

Section 5 BEST Award Components

5.1 Engineering Notebook (30 Points)

- The Engineering Notebook will be worth 30 points towards the BEST Award.

5.1.1 Notebook Requirements

- ALL participating teams are required to submit an Engineering Notebook at both the local competition and the regional championship following the requirements stated herein. All notebooks will be evaluated on a 30-point scale.
- For competitions having 32 or fewer total teams, the notebook scores of all teams will be used to determine which 4 teams earn a chance to participate in the single “wildcard” match. The winning wildcard team will be one of eight total teams that advance to the semifinals phase.
- For competitions having greater than 32 total teams, the notebook scores of all teams will be used to determine which 8 teams earn a chance to participate in one of the two “wildcard” matches. The two winning wildcard teams will be two of sixteen total teams that advance to the semifinals phase.
- The purpose of the notebook is to document the process the team used to design, build, and test their robot.
- The notebook must be delivered in electronic format (PDF only). A team may submit a revised notebook if that submittal occurs before the due date and time. Once the deadline passes, no more submittals are allowed for that team and the most recently submitted notebook will be judged.
- Any team that submits their notebook after the deadline will be penalized 10% of their notebook score. Only teams that have not yet submitted a notebook by the deadline fall into this category (see prior bullet).
- Please see the [2023 Awards and Judging – Hub Logistics](#) document for information on when and how the notebook is to be submitted.
- The notebook must meet the following specifications:
 - The title page must identify the school, team name, teacher contact, and team number.
 - 35 pages or less (note that the title page and Table of Contents page(s) will not be counted as part of the 35 pages).
 - The document should be formatted as 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 40 total pages of information. The appendix may include support documentation such as (but not limited to) 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.*

5.1.2 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 the current year's game theme and how related technological practices or scientific research is being used at a company/industry/research lab in the team's state or region; Any information related to the game theme, such as history, famous inventor(s), or major milestones; Analysis of the game theme/problem and the related technology's impact on the human experience, our needs, adaptations, and progress with solutions throughout history; Creativity in linking the game theme to appropriately related science/technology content; Proper use of grammar and composition throughout the paper; citations of sources used to gather information for the paper
 - The research paper must be a minimum of 2 pages and maximum of 5 pages (of the allotted 35 pages), including citations.
 - **Brainstorming Approaches**
 - How well organized and productive was the brainstorming approach used? How well was the brainstorming approach 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 the gaming strategies and design elements used to achieve specific team goals.
 - **Software Development Process**
 - Evidence that a software development process was effectively used including
 - Project scope/requirements/specification ("what" the robot should do without stating how)
 - Design ("how" the software will achieve the scope/requirement/specification)
 - Implementation (tools, methods and techniques used in your programming)
 - Test/Verification (methods used to verify correct operation of the robot program)
 - Deployment (source code management, release, download frequency, etc.)
 - Evidence that software design methods/techniques were explored and utilized.
 - **Safety**
 - Evidence that safety training took place 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**
 - Team organization, team minutes, test results, CAD/other drawings, photos, etc. that support the main document.
- **Overall Quality and Completeness of Notebook**
 - Organization, appearance, adherence to specifications, quality of content

5.2 Marketing Presentation (25 Points)

- The Marketing Presentation will be worth 25 points towards the BEST Award.

5.2.1 Purpose and Context

- The purpose of the Marketing Presentation is for students to learn how to address the needs of a potential client, share product and brand information and navigate the business environment.
- The Team's Role: To create a company that designs and manufactures robots (the product).
- The Judge's Role: To serve as the client who is looking to purchase a robot(s) to solve a problem(s).
- The Problem: Refer to the Game Specific Rules and research the real-world relevance of the game premise in today's industry.

The context for the presentation is as follows:

Your team is a business pitching your latest invention/product to a group of decision makers at BEST Inc. headquarters in response to a Request For Proposal (RFP). Your goal is to inform, persuade, and build trust between your company and your potential client.

Your company's brand promise will establish a shared understanding of the client's problem and how your product delivers the solution. The only details about the engineering team and the manufacturing process that need to be included are those that highlight the unique characteristics or how the characteristics differentiate your product from a competitor. Storytelling should be an important tool to add personality to your brand and create a stronger connection with your client.

BEST Inc. is very involved in community outreach. Share how your team, as a potential vendor embraces the same social responsibility.

To close the meeting, propose a formalized offer for the client.

5.2.2 Marketing Presentation Guidelines

- A minimum of 4 and maximum of 8 students may participate in the room for the presentation. Each student present must have an active role in the presentation.
- Participating teams will sign up for a presentation time to occur at a time designated by the local hub or championship.
- Only students may participate in the presentation/discussion, including setting-up and dismantling the presentations. Spectators may be permitted to observe the presentation only if the presenting team agrees. If at any time during the team's presentation a spectator coaches, signals, speaks out

loud or otherwise disrupts the presentation, the lead judge in the room shall evict that spectator immediately. The presenting team shall not be penalized for the interruption.

- The only printed or other materials that teams may give to the judges are a brochure and business cards. No gifts for the judges please.
- Robots and models may be used during the presentation for demonstration purposes.
- Teams should represent diversity in grades, gender, race, ethnicity, and abilities. Teams are encouraged to share and demonstrate how their efforts are inclusive.
- Videotaping/photographing the presentation by students will be allowed; however, the person(s) handling recording devices will be counted in the maximum students allowed and therefore s/he will need to contribute to the presentation beyond capturing footage or images.
- 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 or championship for information about what equipment can be provided. See the **2023 Awards and Judging – Hub Logistics** for details of equipment provided at your hub/championship event.

5.2.3 Marketing Presentation Logistics

- There will be a check-in station in the general area of the presentation rooms where teams should check in prior to their time slot.
- The presentation/meeting will last for no more than twenty-five (25) minutes including any setup/breakdown. Teams are expected to begin with formal presentation.
- The meeting may become conversational with judges beginning to ask questions after ten (10) minutes of uninterrupted presentation by the team. The team may instigate a conversational format at any time, if desired. This is to encourage a business meeting atmosphere.
- Teams should use the judges' questions as cues and adapt their conversation. Be prepared to go off script and have a dialog exchange with the judges.
- At least five (5) minutes will be scheduled between presentation sessions to allow breaks for judges, rotations, and additional time to confer without the team present.
- The local hub or championship will provide event-specific information (times, locations, etc.). Refer to the **2023 Awards and Judging – Hub Logistics** document for these additional details.

5.2.4 Marketing Presentation Evaluation

Presentations will be evaluated with consideration of:

- **Company Overview**
 - The team introduced themselves and explained their roles within the company.
 - The team expressed a mission statement for their company stating the company's purpose for being, encapsulating culture, values, and ethics.
 - The team created a consistent brand and brand promise – the value or experience customers can expect to receive every time they interact with the company.
 - The team created a strong visual identity based on the brand and mission statement.

- The team defined their public image through their publicity, social responsibility, and community awareness activities.
 - The team explained their budgets and expenses, including any funding sources (sponsors or in-kind contributors, fundraising events, etc.).
 - The team included their company sustainability and 1-year company outlook including employee development, recruitment, and training.
- **Product Features**
 - The team clearly defined the problem and the customer priorities.
 - The team explained their product's features and how the product's benefits solve the client's problem.
 - The team clearly defined how the product is unique, desirable and produces a benefit(s) to the client.
 - The team identified factors that differentiate their brand and product from the competition.
 - The team used visual aids to effectively enhance the presentation.
 - **Business Offer**
 - The team explained the product's acquisition cost and manufacturing cost based on their actual robot.
 - The team proposed their delivery and aftermarket support including warranty and training for the client's workforce to operate and/or maintain the product.
 - The team proposed a formal offer to the client (judges).
 - **Business Professionalism**
 - The team met the 4-8 participant guidelines and was dressed professionally, or theme based.
 - The presentation was understandable, well organized, and prepared.
 - The team was conversational and engaged in discussion.
 - The team included testimonials to support research or success stories.
 - The presentation was creative and interesting.

5.3 Team Exhibit and Interview (20 Points)

- The Team Exhibit and Interview will be worth 20 points towards the BEST Award.
- The purpose of the Team Exhibit is for students to display a visual story of the team's company, product, outcomes, and impact including communicating the company brand, student learning and community outreach.
- The purpose of the Interview is to
 - strengthen students' communication skills (as listeners and speakers),
 - validate their knowledge and understanding of the work done by the entire team,
 - spotlight community outreach and publicity activities, and
 - communicate/share their experience and lessons learned.

5.3.1 Team Exhibit and Interview Guidelines

- Hubs hosting a Classic competition may choose to implement Physical or Virtual Team Exhibits. Refer to the **2023 Awards and Judging – Hub Logistics** document for details on which format your hub will implement.
- Championships may choose to implement Physical Team Exhibits or Virtual Team Exhibits, or both; the championship Team Exhibit format will be communicated following your hub kickoff.

5.3.1.1 Virtual Team Exhibits

- Virtual Team Exhibits will be implemented using a dedicated WordPress website for the team.
- The Virtual Team Exhibit must use the system provided through the BEST National Registry Team Workflow page.
- Only those themes and widgets available through the virtual exhibit template can be used.
- Native html coding is allowed.
- Primary exhibit content should be placed on the front page.
- Pages other than the HOME page are allowed for additional content. The virtual exhibit should not exceed 3 additional pages.

5.3.1.2 Physical Team Exhibits

- Refer to the **2023 Awards and Judging – Hub Logistics** document for standard table size at your local hub competition and availability. At championships, each team may be provided with a standard six-foot long table (approximately 29 inches wide) upon request. Skirting for the table will not be provided.
- An 8' X 8' X 8' exhibit space will be allocated per team at your local hub and the championships. All exhibit content must remain within the defined exhibit area.
- All exhibits must display the official national BEST Robotics logo in plain view. The BEST Robotics logo may not be altered.
- Teams are encouraged to use recycled, upcycled and repurposed items and to avoid using expensive store-bought display boards and structures. Consideration is given to creative and hand-made exhibit props.
- Each team should bring one extension cord and one power strip for any electrical needs. Refer to the **2023 Awards and Judging – Hub Logistics** document for possible electricity and electrical limitations at your local hub competition.
- Any audio-visual equipment and extra extension cords will be the responsibility of the team.
- Each team is responsible for the security of its own material.
- Each team is responsible for the 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.

- Refer to the **2023 Awards and Judging – Hub Logistics** document concerning when and where team exhibits can be set up at your hub or championship competition.
- Candy and other food and drink items are not permitted at exhibits as complimentary handouts. Refer to the **2023 Awards and Judging – Hub Logistics** document concerning specific rules for your hub or championship competition.

5.3.1.3 Student Interviews

- During the scheduled 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, students 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 evaluated by two to four different judges during a single interview period.
- In addition to the scheduled interviews at a Classic competition, the judges may also interview team members in the pit area and in the seating area at any time.

5.3.2 Exhibit and Interview Evaluation

Exhibits (6 points) will be evaluated on:

- Creativity – The team demonstrated creativity in incorporating the game theme into the design and presentation of this exhibit. The exhibit is unique, and the game/industry theme is very prominent.
- Technology - The exhibit effectively balances the use of print, models, multi-media, graphics, and other technology.
- Aesthetics – The exhibit is cohesive, engaging, and interactive. Information is logically arranged. The area is neat, clean, and well-organized.
- Compliance – The team, hub, championship (if the team advanced to a championship), and national logos and branding are clearly visible. All sponsors are clearly displayed. The team adhered to all specifications set forth by the Hub/Championship. The students showed evidence that they were the primary designers and builders of their product (robot), team exhibit and all related materials.

Student Interviews (14 points) will be evaluated on:

- Company Elevator Speech and Branding
 - The team clearly defines what benefits the product (robot) delivers.
 - The team explains their outreach and social responsibility.
 - The team conveys the company’s brand through tone and language.
 - The brand promise (the service/reputation your company offers the customer) is evident throughout the exhibit and in the student interviews. The team effectively explains how the product illustrates the company brand.
- Knowledge and Experience with BEST
 - Knowledge – Students easily and thoroughly answer technical questions about the product (robot), team exhibit, and related materials. They show a deep understanding of the design

and construction of the robot and exhibit; adult contributions are mentioned purely in an advisory capacity.

- Learning – The students clearly express an understanding of the game theme/problem and their own learning experience. They clearly articulate lessons learned through experience. It is evident that they understand the game/industry theme well.
- Enthusiasm – Students describe with obvious enthusiasm and positivity their experience in BEST and show a clear understanding of the organization’s mission. Students communicate the impact of the BEST Robotics program on his/her path toward STEM or career choice through testimonials.
- Outreach
 - Sharing – The team demonstrates sharing of information and/or technology resources, and mentoring of other schools, including other BEST teams. There is clear evidence of support (through testimonials or storytelling) to other schools with information, technology, or encouragement.
 - Publicity/Demonstrations – Students effectively communicate their publicity methods (print materials, media/press), media platforms used, and specific presentations/demonstrations to other schools and community groups about BEST to generate excitement.
 - Inclusion – There is evidence of team diversity and that recruitment efforts include multiple grade levels and students from a cross-section of the school population. Specific efforts to promote inclusiveness are clearly identified.
 - Advocacy – Students communicate any fundraising and/or sponsorship efforts they implemented. They describe clear strategies for recruiting sponsors, team fundraisers, and how any funds raised were allocated to support the team (in a team budget that is available for review). The students present and demonstrate strong evidence of executing these efforts.

5.4 Spirit and Sportsmanship (10 Points)

- Spirit and Sportsmanship will be worth 10 points towards the BEST Award.

5.4.1 Spirit and Sportsmanship Guidelines

- Judges will evaluate this category on Game Day.
- Judges will observe the spirit promoted by the team during their head-to-head competition matches as well as the team’s conduct throughout the day in the seating area, team exhibit area, game floor, and pit area.

5.4.2 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 noisemakers to increase the level of spirit (Check the **2023 Awards and Judging – Hub Logistics** document to determine noise-maker restrictions for your local hub competition).

- Cheering and music are encouraged. In general, any noisemaker that interferes with game play (air horns, whistles, etc.) is not allowed. Amplified music may be restricted at times or in volume at the discretion of the head referee. All game venues differ. Ask your hub/championship leaders if you have any questions regarding specific cases. Final decisions or allowances on Game Day rest with the head referee.
- 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 all robot adjustments and repairs during the competition.

5.5 Robot Performance (15 Points)

- The Robot Performance component will determine the final 15% of possible BEST Award points.
- Robot Performance points will be awarded based on a team's final rank in the seeding phase of the head-to-head competition. The rank is from 1 (highest total points) to N (lowest total points where N is the number of teams competing in the head-to-head competition). Unique points are awarded for each level of the ranking.
- A team may receive a maximum of 15 points for robot performance.
- Any team that passes compliance will receive no less than 3 points.
- Any team that fails to pass compliance will receive 0 points.
- A team that does not pass compliance is not eligible to receive head-to-head competition awards or advance to a championship. The hub has discretion to allow the team to participate in the seeding phase only; if allowed, 0 points will be recorded for each match regardless of how the robot performed.

5.6 BEST Robotics Brand Usage Guidelines for Teams

Although BEST Robotics does not require teams to design websites or tee shirts or maintain a certain level of presence on social media, students are encouraged to explore options and we support their creativity. BEST Robotics also wants to ensure that our brand is presented in a clear and consistent manner across our footprint. Therefore, we ask students to follow these guidelines:

- Include the BEST Robotics national logo on all digital and printed materials.
- Team websites should include
 - On the homepage - the national logo and a link to national website
 - Storytelling from students (video or quote with pictures)
 - Testimonials from community leader (video or quote with pictures)
- Tee shirts should include the national logo, set apart from other sponsors or positioned above all other sponsors
- All social media posts during or about your team's outreach activities should include the hashtag: #BESTRobotics and tag @BESTRobotics.