2011 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. In addition, fourth place "finalist" will also be awarded.

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 25-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 *2011 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 *2011 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.

III.A. Judging Evaluation and 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 - Marketing Presentation (at hub's discretion for BEST Award inclusion)
- Category III – Team Exhibit 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:

<u>Scenario 1: (preferred)</u>

Judging Category	Point Value
Project Engineering Notebook	25 points
Marketing Presentation	25 points
Team Exhibit and Interviews	20 points
Spirit and Sportsmanship	15 points
Robot Performance	15 points
Total	*100 points*

Scenario 2:

Judging Category	Point Value
Project Engineering Notebook	25 points
Marketing Presentation	25 points
Spirit and Sportsmanship	15 points
Robot Performance	15 points
Total	*80 points*

Scenario 3:

Judging Category	Point Value
Project Engineering Notebook	25 points
Team Exhibit and Interviews	20 points
Spirit and Sportsmanship	15 points
Robot Performance	15 points
Total	*75 points*

III.B. 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 be assigned 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.

III.C. Judging 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 (25 Points)

Notebook 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 (note that title page and Table of Contents page will not be counted as part of the 30 pages)

    - 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.*

Notebook 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 how the technology is being used at a company/industry/research lab in the team's state or region; 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; citations of sources used to gather information for 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.
  - ***Safety***
    - Evidence that safety training occurred and safe practices were followed to prevent students' misuse of tools and other devices/equipment that may result in personal injury or damage to property
  - ***Support Documentation***
    - CAD /other drawings, photos, organization, team minutes, test results, etc. that support the main document.
  - ***Overall Quality and Completeness of Notebook***
    - Just prior to submitting the Notebook, teams must input their demographic information at www.robotevents.com (log in, click on Edit under "Links" for your team), print the completed form, and place a copy of the form in the Notebook.
    - Organization, appearance, adherence to specifications, quality of content and submission of required Team Demographics Form

Category II: Marketing Presentation (25 Points)

For the marketing 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.

Marketing Presentation Guidelines

- A minimum of 4 and maximum of 8 students should actively participate in the presentation.

- At the discretion of the hub or Regional, an audience may be allowed to quietly observe the presentations. The size of the allowed audience is space-dependent and up to each hub to determine.

    - If a hub does choose to allow an audience during the presentations, it is recommended that each presentation room have an official Room Monitor (not a judge) to ensure that the presentation team is not being disturbed or coached by audience members.
    - Audience members are not allowed to ask questions during the Q & A period.

- Adults are not allowed to participate, including setting up or taking down equipment for the presentation.

- 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.

Marketing Presentation 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 prior to their time slot.

- The order and breakdown for the presentation time period is defined in the *2011 Awards and Judging Policies - Part II* document.

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

Marketing Presentation 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 Design 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; achieved goal of marketing team's robot; creativity of format; quality of question and answer session with judges

Category III: Team Exhibit and Judges Interview (20 Points)

- The purpose of the exhibit and interviews category is to creatively:

a. Communicate an understanding of the game theme
b. Demonstrate how the team has promoted BEST in the school and community

Exhibit and Interview 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) upon request.

- Check with local hub for maximum allowed floor space for exhibits (note: a 8' X 8' X 8' 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. Check with local hub for possible electricity and electrical limitations.

- Other exhibit 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 exhibit 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 exhibit 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 team exhibits can be set up.

- Candy and other food and drink items are not permitted at 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 exhibit. 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.

Exhibit and Interview Evaluation

- ***Exhibits*** (13 points) will be evaluated on:
    - 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 (print materials, media/press) generated within the school and within the community about BEST
    - Fund raising and/or sponsorship efforts (strategies used to recruit sponsors, team fund raisers, description of how funds were allocated to support team, team budget information available for review)
    - Use of technology, display models or boards, or multi-media at exhibit in promotion of BEST
    - Creativity in incorporating game theme into design and presentation of this exhibit
    - Compliance with specifications (did not exceed space allocation)
- ***Interviews*** (7 points) will be evaluated on:
    - Evidence of students' enthusiasm, learning experience, and understanding of the game theme
    - Evidence that recruitment efforts for the team included multiple grade levels and students from a cross-section of the school population
    - Evidence that students were the primary designers and builders of the robot

Category IV: Spirit and Sportsmanship (15 Points)

Spirit and Sportsmanship 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, team exhibit area, game floor, and pit area

Spirit and Sportsmanship 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 (15 Points)

- The fifth category, *Robot Performance*, will determine the final 15% of possible BEST Award points. These 15 points will be based on the total game points earned throughout the seeding competition (prior to the semi-final rounds) according to the following scale:

• Team finishes in top 20% of all teams competing at hub	15 Points
• Team finishes in top 40% of all teams competing at hub	12 Points
• Team finishes in top 60% of all teams competing at hub	9 Points
• Team finishes in top 80% of all teams competing at hub	6 Points
• Team finishes in top 100% of all teams competing at hub	3 Points
• Team is unable to score any points during the competition	0 Points

- Up to 15 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.

Advancement to Regional Championship Competition

- The total number of teams a hub will be allowed to send to a Regional competition is determined by the Regional competition. Traditionally this number is related to the number of teams competing at the hub, the total number of teams in the region, and the maximum number of teams that the venue at a Regional can hold.

- The sequence of advancing teams will be as follows:

    1. BEST Award 1st Place
    2. Game 1st Place
    3. BEST Award 2nd Place
    4. Game 2nd Place
    5. BEST Award 3rd Place
    6. Game 3rd Place
    7. BEST Award 4th Place
    8. BEST Award 5th Place
    9. BEST Award 6th Place
    10. etc……

- The list above is intended to illustrate the qualification order, not necessarily the exact number of teams advancing from each hub.

- *Exception to above qualification order:*

  A hub has the option to advance a Game winner OR a BEST Award winner at their discretion IF the hub is limited in the number of advancing teams that can participate in the BEST Award at the Regional competition, and IF a BEST winner also places as a Game winner.

  For example, if a Regional allows four advancing teams per hub, BUT only two advancing teams can participate in the BEST Award, AND a Game winner is also a BEST winner at the hub level, a hub could be forced to advance a 3rd place BEST Award team that cannot actually compete in the BEST Award at the Regional level. In such a case, the hub can opt to send the 3rd place Game winner instead of the 3rd place BEST Award winner.