



*The future rests in the hands
of today's youth.
The responsibility to prepare
them rests with us.*

School/Mentor Information

MISSION

BEST is designed to inspire and interest students in engineering, science, and technology through participation in an exciting sports-like technology contest.

GOALS

1. Help students understand technical concepts and principles.
2. Provide students with a real-world engineering challenge that includes limited time and resource constraints.
3. Offer students an academic experience that encourages abstract thought, self-directed learning, and decision-making.
4. Provide mentoring through accomplished professionals from business, industry, and academia.
5. Provide team-building experiences for students.
6. Promote good sportsmanship and ethical conduct within a competitive environment.

Program Attributes

- Run as sports-like contest between remote controlled robots
- Emulates product *design to market* life cycle
- Limits time to six weeks from game intro to game day
- Limits resources to components issued at game introduction
- Encourages entire school participation
- Requires teacher-coach and outside technology mentor
- Requires students to do all work with coach mentoring
- Develops project management and teamwork skills
- Promotes schoolwide recognition of BEST participants

Benefits to Students

Engineering development process experience:

- Design
- Concept exploration
- Production
- Integration
- Testing

General skills and teamwork experience

- Solve non-structured complex problems
- Manage projects over time
- Identify and utilize team members' key skills
- Depend on others
- Reach consensus in decision making
- Overcome setbacks
- Learn that completing the task is, in itself, the major reward

Experience with Science Principles

- Motion, momentum, and velocity
- Center of mass
- Concept of limited power
- Concept of surface friction

Our local hub:

("HUB" is a local contest center).

New Mexico BEST at NMSU

Please Contact Sheila Horan at 505-646-6288 if you would like to become a member of the BEST Hub committee, a funding Sponsor, coach a team or help mentor a team.

Email – sheila@nmsu.edu

Web site: http://www.ece.nmsu.edu/nm_best/

Role of Coaches/Teacher Sponsors

The coaches make BEST a rewarding experience!

The adult team leaders:

Mentor, guide, teach, team with, be a good example for, and motivate students.

The adult leaders must not:

Take over, force ideas, design the vehicle, or build the vehicle.

Timeline of Events

The BEST competition occurs during the fall; but BRI and HUB Operations are a year-round process. (Team events are in green)

Fundraising – Year-round effort;

Ordering Kit Supplies – March to April

Developing Prototype – June to July

All Functions – August to November

Kickoff – September 11

Mall Day – October 16

Game Day – October 23

BEST Regional Competition – November

What can teams expect during 6-8 week period between kickoff and competition in the Fall:

Week	Activity	Days/Hours per Week
1	Kickoff meeting/ Brainstorming	3 days, 3 hrs/day
2	Brainstorming/ Prototyping	3 days, 3 hrs/day
3	Prototyping/Start machine build	4-5 days, 3-4 hrs/day
4	Machine build	4-5 days, 3-4 hrs/day
5	Machine build/Mall day	4-5 days, 4-6 hrs/day
6	Refinement, driving practice	4-5 days, 4-6 hrs/day
End of week 6	Local Hub competition	Friday night, Saturday
7-8	Repairs, driving practice	3 days, 2 hrs/day
End of week 8	Regional BEST Championship	Friday - Saturday

Background

The BEST competition motivates students by challenging them to build a remotely controlled robot that accomplishes a defined task within a competitive setting. A professional engineer and a school coach guide student teams through the engineering process. Using only the materials provided, students have six weeks to design, develop, and test a robot that can outperform their competitors. During this time, the students experience the same problems, challenges, and breakthroughs that an engineering team encounters when it takes a product to market. In both cases, there are team dynamics, time constraints, material constraints, and pressure from other teams who are trying to solve the same problem. Placed in a real situation, with real problems, the students provide real (and surprisingly ingenious) solutions.

The weeks of hard work culminate in a thrilling daylong competition where one team achieves "BEST" performance. The inspiring event combines the excitement of a high school football game with the strategy of a chess match and the intellectual challenge of a science fair.

The heart of BEST is the experience of solving a seemingly overwhelming task using simple engineering methods and old-fashioned teamwork. Thanks to this experience, students who participate in BEST are better prepared to meet the challenges of the Technology Age.

Past BEST Competitions

1993 - PVC Insanity -

The object of this competition was to take short pieces of PVC from the edges of the playing field and place them on a goal in the center of the field. Scoring was determined by the placement of the pieces on the goal.

1994 - Bumble Rumble

The objective in the competition was to gather "Bumble Balls" and place them into your scoring area. Each team had a high and low scoring area. The high scoring area was elevated and slanted so that, if the Bumble Balls were left unattended, they would "bumble" out.

1995 - TOTALLY aweSUM

This year, each team had both a positive and negative scoring area. The scoring pieces were long, tubular, foam "noodles". The object was to gather the noodles and place them in your positive area or in your opponent's negative area. The team with the least negative (most positive) score was the winner.

1996 - Block-N-Load

The object of this year's game was to score points by capturing squares (which are actually rectangles) on the playing field. A square was "captured" by placing "game pieces" in it.

1997 - Dynamite Duel

Talk about an explosive scenario?! The challenge this year was to remove more "dynamite" from an abandoned mine field than your opponent. The dynamite must be placed into an explosive-proof bucket at the top of the mine. The amount of dynamite was measured by mass and not by the number of sticks.

1998 – Toxic Troubles

The objective was to design and build a device to pick up garbage and place it into or below a collection containment vessel. Additional points were scored by returning the special game piece to the spotter and have it placed onto your machine.

1999 – Alien Escape

Assisting alien's escape from a dying planet is the objective. Robots must capture and move alien pods (fuzzy balls) or multiplier game pieces onto the very tall Rocket (Velcro attachment on the side) or other more simple scoring locations.

2000 – Pandemonium in the Smithsonian

The robots needed to rescue special artifacts from the Smithsonian before the smoke damaged them, and to turn off the water sprinkler system.

2001 – Rad to the Core

The robots had to empty fuel rods out of a nuclear reactor before meltdown occurred, and place them in a safety storage area.

2002 – Warp X

The robots had to pass through a black hole and retrieve game pieces from the past 10 games of BEST and return them to the present time.

2003 – Transfusion Confusion

The robots were "miniaturized" for 3 minutes and were required to help capture good blood cells to be used for a transfusion.

BEST History

The BEST competition began in 1994 when two Texas Instruments (TI) engineers, Ted Mahler and Steve Marum, were serving as tour guides at the company's annual high school Engineering Day. During the tour, the engineers' group watched a video of a Massachusetts Institute of Technology freshman class building a robot. The student audience was so excited by the video that the engineers asked, "Why don't we do this in Texas?"

After presenting their ideas to TI's Sherman Site Managers, Mahler and Marum received enthusiastic approval and North Texas BEST was organized. After the first year's competition, other local hubs joined the fun and the state competition, Texas BEST, was established.

Last year over 500 teams competed with 100 teams going on to one of two regional competitions.