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Overview

Thank you for volunteering as a Judge at a VEX IQ Challenge event. This guide will help Judges, Judge Advisors, and Event Partners understand and follow a consistent judging process. The judging process in this guide is consistent with the judging process used at the VEX Robotics World Championship. Judges at local and State/Regional/Provincial events must follow the judging process outlined in this guide. **Official events may not change award criteria in this guide. Events not following the award criteria in this guide may not qualify teams to higher level events.**

Event Partners should make the Judge Advisor aware of concerns about the behavior or ethics of a team using the “Field Note to Judges” form, or some other form of communication that is agreed upon by the Event Partner and Judge Advisor.

In the VEX IQ Challenge program, teams of elementary and middle school students showcase their knowledge and skills in designing, building, and programming a robot, and documenting their design process in an Engineering Notebook. All of these activities are to be completed by the students with minimal adult assistance.

It is important for Judges to **recognize student accomplishments** in the VEX IQ Challenge. Students must make the decisions, complete the work, and demonstrate their learning in the VEX IQ Challenge, in order for their team to qualify for official award recognition at events.

The students who participate in VEX IQ Challenge events represent diverse levels of maturity, skills, and experience. Your warmth, patience, and enthusiastic support of their learning and sharing will make a positive impact on these students on event day and beyond.

In addition to this Guide, training information is available to support your efforts at: [roboticseducation.org/event-partners/event-partner-resources-documents/](http://roboticseducation.org/event-partners/event-partner-resources-documents/).

Adults are preferred to fill the role of Judges. In some cases, high school students may be paired with adults as Judges. Younger students are not to be used as Judges. Judges at State or Regional Championships must be adults; college students are a good source for Judges.

Judging deliberations should be **concluded after** the last qualifying match and **before** the tournament champions are known. The tournament outcome should not affect any Judged awards, including the Excellence Award. Judges are to make all award decisions under the supervision of the Judge Advisor before leaving the event. Event Partners are not to make any decisions on any Judged awards. The Judge Advisor should oversee the entering of Judged awards on the Awards tab of Tournament Manager.

Only a limited number of teams at each event will be awarded a Judged award. However Judges should always interview every team at an event regardless of the team’s status in terms of contention for a Judged award or notebook submission.

---

**New This Year**

<table>
<thead>
<tr>
<th>Major changes to this year’s version of the Judge Guide include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Removed STEM Research requirement from Excellence</td>
</tr>
<tr>
<td>• Changed the STEM Research Project to a video submission at all events</td>
</tr>
<tr>
<td>• The STEM Research Project is now an optional award at local events. The local Event Partner will determine if it is offered at an event</td>
</tr>
<tr>
<td>• Modified Excellence Award candidate identification process</td>
</tr>
<tr>
<td>• Updated the Design Award process</td>
</tr>
<tr>
<td>• Further defined notebook content</td>
</tr>
<tr>
<td>• Added note on Judges’ Room</td>
</tr>
</tbody>
</table>
Key Concepts

**Student-Centered Teams:** The Robotics Education & Competition Foundation seeks to increase student interest and involvement in science, technology, engineering, and mathematics (STEM) by engaging students in hands-on sustainable and affordable curriculum-based robotics engineering programs across the U.S. and internationally. Judges play an important role in our efforts to ensure that our program remains student-centered.

Teachers/Mentors/Parents providing guidance and helping students design, fix or program robots is accepted. Adults doing the majority of the work on a robot, or working on a robot alone without students, is not acceptable, as there is obviously limited student learning and ownership taking place in such a situation.

Judges have the opportunity through observation and interviews to identify teams, schools and clubs that strive to keep their program student-centered and that understand the purpose of the program is to enhance the learning process, not to win at all costs. Judges, with input from event staff, should identify teams that are not student-centered.

Examples of this may include:

- Robots built entirely by adults or, in the case of younger student, mentors (i.e., high school students building robots for elementary or middle school teams).
- Identical robots on two or more teams (so called ‘clone-bots’).
- Adults who criticize students from alliance teams for poor performance, failure to perform optimally or who blame other teams for low scores rather than offering positive suggestions.

Judges should not reward teams that Judges have clearly identified as not student-centered with any Judged awards.

**The Judges’ Room** is where all notebook evaluations and judging deliberations should be conducted. The Event Partner should provide a room that provides Judges with the ability to hold frank, confidential discussions. It should be separate from rooms where other volunteers congregate and allow for Judges to post items on walls without teams or volunteers being able to see the judging materials.

**Team Conduct:** The REC Foundation considers the positive, respectful, and ethical conduct of all students and adults associated with a team to be an important and essential component of the VEX IQ Challenge program. For this reason, Judges will consider all team conduct by students and/or adults when determining award recognition at VEX IQ Challenge events.

Judges should use the confidential “VRC and VEX IQ Note to Judges from the Competition Fields” form to receive feedback on team conduct at events.

**Pit Area:** The area that teams use as their home base during an event is called the Pit Area. Teams are usually provided with a table for their robot, laptop, batteries, and other VEX parts. The Pit is also the work area for the teams. This is a great place to meet with teams in an informal setting and see them in a more relaxed environment. Judges at VEX Worlds visit teams in their pit areas to conduct student interviews for most Judged awards. Judges at local events should help prepare teams for the process at regional championship events and VEX Worlds by interviewing them in the pit area.

It may be difficult to catch teams in their pit area due to tight competition schedules. Additionally, larger teams may only have some of their team in the pit area, with the rest of the members congregating in the stands. If at first you are unable to locate a team in their pit area, feel free to leave them a note to inform them that the Judges are hoping to speak with them and/or check their pit area later. A standard Judges note to missed teams is available in this guide.
**Robot Game:** Teams play the robot game in collaborative Teamwork Challenge matches and may also demonstrate their own team’s skills in Programming and Driving Skills Challenges. All three robot challenges are played on the same 4’ x 8’ game field. The game field is a great place to see teams in action and to evaluate how well their robots perform. You can also get a good idea of the sportsmanship, energy, and enthusiasm of teams while observing them on the game field. For robot game details, please visit: roboticseducation.org/competition-teams/vex-iq-challenge/.

**Event Partner (EP):** Adult volunteer who organizes and coordinates the event.

**Judge Advisor:** Adult volunteer who coordinates the event judging process.

**Judge Responsibilities**

Judges are in a position of trust at VEX IQ Challenge events. To ensure that the judging process is an effective, equitable, and positive experience for all participants, it is important that Judges maintain:

- **Confidentiality:** The judging process often includes frank discussions about teams. These discussions must remain confidential and your judging team should take precautions to ensure that these discussions are not shared with or overheard by teams or other event participants.

- **Impartiality:** Proactively advise the Judge Advisor or Event Partner of any possible conflict(s) of interest and remove yourself from all discussions and decisions in which you may have a personal interest.

- **Engagement:** Demonstrate your full interest and involvement in discussions with students and your judging team by refraining from distractions such as phone usage or side conversations. Your active participation in the judging process is invaluable and much appreciated.

- **Do not be alone with students.** Work with at least one other Judge if you meet with teams in a private space.

To prepare for the event, Judges should:

- Review this Judges Guide, including the attached Design Award Rubric.
- Review the VEX IQ Challenge Game Video, Game Description and/or the Game Manual at: roboticseducation.org/competition-teams/vex-iq-challenge/.
  - Knowing the tasks that teams will be trying to complete is essential to evaluating their robots on a technical level.
- Review the event location, schedule, team list, and awards to be offered on the event posting at robotevents.com.
- Plan to wear comfortable closed-toed shoes and business casual clothing that is team-neutral.
- Inform the Judge Advisor of any potential conflict of interest. Judges who are associated with a team at the event are not automatically disqualified from judging. However, they should not wear team shirts or other items associated with their teams, they should not interview their own teams, and they should recuse themselves from deliberations involving their teams. Judge Advisors should use the Judge sign in sheet to identify potential conflicts of interest.

During the event, Judges should:

- Review the Engineering Notebooks that were submitted by the teams. Use the attached Design Award Rubric to evaluate the Engineering Notebooks and to guide your discussions with teams.
- For large events that offer one or more Technical Awards or Other Judged Awards, use the VEX IQ Challenge Awards Scoring Sheet to evaluate your discussions with teams.
- Judges for the Design and Technical Awards will meet with teams in their pit areas and observe how they perform on the field. The idea is to avoid “interviews” in a closed room where Judges do not have an opportunity to see the team as it interacts with others during the event.
- If, after several visits to the team’s pit area, you are unable to locate the team, leave a “Sorry we missed you” note on their pit table. Your Judge Advisor should have these forms printed.
• Ask questions that encourage the students to explain their answers using a conversation that shows that you are interested in what they have to say. “How” and “why” questions work well as leading questions. Use the sample questions listed at the end of this document.
• Take notes to support your team evaluations and Judge deliberations. Ensure that your rubric forms and all other judging materials are returned to the Judge Advisor after deliberations.
• Rank each team you have met with for awards consideration after meeting each team. Simply keep your completed rubrics or notes in order of the teams’ rankings. Typically, rankings for the top 25% of the teams that you visited are needed during the deliberation process, but rankings for more teams are sometimes needed for the Design Award.
• Attend and participate in the Opening and Awards Ceremonies, if possible.
• Share all questions or concerns with your Judge Advisor.

During judging deliberations, Judges should:
• Post or share your top-ranked teams for each award, as instructed by the Judge Advisor. Typically, each Judge team will initially post the top five teams for each award or one quarter of the judged teams, whichever is greater. A white board, flip charts or Post-It notes may be used to post the top-ranked team numbers on a wall so that they are visible to all Judges.
• Work collaboratively with other Judges to reach consensus on the award recipients.
• Remember that the deliberation process often includes frank discussions about teams. Therefore, the deliberation process is a confidential process. Judges’ discussions are not to leave the Judges’ Room. Only Judges are allowed in the Judges’ Room.
• Remove yourself from discussions involving teams that present a conflict of interest.
• Share all questions or concerns with your Judge Advisor.
• Return all rubrics, judging notes, and materials to the Judge Advisor at the end of deliberations. The Judge Advisor should destroy these materials. They are not to be returned to teams or Event Partners.

Judge Training

Your Judge Advisor or Event Partner will arrange for some form of Judge training. This training should include a review of this guide, the current game, and the judging rubrics. This training may take place prior to the event and/or on the morning of the event. Check with your Judge Advisor or Event Partner for details.

Online REC Foundation Judge training materials are available for all Judges, Judge Advisors, and Event Partners. Please visit: roboticseducation.org/volunteers/volunteer-resources/ to find these materials.

If you have specific questions regarding the judging process please send an email to Tarek Shraibati, National Judging Advisor, at: tarek@roboticseducation.org.

Judging Schedule

The entire judging process will take place during the event, with each team of Judges planning to meet with one team every 10-15 minutes. Judges should meet with a wide enough selection of teams to get a good basis for comparison. The Judge Advisor will provide a list of teams that each team of Judges is responsible for visiting, and the match schedules when these become available.
This sample schedule is typical for a tournament with 24-36 teams.

### Sample Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 8:00 a.m.</td>
<td>Judge Advisor reviews training materials with Judges, makes assignments.</td>
</tr>
<tr>
<td>8:00 – 9:15 a.m.</td>
<td>Judges review team notebooks, meet with teams.</td>
</tr>
<tr>
<td>9:30 – 11:30 a.m.</td>
<td>Judges continue to meet with assigned teams.</td>
</tr>
<tr>
<td>11:30 – 12:15 p.m.</td>
<td>Working lunch. Post top candidates for each award. Identify teams that require visits after lunch.</td>
</tr>
<tr>
<td>12:15 – 1:15 p.m.</td>
<td>Observe teams in the pit area and on the field. Complete follow up meetings and observations to complete the rank ordering of teams for each award. If possible, other Judges should visit with the top contenders for each award.</td>
</tr>
<tr>
<td>1:15 – 2:00 p.m.</td>
<td>Conduct final deliberations and determine award recipients.</td>
</tr>
<tr>
<td>2:00 – 2:30 p.m.</td>
<td>Input all award recipients into the Tournament software and print scripts for delivery at the awards ceremony.</td>
</tr>
<tr>
<td>2:30 – 3:00 p.m.</td>
<td>Attend Finals matches and the awards ceremony. Celebrate the day!</td>
</tr>
</tbody>
</table>

### Judge Advisor Responsibilities

The Judge Advisor is an adult, who works with the Event Partner to plan and coordinate an efficient, effective, and equitable event judging process. Judge Advisor responsibilities may include the recruitment and training of the Judges for the event.

The Judge Advisor manages time and resources, potential conflicts of interest, and a deliberative decision-making process that determines the event award recipients. The Judge Advisor is responsible for ensuring that award winners are entered into Tournament Manager and that award scripts are printed from Tournament Manager for presentation at the awards ceremony. This will also assure that the award winners are ready for posting to the event listing on robotevents.com upon the completion of the event. The Judge Advisor is responsible for ensuring that the trophies or other awards are ready for the awards ceremony.

The Judge Advisor is not to share the completed STEM Research Project or Design Award rubrics with teams or Event Partners after the event. The rubrics are intended to be used by Judges to narrow down the field of contenders for each award. Multiple teams often score “perfect” 3’s on a rubric. While the rubric is quantitative in nature, Judges are expected to apply their qualitative Judgement when making a final decision on all awards. Teams with a perfect rubric score often do not understand why they were not selected for an award. Judges should also not discuss the awards or judging with teams after an event; please direct any inquiries to the Judge Advisor or Event Partner. A Judge’s best intentions are often misinterpreted by teams resulting in students with hurt feelings. The Judge Advisor must properly dispose of these and all other judging materials at the conclusion of the event.

### Judging Materials

The following are suggested materials for the Judge Advisor and other Judges to use on event day. Judging documents are available at the end of this guide.

This guide is found at:
roboticseducation.org/event-partners/event-partner-resources-documents/
The following trophy packs are used for most events and are purchased by the Event Partner:

### VEX IQ Challenge Trophy Packs

<table>
<thead>
<tr>
<th>Qualifying Event Trophy Pack *</th>
<th>Additional Trophy Pack</th>
<th>Championship Event Trophy Pack *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trophies Included:</td>
<td></td>
<td>Trophies Included:</td>
</tr>
<tr>
<td>(7) small trophies</td>
<td></td>
<td>(7) large trophies</td>
</tr>
<tr>
<td>Award plates Included:</td>
<td></td>
<td>Award plates Included:</td>
</tr>
<tr>
<td>(2) Excellence</td>
<td>(2) Teamwork Challenge 2nd Place</td>
<td>(2) Excellence</td>
</tr>
<tr>
<td>(2) Teamwork Champion</td>
<td>(1) Amaze</td>
<td>(2) Teamwork Champion</td>
</tr>
<tr>
<td>(1) Design Award</td>
<td>(1) Think</td>
<td>(1) Design Award</td>
</tr>
<tr>
<td>(1) Robot Skills Champion</td>
<td></td>
<td>(1) Robot Skills Champion</td>
</tr>
<tr>
<td>(1) Judges</td>
<td></td>
<td>(1) Judges' Award</td>
</tr>
<tr>
<td>(1) Volunteer of the Year</td>
<td></td>
<td>(1) Volunteer of the Year</td>
</tr>
<tr>
<td>(8) Date Plate</td>
<td></td>
<td>(8) Date Plate</td>
</tr>
</tbody>
</table>

* Event Partners receive this trophy pack free as part of the VEX IQ Challenge Event Support Bundle.

* Event Partners hosting a state/provincial/regional/national championship receive trophy pack free.

### Awards Overview

Awards are to be spread as equitably as possible among the teams, with no team winning more than one Judge award. A team may win robot performance awards (Teamwork Champion or Robot Skills awards) in addition to Judge awards, but no one team should win more than one Judge award.

Individual awards given to coaches and mentors do not affect a team’s eligibility for a Judge award.

Not all awards are available at all events. Check with your Event Partner or Judge Advisor to confirm the awards to be offered at your event.

**Note:** Events may not change the awards criteria outlined in this guide and in the Awards Appendix. Events not following the award criteria in this document may not qualify to higher level events.
### Standard Awards

Standard Awards offered at most events:

<table>
<thead>
<tr>
<th>Award</th>
<th>Basic Criteria</th>
<th>Judged</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellence Award</td>
<td>Top All Around Team</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Teamwork Champion</td>
<td>1st Place Teamwork Alliance (2 teams)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Design</td>
<td>Most effective and efficient robot design process</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Robot Skills Champion</td>
<td>Top Robot Skills Team</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Judges Award</td>
<td>Team that deserves special recognition for efforts leading up to, and during, the event</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Volunteer of the Year</td>
<td>Recognized Event Volunteer</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Additional Awards offered at very large events such as VEX Worlds.

<table>
<thead>
<tr>
<th>Award</th>
<th>Basic Criteria</th>
<th>Judged</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teamwork Finalist</td>
<td>Finalist Alliance (2 teams)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Amaze</td>
<td>Team with an amazing, well-rounded and top performing robot</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Build</td>
<td>Team with a sturdy, well-crafted robot</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Create</td>
<td>Team with creative engineering solution</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td>Team with extraordinary enthusiasm</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Innovate</td>
<td>Team with effective and efficient robot design process</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Think</td>
<td>Robot utilizes effective programming</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Additional Awards offered at larger events:

<table>
<thead>
<tr>
<th>Award</th>
<th>Basic Criteria</th>
<th>Judged</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robot Skills 2nd Place</td>
<td>2nd place Skills Challenge Team</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Robot Skills 3rd Place</td>
<td>3rd place Skills Challenge Team</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Inspire</td>
<td>Team that has inspired Judges with their approach to the VEX IQ program</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Sportsmanship</td>
<td>Team that earned the respect and admiration of the volunteers and other teams at the event</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Mentor of the Year</td>
<td>Recognized Volunteer Team Mentor</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Partner of the Year</td>
<td>Recognized Event Sponsor/Supporter</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Teacher of the Year</td>
<td>Recognized Team Teacher</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Inspiration All-Star</td>
<td>Recognized Adult STEM All-Star (given at VEX Worlds)</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

The Tournament Manager software supports the creation of both Individual and Team Service Award certificates. These certificates provide great recognition for outstanding teams and volunteers.

**Excellence Award**

The Excellence Award is the highest award presented in the VEX IQ Challenge Program. This award is presented to a team that exemplifies overall excellence in building a high quality VEX IQ Robotics program. The recipient of this award is a team that demonstrates overall excellence in all components of the VEX IQ Challenge.

Key criteria:

- Design Award ranking
- Teamwork Challenge qualification rounds
- Robot Skills Challenge performance
- All other Judged awards offered at the event
- High quality VEX IQ Robotics program

Events may offer two Excellence Awards in a blended event which includes at least ten (10) teams at both Elementary and Middle School levels. Both teams must meet the criteria established for the Excellence Award.

A team does not have to win the competition to receive the Excellence Award, but must at least be competitive in the Judge’s rankings.

**Determining the Excellence Award at Events**

Judges should start by selecting the top 5 or top 20%, whichever is larger, of the Design Award candidates using the Design Award process and rubrics outlined in this guide. These top teams should be considered the top candidates for the Excellence Award at the event.
To determine the final Excellence winner at an event, Judges should consider the following for each of these candidates:

- Quality of their Engineering Notebook and design process.
- Their on-field performance (i.e., are they in the top 10 ranked teams in the qualifying matches? and are they in the top 5 or top 20%, whichever is larger, of the teams in skills scores?). Judges should use the ranking reports from Tournament Manager or the VEX Via app.
- The team’s dynamics: is the team student-centered and do they exhibit good sportsmanship? Were they considered for other Judged awards?

**Deliberations**

The final decision on the Excellence Award winner should be qualitative based on what Judges have seen during their interactions with each of the teams and their observations at the event. **Judges will use their best judgment to choose the team they feel best exemplifies the best overall robotics program.** Judges should ask themselves if this team has meet the criteria to be considered an excellent team and does the team exemplify overall excellence. Would Judges want the team to be emulated by other teams?

The Judges’ final decision on the Excellence Award should include a team’s behavior, sportsmanship, and professionalism at the event. A team is composed of students, mentors, and adults at the competition. Judges may wish to use the “Field Note to Judges” form to help collect information on team sportsmanship. Teams must have an Engineering Notebook to be eligible for the Excellence Award.

There may occasionally be cases where judges should not award the Excellence Award to any team at the event. This may happen when either no teams submit an Engineering Notebook or when the only notebooks submitted are of a very poor quality.

In the case where no notebooks are submitted, there is clearly no team that meets the minimum Excellence requirement of submitting an Engineering Notebook and Judges should not award Excellence at the event.

Judges should recognize that notebooks will improve during the season and that early season notebooks will have less of the iterative design process included. However, even early in the season, notebooks should include documentation of the robot at its current state in the design process. Evidence of a team’s identifying the current challenge, brainstorming possible solutions and selection of an approach should be included. These three activities correlate to having addressed the first three criteria of the VEX IQ Engineering Design Notebook Rubric. If no notebooks at the event meet these criteria then the Excellence Award should not be given.

The idea here is to avoid recognizing a team as Excellent and worthy of emulation by all other teams at the event when no team has yet achieved this level. Judges should understand it is not to punish teams but to encourage teams to improve. It is expected that these occasional situations will only arise early in the season before teams have had time to organize themselves. In the event a team of Judges decides not to give out the Excellence Award, they should point out to teams that the VEX IQ Design Rubric and instructions in the front of the VEX IQ Notebook may be used as guides to help them develop their notebooks.

The idea is also to avoid the extreme case where only one or two teams turn in notebooks that consist of only a title page and little else as being recognized as Excellence winners. VEX IQ Judges should remember that students in this program will communicate their ideas differently than older students and that judging of notebooks should consider an age appropriate level of review.

A team does not have to win the VEX IQ Teamwork challenge to receive the Excellence Award, but must at least be competitive in the judge’s rankings.
At VEX Worlds, Excellence Awards will be offered at the Middle School and Elementary School levels. Only teams that have won the Excellence Award at a state/regional/provincial/national championship event and have submitted their Engineering Notebook will be considered for the VEX IQ Excellence Award at VEX Worlds.

Note: If an individual team receives the Excellence Award at VEX Worlds, then the award is given to that team’s school or organization, not just the single team. Schools or organizations that won the Excellence Award in the previous three years will not be eligible for the Excellence Award at VEX Worlds.

**Design Award**

The Design Award recipient demonstrates the ability to implement an effective and efficient robot design process. Their Engineering Notebook and discussion with the Judges will demonstrate the team’s ability to produce a quality robot with minimal adult assistance. Only teams that submit Engineering Notebooks are eligible for the Design Award.

Key criteria:

- Engineering Notebook is clear, complete, and organized document of the robot design process.
- Team demonstrates effective management of skills, time, and material resources.
- Students understand and explain how they developed an effective game strategy and robot design.
- Students demonstrate teamwork and effective communication skills.

**Design Award Rubric**

Judges will use the Design Award Rubric to evaluate the teams’ performance on the award criteria. Judging should be broken down to a two-step process. The first step identifies top contenders for the award and the second step determines the award winner. Using this process, it is not necessary for Judges to interview every team that submits an Engineering Notebook.

The first step is to collect all team notebooks during team check in. Judges should then use the first page of the Design Award Rubric to evaluate the quality of a team’s Engineering Notebook. Notebooks should be separated into several categories based on this evaluation. The categories may include beginning, intermediate and outstanding. This process allows Judges to identify teams that should be considered for follow up pit interviews using the second page of the rubric. The intent of this process is to allow Judges to identify top contenders for the Design Award efficiently. It allows Judges to identify the top 5 or 20% of teams (whichever is larger) as contenders for the Design Award based on their notebook.

The second step of the Design Award judging process is to use the second page of the rubric to evaluate the students’ understanding and application of an effective robot design process, as demonstrated in a team pit interview with Judges. The Design Award Rubric is found below. Rubrics are confidential judging documents and should not be returned to the team, coach, or Event Partner. Rubrics should be destroyed immediately after the Judge Advisor has recorded the winning team.

**Engineering Notebook**

One of the primary missions of the VEX IQ Challenge is to help students acquire real world life skills that will benefit them in their academic and professional future. The Engineering Notebook is a way for teams to document how the VEX IQ Challenge experience has helped them to better understand the engineering design process while also practicing a variety of critical life skills including project management, time management, brainstorming, and teamwork. Bound notebooks are preferred by Judges. Teams receive a bound Engineering Notebook when they register. Instructions and examples are included in the front of the notebook.
The Engineering Notebook is created through a concerted effort by a team to document their design decisions. Large events may send a Design Award winner to a state or regional championship, so teams should start their notebooks early and update them often.

Engineering is an iterative process whereby students recognize and define a problem, brainstorm and work through various stages of the design process, test their designs, continue to improve their designs, and continue the process until a solution has been identified. During this process, students will come across obstacles, encounter instances of success and failure, and learn many lessons. It is this iterative process that students should document in their Engineering Notebook.

The Engineering Notebook is an opportunity to document everything a team does throughout the design process. Students should include a number of items in their Engineering Notebook including:

- Team meeting notes as they relate to the design process
- Design concepts, sketches, and pictures
- Notes from competitions regarding observations that should be considered in the next iteration of their design
- Team members’ observations and thoughts on their design
- Team organization practices as they relate to their design process
- Programming improvements or major modifications
- Any other documentation that a team finds useful as related to their robot’s design

The team should also document their project management practices including their use of personnel, financial, and time resources.

A bound quad-ruled notebook is the preferred format. Teams are provided a notebook by the REC Foundation or may purchase their own bound notebook. The notebook should never be edited. The team number should be on the cover. Pages should never be removed from the Notebook even if they contain errors. The notebook should be written in ink with errors crossed out using a single line. Pages should be numbered, and entries should be dated in chronological order with each page signed or initialed by the students. Additional materials such as computer code or CAD drawings should be glued or taped into the notebook.

Judges will not accept electronic notebooks on lap tops, thumb drives, or cloud-based servers.

**Design Award at VEX Worlds**

Teams must have been awarded the Design or Excellence Award at a state/regional/provincial/national championship event to be eligible to be considered for the Design Award at VEX Worlds. Eligible teams will be asked to submit their Engineering Notebooks at check in. Teams with high quality Engineering Notebooks will be selected for Design Award interviews in the Team Pit Areas. Teams are not given scheduled sit-down interviews for the Design Award at VEX Worlds.

**STEM Research Project Award**

The STEM (Science, Technology, Engineering, and Mathematics) Research Project Award is presented to the team that shares the most effective STEM Research Project video presentation. This video presentation effectively demonstrates the students’ significant depth of understanding of their topic and research findings. The video will also highlight the students’ work in sharing what they learned in an effective format. Please note that the STEM Research Project is an optional award at local events; please check with your Judge Advisor or Event Partner to see if it is offered at your event. All events are expected to use the video format for the entire STEM research project judging process.

Teams research a topic of their choice that is related to the STEM theme for the season and share their findings with Judges in a four (4) minute video presentation. Judges use the rubric found in this guide to evaluate the team’s video presentation. For more details on the STEM Research Project, please visit: roboticseducation.org/competition-teams/vex-iq-challenge/.
Key criteria:
- Identifies a challenging topic of interest that relates to the STEM theme for the season
- Completes research and collects evidence using reliable sources
- Demonstrates a well-organized and documented process to study and explain research findings
- Describes how the research findings were applied to develop and test the solution
- Shares the solution in an effective and creative presentation
- Students demonstrate an understanding of the entire research process
- Students demonstrate teamwork and effective communication skills

Judges should use the attached STEM Research Project Rubric as a tool to evaluate teams’ project video presentations. Rubrics are confidential judging documents and should not be returned to the team, coach, or Event Partner. Rubrics should be destroyed immediately after the Judge Advisor has recorded the winning team.

**STEM Research Project Award for VEX Worlds**

To be eligible to submit a STEM Research Project for VEX Worlds, teams must have been awarded the STEM or Excellence Award at a state/regional/provincial/national championship event.

**Judges Award**

The Judges Award is presented to a team that the Judges determine is deserving of special recognition. Judges consider a number of possible criteria for this award, such as team displays of special attributes, exemplary effort and perseverance at the event, or team accomplishments or endeavors throughout the season that may not fit under existing awards, but are nonetheless deserving of special recognition.

**Technical Awards**

Detailed descriptions and criteria for other awards such as performance awards are available in the Awards Appendix at: roboticseducation.org/competition-teams/vex-iq-challenge/.

For large events that offer one or more Technical Awards (the Amaze, Build, Create, and Think Awards), use the VEX IQ Challenge Awards Scoring Sheet to evaluate your discussions with teams. After each team discussion, fill in the team number on a blank row, record scores for each of the award criteria columns, and use the ranking columns to keep track of the rank of the top 25% of teams for each award by adding tick marks to the new team and lower-ranked teams as directed.

The Amaze Award is presented to a team that has built an amazing high-scoring robot demonstrating overall quality. A solid mechanical design along with demonstrated robot programming, robustness, strong performance and consistency are key attributes assessed for this award.

Key criteria:
- Robot design is consistently high scoring
- Robot demonstrates a solid mechanical design, is robustly constructed to fulfill its designed task
- Robot programming is consistently effective and successful
- Students understand and explain how they worked together to develop their robot

The Build Award is presented to a team that has built a well-crafted and constructed robot.
Key criteria:
- Robot construction is of high quality; robust, clean, and effective use of materials
- Robot efficiently uses mechanical and electronic components
- Robot is designed with a clear dedication to safety and attention to detail
- Robot demonstrates reliability on the field and holds up under competition conditions
- Students understand and explain how they worked together to develop their robot

The **Create Award** is presented to the team whose robot design incorporates a creative engineering solution to the design challenges of the season’s game.

Key criteria:
- Robot has a well-crafted, unique design solution, which demonstrates creative thinking
- Team has demonstrated a highly creative design process and methodology
- Team has committed to ambitious and creative approaches to solving the game challenge
- Students understand and explain how they worked together to develop their robot

The **Think Award** is presented to a team that has successfully utilized high quality programming during competition. Teams must participate in the Autonomous skills challenge to be eligible for the Think award.

Key Criteria:
- All programming is cleanly written, well documented, and easy to understand
- Team has explained a clear programming strategy to solve the game challenge
- Team demonstrates their programming management process, including version history
- Students understand and explain how they worked together to develop their robot programming

**Other Judged Awards**

Detailed descriptions and criteria for other Judged awards are available in the Awards Appendix at: roboticseducation.org/competition-teams/vex-iq-challenge/.

Use the VEX IQ Challenge Awards Scoring Sheet to evaluate your discussions with teams.

The **Energy Award** is presented to a team that displays a high level of enthusiasm and passion at the event. VEX Worlds uses ballots for this award.

Key Criteria:
- Team maintains a high level of excitement and energy throughout the event
- Team’s passion for robotics enriches the event experience for others
- Students demonstrate teamwork and effective communication skills

The **Innovate Award** is presented to the team that has demonstrated the ability to implement an effective and efficient robot design process. Their Engineering Notebook and discussion with the Judges will demonstrate the team’s ability to produce a quality robot with minimal adult assistance. Only teams that submit Engineering Notebooks are eligible for the Innovate Award. This award will be given by Judges to a top contender for the Design Award. Note to Judges: the VEX IQ Innovate Award is intended to be given to a Design Award finalist to recognize their work.

Key criteria:
- Engineering Notebook is a clear, complete, and organized document of the robot design process
- Team demonstrates effective management of skills, time, and material resources
- Students understand and explain how they developed an effective game strategy and robot design
- Students demonstrate teamwork and effective communication skills

The **Inspire Award** is presented to a team that has inspired Judges with their approach to the VEX IQ program. This team will effectively communicate their passion for the VEX IQ program and maintain a
positive attitude throughout the event. The team will have a clear vision for their future and will participate with both a high level of integrity and good sportsmanship. This team demonstrates that they believe they can achieve what they set out to achieve through their diligence.

The **Sportsmanship Award** is presented to a team that earns the respect and admiration of the volunteers and other teams at the event. VEX Worlds uses ballots for this award.

Key criteria:
- Team is courteous, helpful, and respectful to everyone at the event, on and off the field
- Team interacts with others on the game field in the spirit of friendly collaboration
- Team demonstrates respect and willingness to help event staff, other teams, and spectators
- Team demonstrates excitement and enthusiasm throughout the event

**Individual Awards**

The **Volunteer of the Year Award** is presented to an individual who demonstrates commitment and devotion to their community, putting in many hours of hard work and passion to help make events happen. Usually, the event organizing committee or Event Partner will choose the winner of this award.

Robotics Education and Competition Foundation (REC Foundation) digital resources are made freely available for competition and team use if proper REC Foundation branding is upheld. Examples of acceptable use would be event partners or teams reproducing this document locally in preparing for events or for use in running events. Individual pages may be printed as needed provided their content is not modified.
Please use this sheet to check in Judges. Record each Judge’s name, email (in the event you want a follow up contact), cell phone number (to reach Judges during the event), and team affiliation (to avoid potential conflicts of interest).

<table>
<thead>
<tr>
<th>Name</th>
<th>Please provide your email</th>
<th>Please give a cell phone number that you may be contacted at during the event</th>
<th>Please list any team numbers you are affiliated with</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
Judges need to talk to students, not adults. Occasionally enthusiastic adults may want to answer the Judge’s questions. If this is encountered, politely remind the adult(s) that the Judges are there to meet with and learn from the students.

- Collect Engineering Notebooks from the team check in table and complete the appropriate section of the Design Award Rubric before meeting with teams.
- Be flexible in setting a discussion time with teams that coordinates with match schedules.
- Help put the students at ease for your discussions by asking them questions about their robot. This often helps students feel more comfortable in sharing their learning experiences.
- Try not to ask questions that allow the students to answer with a yes or no, and encourage the teams to elaborate on their answers.
- Be prepared to re-word your questions if the team is struggling to understand or answer. It is important to be mindful of this if the team or any of its members do not speak English as their first language.
- When talking to young children, take a knee and smile. This will get you on the students’ level and help make them comfortable.
- Include as many student team members in your discussion as possible.
- Being a Judge gives you a unique opportunity to impact students. They will be looking to you for positive reinforcement. Just a few words of encouragement can make their day.
- Demonstrate your full interest and involvement in discussions with students by refraining from distractions such as phone usage or side conversations.
- Taking a digital photo of each team with their robot oriented so that the license plate is visible will help you identify teams and robots during deliberations.
- Use the “sorry we missed you” note in the pit area for teams that you are having trouble locating.
- For large events, placing a colored adhesive dot on the team sign each time you meet with a team in the pit area will help you identify teams that have been spoken to by Judges.

Robot Challenge Sample Questions

These are some leading questions that are typically effective in helping students to express themselves:

- What does your robot do and how? Which team members built the robot?
- Did your team turn in an Engineering Notebook? When did you start making entries?
- How does your robot score points? How did you choose this robot design?
- What part of your robot are you most proud of? Why?
- Were there any other robots that inspired your robot design? How?
- What changes did you make to improve your design during the season?
- Did you use any sensors? What are they used for?
- What did you program your robot to do? How did you program it? Who did the programming?
- What problems did you have in working on your robot and how did your team solve them?
- If you had one more week to work on your robot, how would you improve it?
Judge’s Note to Missed Teams

Please use the note on the next page if you have been unable to find a team in their pit area after several attempts to interview them. This note may be left on a team’s pit table in an effort to make sure that all teams are interviewed at an event.
Dear VEX IQ Challenge Team Number ____________.

We are sorry we missed you.
The Judges have come by to interview your team.
They will come back at ________________________________

If you will NOT be available at this time please call _____________

We were here at:
Date: _______________ Time: _______________

Dear VEX Team number ____________.

We are sorry we missed you.
The Judges have come by to interview your team.
They will come back at ________________________________

If you will NOT be available at this time please call _____________

We were here at:
Date: _______________ Time: _______________
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Expert (3 points)</th>
<th>Proficient (2 points)</th>
<th>Emerging (1 point)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the challenge(s)</td>
<td>Describes the challenge at the start of each design process iteration in the design notebook.</td>
<td>Lists 1-2 possible approaches to the challenge.</td>
<td>Does not identify the challenge at the start of each design process iteration.</td>
</tr>
<tr>
<td>Brainstorm solutions</td>
<td>Explains why the selected approach was chosen and why the other alternatives were not chosen.</td>
<td>Documents the key steps to build, program and test the robot and the key test results.</td>
<td>Does not list the results of the brainstorming sessions.</td>
</tr>
<tr>
<td>Select the best approach</td>
<td>Selects the best approach for the team to accomplish the challenge.</td>
<td>Documents the key steps to build, program and test the robot and the key test results.</td>
<td>Does not explain why the selected approach was chosen.</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Describes the key steps to build, program and test the robot and the key test results.</td>
<td>Documents the key steps to build, program and test the robot and the key test results.</td>
<td>Leaves out important information about building, programming &amp; testing the robot.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Contains a complete history of the design process iterations for the robot design.</td>
<td>Contains a complete history of the design process iterations for the robot design.</td>
<td>Leaves out important information about building, programming &amp; testing the robot.</td>
</tr>
<tr>
<td>Clear Document of Robot Design Process</td>
<td>Contains detailed design drawings and specifications for the robot.</td>
<td>Contains a complete history of the design process iterations for the robot design.</td>
<td>Leaves out important information and is poorly organized.</td>
</tr>
<tr>
<td>Total Points</td>
<td>Total number of points earned from Notebook.</td>
<td>Total number of points earned from Notebook.</td>
<td>Total number of points earned from Notebook.</td>
</tr>
</tbody>
</table>

Rubrics are confidential judging documents and are not to be returned to the team, coach, or Event Partner. Rubrics should be destroyed immediately after the Judge Advisor has recorded the winning team.
# Design Award Rubric

## Robot Design Interview

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Expert (3 points)</th>
<th>Proficient (2 points)</th>
<th>Emerging (1 point)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Notebook is a clear, complete, and organized document of the robot design process</td>
<td>Students can explain clearly the robot design process and how they documented their use of the process in their Engineering Notebook</td>
<td>Students can explain most aspects of the design process and how they documented their use of the process</td>
<td>Students can explain only limited aspects of the design process and/or how they documented their use of the process</td>
<td></td>
</tr>
<tr>
<td>Team demonstrates effective management of skills, time, and material resources</td>
<td>Students can explain how team progress was tracked against an overall project timeline and how students were assigned to tasks based on their skills and availability</td>
<td>Students can explain how team progress was monitored and how students were assigned to tasks</td>
<td>Students cannot explain how team progress was monitored and/or how students were assigned to tasks</td>
<td></td>
</tr>
<tr>
<td>Students understand and explain how they developed an effective game strategy and robot design</td>
<td>Students can describe multiple game strategies and robot designs that were considered, and they can fully explain how and why the current game strategy and robot design were selected</td>
<td>Students can describe at least two strategies and designs that were considered, and can explain how or why the current strategy or design were selected</td>
<td>Students can only describe the current strategy and design, or they cannot explain how and why the current strategy or design were selected</td>
<td></td>
</tr>
<tr>
<td>Students demonstrate teamwork and effective communication skills</td>
<td>Students demonstrate high level of teamwork, fluency, and courtesy</td>
<td>Students demonstrate some teamwork, fluency, and courtesy</td>
<td>Students demonstrate limited teamwork, fluency, and courtesy</td>
<td></td>
</tr>
</tbody>
</table>

Describe the best features of this Robot Design Interview:

**Total the number of points earned from Student Interview and Discussion:**

**Total the number of points earned from Notebook:** (including bonus for bound notebook)

**Total the number of points combined:**

Rubrics are confidential judging documents and are not to be returned to the team, coach, or Event Partner; Rubrics should be destroyed immediately after the Judge Advisor has recorded the winning team.
Note Regarding Other Judged Awards

The Event Partner and Judge Advisor should determine which of the following two pages are to be used at an event and print them accordingly. Each score sheet is followed by descriptions of the awards from the Awards Appendix. Not all events will need all sheets.
### VEX IQ Challenge Awards Scoring and Ranking

#### Judge Guide

**Checklist suggestion for each interview:**
1. Write team number below.
2. First picture of team is the pit sign
3. Interview team
4. Robot picture include team number
5. Have team pick and place Judge dot on pit sign
6. Wish team success and say goodbye
7. Score each award
8. Adjust all award ranks using tick marks
9. Consider team for Judge Award (e.g. Special effort, perseverance, season accomplishments)

#### Division

<table>
<thead>
<tr>
<th>Team #</th>
<th>Amaze Award Ranking</th>
<th>Build Award Ranking</th>
<th>Create Award Ranking</th>
<th>Think Award Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Notes and Comments:
(continue on the other side)
The Judge Advisor should instruct Judges to fill out the score sheets as follows:

“Each time you meet a team, fill in a row of scores on each scoring and ranking sheet, then rank each team for each award. Compare each new team to the teams you ranked before. Give the new team the appropriate number of tick marks and add one tick mark to the rank of each lower-ranked team.

**Remember to look for Judges’ Award Candidates!** The Judges’ Award goes to a team the Judges decide is deserving of special recognition. Judges consider a number of possible criteria for this award, such as team displays of special attributes, exemplary effort and perseverance at the event, and team accomplishments or endeavors throughout the season that may not fall under existing awards but are nonetheless deserving of special recognition.”

The **Amaze Award** is presented to a team that has built an amazing, high-scoring robot that clearly demonstrates overall quality.

Key criteria:
- Robot design is consistently high scoring
- Robot demonstrates a solid mechanical design and is robustly constructed to fulfill its designed task
- Robot programming is consistently effective and successful
- Students understand and explain how they worked together to develop their robot

The **Build Award** is presented to a team that has built a well-crafted and constructed robot.

Key criteria:
- Robot construction is of high quality; robust, clean, and effective use of materials
- Robot efficiently uses mechanical and electronic components
- Robot is designed with a clear dedication to safety and attention to detail
- Robot demonstrates reliability on the field and holds up under competition conditions
- Students understand and explain how they worked together to develop their robot

The **Create Award** is presented to the team whose robot design incorporates a creative engineering solution to the design challenges of the season’s game.

Key criteria:
- Robot has a well-crafted, unique design solution, which demonstrates creative thinking
- Team has demonstrated a highly creative design process and methodology
- Team has committed to ambitious and creative approaches to solving the game challenge
- Students understand and explain how they worked together to develop their robot

The **Think Award** is presented to a team that has developed and effectively used quality program as part of their strategy to solve the game challenge.

Key criteria:
- All programming is cleanly written, well documented, and easy to understand
- Team has explained a clear programming strategy to solve the game challenge
- Team demonstrates their programming management process, including version history
- Students understand and explain how they worked together to develop their robot programming
STEM Research Project and Video Presentation

Teams will share the results of their STEM Research Project with VEX IQ Challenge event Judges in a creative and effective four (4) minute video presentation. Following the video there must be a 15 second credits section which includes the name of the entrant or entrants, the team number, the name of the video.

Team Name: ___________________________  Team Number: ___________________________

☐ Elementary  ☐ Middle  Judges: ___________________________

For details, review the STEM Research Project and Awards Appendix:

➢ www.roboticseducation.org/vex-iq-challenge/viq-current-game/

Directions: Mark the descriptor that best describes the team’s performance for each criterion.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Expert (3 points)</th>
<th>Proficient (2 points)</th>
<th>Emerging (1 point)</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifies a challenge topic of interest that relates to the STEM theme for the season</td>
<td>Challenge topic clearly identified, with a strong connection to the STEM theme for the season</td>
<td>Challenge topic identified, with some connection to the STEM theme for the season</td>
<td>Topic not identified and/or limited connection to the STEM theme for the season</td>
<td></td>
</tr>
<tr>
<td>Completes research and collect evidence using reliable sources</td>
<td>Provides evidence of thorough research using 3-5 reliable and credible sources</td>
<td>Provides evidence of research using 1-3 reliable sources</td>
<td>Provides evidence from no reliable sources</td>
<td></td>
</tr>
<tr>
<td>Demonstrates a well-organized and documented process to study/explain research findings</td>
<td>Demonstrates highly organized and well documented process to study and explain the research data</td>
<td>Demonstrates some organization and documentation of the project</td>
<td>Demonstrates little to no documentation of the project</td>
<td></td>
</tr>
<tr>
<td>Describes how the research findings were applied to develop and test the solution</td>
<td>Demonstrates an in-depth understanding of the application of the research to develop and test the solution</td>
<td>Demonstrates some understanding of the application of the research to develop and test the solution</td>
<td>Demonstrates little to no application of research to develop and test the solution</td>
<td></td>
</tr>
<tr>
<td>Shares the solution in an effective and creative high quality video</td>
<td>Video provides clear, effective, and creative explanation of how solution was developed and how it works</td>
<td>Video provides adequate explanation of how the solution was developed and how it works</td>
<td>Video lacks detail needed to understand the team’s solution</td>
<td></td>
</tr>
<tr>
<td>Students demonstrate an understanding of the research process</td>
<td>All students demonstrate mastery of the research process</td>
<td>Most students demonstrate some understanding of the research process</td>
<td>Students demonstrate little or no understanding of the research process</td>
<td></td>
</tr>
<tr>
<td>Students demonstrate teamwork and effective communication skills in a student produced video</td>
<td>All students demonstrate high levels of cooperation, courtesy, enthusiasm, confidence, accuracy, and clarity</td>
<td>Students demonstrate some cooperation, courtesy, enthusiasm, confidence, accuracy, and clarity</td>
<td>Students demonstrate limited cooperation, courtesy, enthusiasm, confidence, accuracy, and clarity</td>
<td></td>
</tr>
</tbody>
</table>

Describe the best features of this video presentation.
(Continues on back of sheet)

Add a 3-point bonus for staying within the 4-minute allotted time and including up to 15 seconds of appropriate credits.

Total Points

NOTE: This is a confidential judging document. It should not leave the Judge’s room after a competition. Return to the Judge Advisor for disposal.
Standard Award Descriptions
for Judges’ Room

The following pages contain VEX IQ Challenge award descriptions for use by Judges in the Judging Room. They list key criteria for each award and are useful in guiding the Judges’ deliberations.

Not all events will give out all awards. Each Judge Advisor should consult with their Event Partner to determine which awards will be given out at an event. The Judge Advisor may then print the award descriptions that will be used for a specific event.

Judge Advisors may wish to print these descriptions in color and then laminate them or place them in plastic sheet protectors for use at multiple events.
Excellence

Demonstrates overall excellence in all components of the VEX IQ Challenge

Key Criteria:
- Design Award ranking
- Teamwork Challenge Qualification Matches ranking
- Robot Skills Challenge ranking
- Other judged award rankings
- High quality VEX robotics program
DESIGN

Implemented the most effective and efficient robot design process

Key Criteria:

- Engineering Notebook is a clear, complete, and organized document of the robot design process
- Team demonstrates effective management of skills, time, and material resources
- Students understand and explain how they developed an effective game strategy and robot design
- Students demonstrate teamwork and effective communication skills
Judges Award

Deserving of special recognition from the Judges

Possible Criteria:

- Team displays special attributes
- Exemplary effort and perseverance at the event
- Team accomplishments or endeavors throughout the season that may not fit under existing awards, but are nonetheless deserving of special recognition.
Built an amazing, high-scoring robot that demonstrates overall quality.

Key Criteria:
- Robot design is consistently high scoring.
- Robot demonstrates a solid mechanical design and is robustly constructed to fulfill its designed task.
- Robot programming is consistently effective and successful.
- Students understand and explain how they worked together to develop their robot.
Built a well-crafted and constructed robot

Key Criteria:

- Robot construction is of high quality; robust, clean, and effective use of materials
- Robot efficiently uses mechanical and electronic components
- Robot is designed with a clear dedication to safety and attention to detail
- Robot demonstrates reliability on the field and holds up under competition conditions
- Students understand and explain how they worked together to develop their robot
CREATE

Robot design incorporates creative engineering solution to game challenge

Key Criteria:

- Robot has a well-crafted, unique design solution, which demonstrates creative thinking
- Team has demonstrated a highly creative design process and methodology
- Team has committed to ambitious and creative approaches to solving the game challenge
- Students understand and explain how they worked together to develop their robot
ENERGY

Displays a high level of enthusiasm and passion at the event

Key Criteria:

- Team maintains a high level of excitement and energy throughout the event
- Team’s passion for robotics enriches the event experience for others
- Students demonstrate teamwork and effective communication skills
THINK

Developed and effectively used quality programs in their game strategy

Key Criteria:

- All programming is cleanly written, well documented, and easy to understand
- Team has explained a clear programming strategy to solve the game challenge
- Team demonstrates their programming management process, including version history
- Students understand and explain how they worked together to develop their robot programming
Inspire

Team that inspires Judges with their passion

Key Criteria:
- Team effectively communicates passion for the VEX IQ program
- Team maintains a positive attitude throughout the event
- Team has a clear vision of its future
- Team participates with a high level of integrity and sportsmanship
- Students demonstrate teamwork and effective communication skills
SPORTEMSHIP

Earned the respect and admiration of the volunteers and teams at the event

Key Criteria:

- Team is courteous, helpful, and respectful to everyone at the event, on and off the field
- Team interacts with others on the game field in the spirit of friendly collaboration
- Team demonstrates respect and willingness to help event staff, other teams, and spectators
- Team demonstrates excitement and enthusiasm throughout the event