2006 Awards and Judging Policies - Part I

I. Awards

The following awards will be given at all BEST hub competitions:

BEST Award
Awarded to the team that best embodies the concept of ***Boosting Engineering, Science and Technology***. Winning the BEST Award is considered the highest achievement any team in the competition can accomplish. First, second, and third place finishes will be awarded.

Competition Award
Awarded to the teams whose machines finish first, second, and third in the tournament bracket.

Founders Award for Creative Design
Awarded to the team that makes best use of the engineering process in consideration of offensive and defensive capabilities in machine design; awarded in recognition of BEST founders Steve Marum and Ted Mahler.

Most Robust Machine
Awarded to the team whose machine requires the least maintenance during and between matches and is generally the sturdiest machine in the competition.

II. Project Engineering Notebook

- ALL participating teams will be required to submit a Project Engineering Notebook at both the local competition and the Regional competition following the guidelines in Category I of the BEST Award Guidelines below. All notebooks will be graded on a 30-point scale, as defined in the BEST Award Guidelines.
- During the local hub Game Day, the notebook scores of all teams will be used to determine which 4 teams earn a chance for the single "wildcard" slot. The wildcard team will be one of eight teams that advance to the playoff rounds. Check the *2006 Game Specific Rules* for further details.
- During the Regional competition, the notebook scores of all teams will be used to determine which 8 teams earn a chance for two "wildcard" slots. The wildcard teams will be two of sixteen teams that advance to the playoff rounds. Check the *2006 Game Specific Rules* for further details.

III. BEST Award Guidelines

The BEST Award is presented to the team that best embodies the concept of *Boosting Engineering, Science, and Technology*. This concept recognizes that inclusiveness, diversity of participation, exposure to and use of the engineering process, sportsmanship, teamwork, creativity, positive attitude and enthusiasm, and school and community involvement play significant roles in a team's competitive experience and contribute to student success in the competition beyond winning an award.

In accordance with the BEST philosophy, **materials submitted by teams must be the work of students.** The involvement of student peers in auxiliary roles to support a school's official BEST team with the documentation – i.e., journalists, photographers, artists, musicians – is encouraged.

Space constraints at each Regional competition site will determine the number of teams that can compete for the BEST Award (check with the specific guidelines published by each Regional site). In order for a team to be eligible to compete for the BEST Award at any of the Regional competitions, the team: (1) must have competed for the BEST Award at their local hub competition, and (2) must agree to compete in all five of the BEST Award categories at the Regional competition.

Evaluation and Judging Procedures

Criteria

- Evaluation of competitors will be based on the criteria outlined in these guidelines. An evaluation score of a total possible 100 points will be composed of the following:

    - Category I - Project Engineering Notebook (mandatory for ALL teams, including teams NOT competing in the BEST Award)
    - Category II - Oral Presentation (at hub's discretion for BEST Award inclusion)
    - Category III - Table Display and Interviews (at hub's discretion for BEST Award inclusion)
    - Category IV - Spirit and Sportsmanship (mandatory for all BEST Award teams)
    - Category V - Robot Performance (mandatory for all BEST Award teams)

Hubs are required to judge at least four of the above five categories using one of the following scenarios:

Scenario 1: (preferred)

Judging Category	Point Value
Project Engineering Notebook	30 points
Oral Presentation	25 points
Table Display and Interviews	25 points
Spirit and Sportsmanship	15 points
Robot Performance	5 points
Total	*100 points*

Scenario 2:

Judging Category	Point Value
Project Engineering Notebook	30 points
Oral Presentation	25 points
Spirit and Sportsmanship	15 points
Robot Performance	5 points
Total	*75 points*

Scenario 3:

Judging Category	Point Value
Project Engineering Notebook	30 points
Table Display and Interviews	25 points
Spirit and Sportsmanship	15 points
Robot Performance	5 points
Total	*75 points*

Judging Procedure

- A distinguished team of judges from private and public sectors with technical and non-technical expertise will evaluate teams. Judges will serve on a rotation schedule.

- As each team completes a category, it will receive a category score that is the average of individual scores of the judges reviewing it.

- Teams should know in advance that scores among many teams frequently differ by only fractions of a point.

- Throughout the judging process, the judges may take into consideration the resources available to teams to conduct their BEST programs (financial or technology resources, for example).

Results

- Each advancing team will be mailed a copy of its score sheets following their local competition. Score sheets of non-advancing teams will be mailed upon request.

- Teams advancing to the Regional competitions can use judges' comments to make improvements as they wish.

Category I: Project Engineering Notebook (30 Points)

Guidelines

- The purpose of the notebook is to document the process the team used to design, build, and test their robot.
- ALL teams (both BEST Award and non-BEST Award competing teams) are required to submit a Project Engineering Notebook.
- See local hub deadlines for more information on when the notebook should be submitted.
- The notebook must meet the following specifications:
    - Submitted in a *standard* 3-ring binder with a maximum 2" ring size
    - 30 typed **single-sided** pages or less
    - Research paper: Within the 30 pages, include a description of how the current year's game theme is related to current technological practices or scientific research (minimum of 2 pages, maximum of 5 pages out of the 30 allotted)
    - Binder cover must identify the school, team name, teacher contact, and team number
    - Provide description of the process the team used to design and complete its robot
    - Standard, 8 ½" x 11" paper, double-spaced, 1" margins, and Times New Roman (preferred) or similar business-style font no smaller than 12 pt. Single-spacing is acceptable in tables and outlines.
    - Teams may include a supplemental appendix of no more than 20 pages in length; front and back pages are allowed. The appendix may include support documentation such as drawings, photos, organization charts, minutes of team meetings, test results, etc. *This material should directly support the process described in the primary document and NOT reflect activities related to community or promotional efforts, spirit development, or team-building.*

Evaluation

- The notebook will be judged on the documentation of the team's:
    - Implementation of the Engineering Design Process
      Evidence that the engineering process was effectively used.
    - Research Paper

Correlation between game and current and future use of similar technology; Any related information of game theme, such as history, famous inventor(s), or major milestones; Creativity in linking game theme to appropriately related science/technology content; Proper use of grammar and composition throughout paper, staying within 2-5 page limit

- Brainstorming Approaches
  How well organized and productive was the brainstorming approach used and documented?
- Analytical Evaluation of Design Alternatives
  Use of analytical and mathematical skills in deciding upon and implementing design alternatives
- Offensive and Defensive Evaluation
  Analysis of gaming strategies and design elements to achieve goals.
- Design Creativity
  Overall use of design creativity to solve the problem presented in the game.
- Support Documentation
  CAD /other drawings, photos, organization, team minutes, test results, etc. that support the main document.
- Overall Quality and Completeness of Notebook
  Organization, appearance, adherence to specifications, quality of content and submission of required Team Demographics Form

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Category II: Oral Presentation (25 Points)

- For the oral presentation, the team should view themselves as employees of a "company" that is marketing their "product" (robot) to a potential buyer (judges). This marketing team is an integral part of the engineering team that has designed a specialized robot. The marketing presentation should provide information about their company, the engineering team involved in the design and construction of the product, and why their product is the best one on the market that can complete the assigned task. The potential buyer will be assessing the following:

  - The company's design and manufacturing process (engineering process of "design to market", including a discussion on the advantages of your company's robot design)
  - Discuss the technological resources your company used to design and construct the robot
  - Marketing strategies to promote product (e.g., school and community involvement, promotional efforts, etc)
  - The company's demographics and operations (e.g., diversity of team members involved, team building experiences, displays of sportsmanship, etc)

- Each BEST Award team will sign up for a presentation time slot to occur at a time designated by the local hub.

Guidelines

- A minimum of 4 students must actively participate in the presentation. A maximum of 8 representatives for the team may be in the presentation room, including the presenters.

- Adults are not allowed to participate, but may be present in the room (counting as one of the 8 representatives).

- Representation by student presenters from more than one grade level is encouraged and will be considered in the evaluation as part of the team's recruitment efforts.

- Videotaping/photographing by team representatives will be allowed during the presentation, however, the person(s) handling videotaping will be counted in the 8 maximum number allowed.

- The presentation format is the prerogative of the team.

- The team must provide any equipment it wishes to use, or check with the local hub for information about what equipment can be provided.

Time Breakdown
(The local hub will provide event-specific information.)

- There will be a check-in station in the general area of the presentation rooms (location TBA).

- Teams should check in 15 minutes prior to their time slot.

- The order and breakdown for the 25-minute presentation time period is as follows:

    - *5 minutes*: Set-up
    - *12 minutes:* Presentation
    - *5 minutes:* Q&A with judges
    - *3 minutes:* Break-down and clear room

Note: Teams not requiring set-up or break-down time may utilize that time for their presentation (for a total presentation time of up to 20 minutes).

- Five minutes will be scheduled between presentation sessions to allow judges time to confer without the team present.

Evaluation

- Presentations will be evaluated with consideration of:
    - Company Information
      Well-defined roles as company employees/owners/managers; organization of company departments for product development

    - Design and Manufacturing Process (Engineering Process)
      Brainstorming approaches; analytical evaluation of design alternatives; offensive and defensive strategy evaluation; effective implementation of the process

    - Use of Available Technology
      CAD or other drawings; Web page development and computer simulations

    - Marketing Strategies
      Publicity efforts to inform school and community of their product (e.g. school newsletters, presentations to community and/or school groups, fliers/brochures, posters, press releases, commercials, etc)

    - Team Demographics and Operations
      Company team-building (team-building activities, representation and percentage of team involved in robot development, methods of team decision-making, etc.); Company team demographics (evidence of team diversity – male, female, variety of grades represented, minority involvement)

    - Quality of Presentation
      Well organized and prepared; met required specifications; communication skills and professionalism; creativity of format; quality of question and answer session with judges

Category III: Table Displays and Interviews (25 Points)

- The purpose of the table display and interviews category is to:

    - Communicate through a display, and through discussion with judges, information about the team's efforts ***to promote BEST in the community and schools***

    - Foster BEST spirit, camaraderie, and participation

    - Give evidence of sportsmanship

Guidelines

- Check with local hub for standard table size. At Regional competitions, each team will be provided with a standard six-foot long table (approximately 29 inches wide).

- Check with local hub for maximum allowed floor space for table displays (note: a 10' X 10' X 10' display space will be allocated per team at the Regional competitions).

- Skirting for the table will not be provided.

- Each team should bring one extension cord and one power strip.

- Other display items may be used, but must not exceed the space allocated by the hub.

- Teams are encouraged to avoid using expensive store-bought display boards and structures and opt for more creative and hand-made display props.

- Any audio-visual equipment needs and extra extension cords will be the responsibility of the team.

- Each team is responsible for security of its own material.

- Each team is also responsible for breakdown of its team materials and clean-up of its display area following the awards ceremony on Game Day.

- All material should be clearly marked with the appropriate identification and contact information.

- Check with the local hub concerning when and where table displays can be set up.

- Candy and other food items are <u>not</u> permitted at table exhibits as complimentary handouts.

- During the designated interview time, at least one student representative from the team must be present who is able to respond to informal questions asked about the display. In addition, student representatives should be aware that judges may ask questions concerning robot design and construction. These questions will be part of the interview evaluation of the team.

- Teams should expect to be visited by three to four different judges during this period.

- Judges may also interview team members in the pit area and in the seating area.

Evaluation

- <u>Displays</u> (17 points) will be evaluated on:

- *Recruitment of new schools*
- *Sharing information and/or technology resources, and mentoring other schools, including other BEST teams*
- *Presentations and robot demonstrations to other schools and community groups*
- *Publicity (materials, media/press) in school and community efforts to other schools and community groups*
- *Fund raising and/or sponsorship efforts (strategies used to recruit sponsors, team fund raisers, description of how funds were allocated to support team)*
- *Use of technology, display models or boards, or multi-media at display in promotion of BEST*
- *Creativity in design and presentation of this exhibit*
- *Compliance with specifications (did not exceed space allocation)*

- Interviews (8 points) will be evaluated on:
  - *Enthusiasm and learning experience from BEST*
  - *Team recruiting (cross section of student population and multi-grade levels)*
  - *Level of student participation (students were the primary designers and builders of the team's robot)*

Category IV: Spirit and Sportsmanship (15 Points)

Guidelines

- Judges will evaluate this category on Game Day
- They will observe the spirit promoted by the team during the competition rounds as well as the team's conduct throughout the day in the seating area, table display area, game floor, and pit area

Evaluation

- Spirit includes the vigor and enthusiasm displayed by team representatives

- Teams can use posters, props, t-shirts, cheerleaders, musicians, mascots, costumes, and lower-frequency noise-makers to increase the level of spirit (check with local hub to determine specific noise-maker restrictions)

- Community involvement: number of team supporters present at competition (other than students)

- Sportsmanship includes outward displays of sportsmanship (e.g., helping other teams in need), grace in winning and losing, and conduct and attitude considered befitting participation in sports

- Overall team sportsmanship is also demonstrated by students (not mentors) making the majority of robot adjustments and repairs during the competition

Category V: Robot Performance (5 Points)

- The fifth category, *Robot Performance*, will determine the final 5% of possible BEST Award points. These 5 points will be based on the total game points earned throughout the seeding competition (prior to the championship rounds) according to the following scale:

  - Team finishes in top 20% of all teams competing at hub — 5 Points
  - Team finishes in top 40% of all teams competing at hub — 4 Points
  - Team finishes in top 60% of all teams competing at hub — 3 Points
  - Team finishes in top 80% of all teams competing at hub — 2 Points
  - Team finishes in top 100% of all teams competing at hub — 1 Point
  - Team is unable to score any points during the competition — 0 Points

- Up to 5 Robot Performance points will be added to the total BEST Award points.

BEST Award Recognition

- The teams ranked first, second, and third in the BEST Award Division will receive trophies superior to the teams finishing first through third in the Game Division.

- Ties will be allowed only after detailed review by the judges.

- Presentation of the BEST Award trophies will be made during the awards ceremony on Game Day.