteams of adults and students brainstormed, prototyped and built our robot. This year the students chose their own decision panel members. The decision panel is a group of students who are responsible, with guidance from some adults, for selecting the robot design. We have placed well at The Competition in the last two years with this method. We continue to push the limits of what we can accomplish, striving harder than ever, as a team and individually. **FIRST has had a huge impact on the lives of everyone involved.** And we are truly grateful. The X-Cats wish everyone good luck.

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Motorola Mid-West Regional Teams 1997

BOSTON SCIENTIFIC CORPORATION & EDGEWOOD HIGH SCHOOL (SPENCER IN)
DOEHLER-JARVIS / EDISON INDUSTRIAL SYSTEMS CENTER & LIBBEY SKILL CENTER
(TOLEDO OH)
HONEYWELL, INC. & ADLAI E. STEVENSON HIGH SCHOOL (LINCOLNSHIRE IL)
KEMET ELECTRONICS / GREENVILLE TECH COLLEGE & J.L. MANN HIGH SCHOOL
(GREENVILLE SC)
MOTOROLA INC. & CAMELBACK HIGH SCHOOL (PHOENIX AZ)
OSCAR J. BOLDT CONSTRUCTION / LAWRENCE UNIVERSITY & APPLETON NORTH
HIGH SCHOOL (APPLETON WI)
SAGE PRODUCTS, INC. & MCHENRY EAST HIGH SCHOOL / MCHENRY WEST
HIGH SCHOOL (CRYSTAL LAKE IL)
ST. LOUIS COMMUNITY & MARY INSTITUTE AND SAINT LOUIS COUNTRY DAY
SCHOOL (MICDS) (ST. LOUIS MO)
VENTURE INDUSTRIES / EXIDE BATTERY COMPANY & LAKE ORION HIGH SCHOOL
(LAKE ORION MI)
WISNE DESIGN / UNIVERSITY OF DETROIT MERCY & UNIVERSITY OF DETROIT
JESUIT HIGH SCHOOL AND ACADEMY (SOUTHFIELD MI)

DEKA New England Regional Teams 1997

AVID THERMAL TECHNOLOGIES & GILFORD HIGH SCHOOL (LACONIA NH)
ALTON COMMUNITY & ALTON HIGH SCHOOL (ALTON NH)
BATH IRON WORKS CORPORATION & BATH REG. VOCATIONAL CENTER (BATH
ME)
CHEMFAB/BEDFORD COMMUNITY & MCKELVIE MIDDLE SCHOOL (BEDFORD NH)
CIRCUIT BOARD EXPRESS / SCANDIA PLASTICS & TIMBERLANE REGIONAL HIGH
SCHOOL (PLAISTOW NH)
FREUDENBERG - NOK & JESSE REMINGTON HIGH SCHOOL (MANCHESTER NH)
MASSACHUSETTS ELECTRIC / NEW ENGLAND ELECTRIC & BAY PATH REGIONAL
VOCATIONAL TECHNICAL HIGH SCHOOL (CHARLTON MA)
NATIONAL SEMICONDUCTOR & SOUTH PORTLAND HIGH SCHOOL
(GORHAM ME)
NEW HAMPSHIRE TECHNICAL INSTITUTE & PEMBROKE ACADEMY
(PEMBROKE NH)
NICHOLS PORTLAND & BONNY EAGLE HIGH SCHOOL (PORTLAND ME)
OPTIMATION TECHNOLOGY & WEST IRONDEQUOIT HIGH SCHOOL
(ROCHESTER NY)
OSRAM SYLVANIA, INC. & HILLSBORO-DEERING HIGH SCHOOL
(HILLSBORO NH)
SMC PNEUMATICS, INC. & IPSWICH HIGH SCHOOL (TOPSFIELD MA)
STANLEY WORKS & C.M. MCGEE MIDDLE SCHOOL (BERLIN CT)
UNUM / LANCO ASSEMBLY SYSTEMS & KENNEBUNK HIGH SCHOOL /
GORHAM HIGH SCHOOL / SCARBOROUGH HIGH SCHOOL / OLD ORCHARD
BEACH HIGH SCHOOL (PORTLAND ME)
USACRREL / CREARE, INC. & LEBANON HIGH SCHOOL (HANOVER NH)

Johnson & Johnson Mid-Atlantic Regional Teams 1997

ALLIED SIGNAL & PARKVILLE HIGH SCHOOL (BALTIMORE MD)
AT&T / TEXAS INSTRUMENTS & SOUTH BRUNSWICK HIGH SCHOOL
(MONMOUTH JCT. NJ)
BASF & MT. OLIVE HIGH SCHOOL (FLANDERS NJ)
BRISTOL-MEYERS SQUIBB / RUTGERS UNIVERSITY & NORTH BRUNSWICK
TOWNSHIP HIGH SCHOOL (NORTH BRUNSWICK NJ)
GPU ENERGY & HUNTERDON CENTRAL HIGH SCHOOL (FLEMINGTON NJ)
GPU ENERGY & McDOWELL SENIOR HIGH SCHOOL (ERIE PA)
JANSSEN PHARMACEUTICA, INC. & RANOCAS VALLEY REGIONAL HIGH SCHOOL
(MT. HOLLY NJ)
JOHNSON & JOHNSON PROFESSIONAL, INC. & BRIDGEWATER-
RAYNHAM REGIONAL HIGH SCHOOL (BRIDGEWATER MA)
LOCKHEED MARTIN / STEVENS INSTITUTE OF TECHNOLOGY &
EASTSIDE HIGH SCHOOL (PATERSON NJ)
LUCENT TECHNOLOGIES & PALISADES HIGH SCHOOL (KINTNERSVILLE PA)
NEW YORK INSTITUTE OF TECHNOLOGY & JERICHO HIGH SCHOOL /
MANHASSET HIGH SCHOOL (OLD WESTBURY NY)
NORTHEAST UTILITIES / U.S. COAST GUARD ACADEMY & MONTVILLE HIGH
SCHOOL / THE WILLIAMS SCHOOL (WATERFORD CT)
ORTHO PHARMACEUTICAL / RUTGERS UNIVERSITY & SOMERSET COUNTY
VOCATIONAL TECHNICAL SCHOOLS (BRIDGEWATER NJ)
PRINCETON PLASMA PHYSICS LABORATORY & HOPEWELL VALLEY
REGIONAL HIGH SCHOOL (PRINCETON NJ)
PROCTER & GAMBLE COMPANY / TOBYHANNA ARMY DEPOT / PENN STATE /
KEYSTONE COLLEGE / NORTHEASTERN EDUCATIONAL IUI9 & ELK LAKE HS /
LACKAWANNA COUNTY AREA VOCATIONAL TECHNICAL SCHOOL / LACKAWANNA
TRAIL HS / TUNKHANNOCK AREA HS / TROY AREA HS (SCRANTON PA)
PROCTER & GAMBLE PHARMACEUTICALS & NORWICH HIGH SCHOOL
(NORWICH NY)
RUTGERS UNIVERSITY & PLAINFIELD HIGH SCHOOL (PLAINFIELD NJ)