



ROBOTICS EDUCATION & COMPETITION FOUNDATION

VRC Judge Guide

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Overview

Thank you for volunteering to help make the VEX Robotics Competition a success. 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.

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 should not 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 interview every team at an event** regardless of the team's status in terms of contention for a Judged award or notebook submission.

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 that 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.

New This Year

Major changes to this year's version of the Judge Guide include:

- Removed pre-submission requirement for Excellence at the VEX Robotics World Championship
- Updated the Design Award process at local events to include quick review of notebooks and identification of top contenders for Design and Excellence
- Changed process for determining Excellence at larger events
- Deleted the Excellence Calculator
- Added a statement on the Judge's room
- Added note on completion of awards before semifinals at an event
- Added note that only Judges are to make decisions on Judged awards at an event
- Added note on need for a separate Judge's room
- Added a simple method to determine Think Award at an event
- Included additional judging documents with this guide rather than posting them separately online

Examples of this may include:

- Robots built entirely by adults or, in the case of younger students, mentors (i.e., high school students building robots for 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 such 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 organizing committee 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 Robotics Competition program. For this reason, Judges will consider all team conduct by students and/or adults when determining award recognition at VEX Robotics Competitions.

The 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 teams 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 at the end of this guide.

The Competition: Robot matches take place on the competition floor in a 12' x 12' competition field. Rounds last 2 minutes, including a 15-second autonomous period, and are scored by Referees. Teams typically have one practice round, and then qualification rounds, followed by the elimination rounds. The competition floor is a great place to see the teams in action and to evaluate how well their robots perform. Judges who spend time viewing the competition can validate statements made by teams during student interviews and discussions. Be certain to ask your Judge Advisor if there is time allocated for this activity. In addition, you can get a great idea of a team's sportsmanship, energy, and enthusiasm while observing teams on the competition field. For robot game details, please visit:

roboticseducation.org/competition-teams/vex-robotics-competition/

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

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

Judge Responsibilities

Judges are in a position of trust at VRC 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.
- Do not be alone with students. Always work with at least one other Judge and two or more students 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 Game Video, Game Description, and/or the Game Manual at: roboticseducation.org/competition-teams/vex-robotics-competition/
 - 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, awards on 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 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.

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 your discussions with teams.
- For large events that offer one or more Technical Awards or Other Judged Awards, use the VEX Awards Scoring and Ranking Sheet to evaluate your discussions with teams.
- Conduct student interviews and discussions with teams in the Team Pit Area. 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 “Judge note to missed teams” form on their pit table. Judge Advisors 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 provided at the end of this guide.
- Take notes to support your team evaluations and Judge deliberations. Ensure that your notes are not included on the rubric forms and 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 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 achieve 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 should not 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.

Judge Training

The Judge Advisor or Event Partner will arrange for some form of Judge training. Typically, this training will involve reviewing 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 to all Judges, Judge Advisors, and Event Partners. For the Judge training materials, please visit: roboticseducation.org/volunteers/volunteer-resources/.

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

Judging Schedule

The entire judging process will take place during the competition. When scheduling teams of Judges, it is recommended that each judging team visit one team every 10-15 minutes. Judges should meet with a wide enough selection of teams to get a good basis of comparison. The Judge Advisor will provide a list of teams that each judging team is responsible for interviewing, and the match schedules when these become available.

This sample schedule is typical for a tournament with 24-36 teams.

Sample Schedule	
7:30 – 8:00 a.m.	Judge Advisor reviews training materials and then makes assignments
8:00 – 9:45 a.m.	Judges arrive, receive training, review Engineering Notebooks, and begin interviews for assigned teams
9:45 – 10:00 a.m.	Attend Opening Ceremonies
10:00 – 11:30 a.m.	Teams of Judges complete initial interview of assigned
11:30 – 12:00 p.m.	Return to judging room and each panel of Judges identifies their top candidates for each award. (Use post-it notes to list teams)
12:00 – 1:00 p.m.	Lunch Break -Initial deliberation on top candidates for awards
1:00 – 2:00 p.m.	Judges observe teams in pit area and on field and return to competition field to do follow up interviews and observation as necessary to complete rank ordering for each award category. If possible, all Judges should have an opportunity to visit with top contenders for each award.
2:00 – 3:00 p.m.	Judges return to Judge room to conduct final deliberations and determine award winners.
3:00 – 3:30 p.m.	Judge Advisor oversees entry of team numbers for all award winners into Tournament Manager. This should be completed no later than the last quarter-finals match.
3:30 – 6:00 p.m.	Attend finals and award ceremony (speak to your Judge Advisor if you have other obligations that require you to leave).

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 Judges for the event. Judges in VRC are to be adults. Good sources of Judges include local school administrators, local businessmen with interests in technology or engineering, VEX U college students and local service organizations. The Event Partner and Judge Advisor consider the number of participating teams when recruiting Judges and setting the schedule.

The Judge Advisor manages time and resources, potential conflicts of interest, and a deliberative decision-making process that determines the 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 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 not discuss 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 after the event.

Judging Materials

The following is a list of suggested materials for the Judge Advisor and 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/

VRC Judging Materials	
• VRC Judge Guide (this document)	• Awards Appendix C
• Design Award Rubrics (one per team)	• List of awards to be offered at the event
• List of Judges	• List of teams (provided by EP)
• Judge name tags or ID badges	• Match list by team # (provided by EP)
• Post-it notes, pens & highlighters	• Transparent tape and/or painter's tape
• Clipboards and pens	• Map of the event/pit area (if available)
• Standard Award Descriptions to be posted in the Judges Room	• Student Interview and Discussion Tips – one copy per Judge
• VEX Awards Scoring and Ranking Sheet (one per team if other Judged awards are offered)	• Awards Ceremony Scripts printed from Tournament Manager
• Colored dots to mark pit signs	• Event Program (if available)
• Tables for Judge Advisor, judging materials, and Judge deliberation	

The following trophy packs may be purchased by the Event Partner for use at events:

VRC Trophy Packs		
Qualifying Event Trophy Pack	Additional Trophy Pack	Championship Event Trophy Pack
Trophies Included: (7) 10" Trophies	Trophies Included: (5) 10" Trophies	Trophies Included: (7) 12" Trophies
Award Plates Included: (1) Excellence (2) Tournament Champion (1) Design (1) Judges (1) Robot Skills Champion (1) Volunteer of the Year (7) Date Plate	Award Plates Included: (2) Tournament Finalist (1) Innovate (1) Amaze (1) Think (5) Date Plate	Award Plates Included: (1) Excellence (2) Tournament Champion (1) Design (1) Judges (1) Robot Skills Champion (1) Volunteer of the Year (7) Date Plate

* Event Partners receive this trophy pack free as part of the VRC Event Support Bundle.

* This pack is available for state/provincial/regional/national championship events.

Trophies may also be ordered individually at <http://www.vexrobotics.com/event-partners/vrc-trophy.html>.

Awards Overview

Awards are to be spread as equitably as possible among the teams, with no team winning more than one Judged award. A team may win robot performance awards (Tournament Champion or Robot Skills awards) in addition to Judged awards, but no one team should win more than one Judged award. Individual awards given to coaches and mentors do not affect a team's eligibility for a Judged 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 and which awards qualify teams to move to either state/regional events or VEX Worlds.

Standard Awards offered at most events:

Award	Basic Criteria	Judged	Performance
Excellence	Top All Around Team	✓	✓
Tournament Champion	Winning Alliance (2 teams)		✓
Design	Team with a professional design approach	✓	
Robot Skills Champion	Top Skills Challenge Team		✓
Judges	Team that deserves special recognition for efforts leading up to, and during, the event	✓	
Volunteer of the Year	Recognized Event Volunteer	✓	

Additional Awards offered at larger events:

Award	Basic Criteria	Judged	Performance
Tournament Finalist	Finalist Alliance (2 teams)		✓
Amaze	Team with an amazing, well-rounded and top performing robot	✓	
Build	Team with a well-crafted robot	✓	
Create	Team with creative engineering solution	✓	
Energy	Team with extraordinary enthusiasm	✓	
Innovate	Team that exemplifies thinking outside of the box and innovative engineering design	✓	
Think	Team with an impressive and effective autonomous programming	✓	

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

Award	Basic Criteria	Judged	Performance
Robot Skills 2nd Place	2nd place Skills Challenge Team		✓
Robot Skills 3rd Place	3rd place Skills Challenge Team		✓
Community	Team with extraordinary community involvement and awareness	✓	
Inspire	Team that has inspired Judges with their approach to competitive robotics	✓	
Service	Team that goes above and beyond to assist other teams at an event	✓	
Sportsmanship	Team that is extremely courteous and most enthusiastic throughout the event	✓	
Teamwork	Group with multiple teams competing and communicating together	✓	
Mentor of the Year	Recognized Volunteer Team Mentor	✓	
Partner of the Year	Recognized Event Sponsor/Supporter	✓	
Teacher of the Year	Recognized Team Teacher	✓	
Inspiration All-Star	Recognized Adult STEM All-Star (given at VEX Worlds)	✓	

Excellence Award

The Excellence Award is the highest award presented in the VEX Robotics Competition. This award is presented to a team that exemplifies overall excellence in building a high quality VEX Robotics program. This team is a strong contender in numerous award categories. Excellence winners must have submitted an Engineering Notebook.

Key criteria:

- Design Award ranking
- Tournament Qualification Matches ranking
- Robot Skills Challenge ranking
- Other Judged Award rankings
- High quality VEX Robotics program

Some events may offer two Excellence Awards, one for the top overall Middle School team and one for the top overall High School team, if they have at least ten (10) teams in each group.

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 5 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? Where 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 met 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 submit 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 review of the current game in terms of robot functions, brainstorming and preliminary designs should be included. These three activities correlate to having addressed the first three criteria of the Engineering Design Notebook Rubric. If no notebooks at the event meet this 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 Design Rubric and instructions in the front of the VEX 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 a title page and little more being recognized as Excellence winners.

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

Excellence Award at VEX Worlds

Teams must have been awarded the Excellence Award at an official state/regional(multi-state)/provincial/national championship event or a REC Foundation designated signature event during the current competition year to be eligible for Excellence at VEX Worlds. Teams must submit their Engineering Notebook to be considered for the Excellence Award at VEX Worlds.

If an individual team from a school or organization receives the Excellence Award at VEX Worlds, then the award is given to the entire organization, not just the single team. Each qualified team will be given a single Excellence Award interview slot. Schools or organizations with more than one eligible team will be given one Excellence interview slot with the score from the interview shared by all eligible teams from the school or organization.

Team interview schedules will be sent via email to eligible teams the week of Worlds. Teams should ensure that they have listed a contact email in their RobotEvents.com account that they may access at the event.

Online Challenges are not required for teams to be eligible at VEX Worlds. Judges will however consider them as part of the overall team evaluation if they are submitted.

Design Award

The **Design Award** is presented to a team that demonstrates an organized and professional approach to the design process, project and time management and team organization. Only teams that submit Engineering Notebooks are eligible for the Design Award.

Key criteria:

- Engineering Notebook is a clear, complete document of the team's design process
- Team is able to explain their design and strategy throughout the season
- Team demonstrates personnel, time and resource management throughout the season
- Teamwork, interview quality, and team professionalism

VRC Design Award Rubric

Judges must use the Design Award Rubric to evaluate the teams' performance on the award criteria. A record of all teams submitting notebooks shall be kept by the Judge Advisor. Notebooks shall be collected during team check in and brought to the Judges' room for evaluation.

Judges may wish to perform a quick review of notebooks to separate notebooks into two categories: developing and fully developed.

- Developing team notebooks are often turned in by new teams that have not yet developed a strong VRC program. Mentors of these teams are often developing the idea of using a notebook and are having their teams turn in the notebook as part of this process. These notebooks are not going to be contenders for the Design Award. Judges may choose to not use a rubric to evaluate these notebooks to save time. However, these notebooks should be retained in the event they contain information that may affect decisions in other award categories, such as the Think Award (if applicable).
- Fully developed teams are often veterans of several seasons or participate in programs with a strong emphasis on notebooks. These Engineering Notebooks are more likely to be contenders for the Design Award and should be evaluated using the first page of the Design Rubric.

Judging teams with fully developed notebooks may be broken down to a simple 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.

Once Judges have identified fully developed notebooks using a quick review, they should then use the first page of the Design Award Rubric to evaluate the quality of a team's Engineering Notebook. The Design Rubric may be found at the end of this guide. Notebooks should be separated into two categories based on this evaluation: intermediate and outstanding. This process allows Judges to identify the final teams that will be considered for follow up pit interviews. The intent of this process is to allow Judges to identify top 5 or 20% of teams (which ever is larger) as contenders for the Design Award efficiently 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 top 5 (or 20%) teams' understanding and application of an effective robot design process during a team pit interview with Judges. The outcome of these interviews should be used to rank the top 5 (or 20%) contenders for the Design and Excellence Awards. The Design Award Rubric is found below.

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

Engineering Notebooks

One of the primary missions of the VEX Robotics Competition 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 Robotics Competition 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 and are given a 3-point bonus on the Design Rubric. Teams receive bound Engineering Notebook when they register. Instructions and examples are included in the front of the notebook.

Each notebook is created through a concerted effort by a team to document their design decisions. Large events may send a Design Award winner as well as the Excellence 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:

- A table of contents
- 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
- Programming improvements or significant modifications
- Team members' observations and thoughts on their design
- Team organization practices as they relate to their design process
- 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. The Engineering Notebook provided by the REC Foundation with team registrations includes hints and examples of good notebook practices. Teams may use the notebook provided or purchase their own bound notebook. The team number should be on the cover. The notebook should never be edited. 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 examples of computer code or CAD drawings should be glued or taped into the notebook.

The question of what is a 'bound' Engineering Notebook often arises. To be considered bound for the purposes of the VRC program, a notebook must have been bound prior to any entries being made in it. Teams concerned with the definition of a bound notebook are urged to simply use the VEX Engineering Notebook they were supplied with upon registering their team or an equivalent notebook.

Judges will not accept electronic notebooks on lap tops, thumb drives, or cloud-based servers. Teams will be interviewed in their pit area during local and state competitions.

Design Award at VEX Worlds

Teams must have been awarded the Design or Excellence Award at a state/regional/provincial/national level championship event to be eligible for Design at VEX Worlds. Eligible teams will be notified during the weeks prior to Worlds to submit their Engineering Notebooks at check in on **Wednesday**. Those notebooks will be reviewed and teams with the highest rated Engineering Notebooks will be selected for Design Award interviews in the team Pit Areas. Judges will complete the second page of the Design Award Rubric following each interview. Judges will use the completed Rubrics to help determine the Design Award winners. Teams are not given scheduled sit down interviews for the Design Award at VEX Worlds.

Award Description and Criteria for Other Judged Awards

Not all awards will be offered at all events. Please check the event listing on robotevents.com or consult your tournament organizer or Judge Advisor to confirm which awards will be offered at your event. The following is a list of awards commonly offered at local qualifying events.

Most of these awards are Judged using the VEX Awards Scoring Sheet, which is available at the end of this guide.

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

Key criteria:

- Robot design is consistently high-scoring and competitive
- Robot demonstrates a solid mechanical design and is robustly constructed to fulfill designed task
- Robot programming and autonomous mode are consistently effective and successful
 - Judges should consider the integration of sensors for use in both autonomous and driver-controlled mode
- Teamwork, interview quality, and team professionalism

The **Build Award** is given to a team that has built a well-crafted and constructed robot that also shows a clear dedication to safety and attention to detail.

Key criteria:

- Robot construction is of professional quality; robust, clean and elegant use of materials
 - Solid construction (robot doesn't "wobble")
 - Robust drive train and mechanisms
 - Subsystems cleanly integrated, thought out and purposeful
- Robot efficiently uses mechanical and electrical 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
- Teamwork, interview quality, and team professionalism

The **Create Award** is earned by a team that has a robot design that incorporates a creative engineering solution to the design challenges of this season's game.

Key criteria:

- Robot is a well-crafted, unique design solution, demonstrating creative thinking
- Team has demonstrated a highly creative engineering design process and methodology
- Team has committed to ambitious and creative approaches to playing the game
- Teamwork, interview quality, and team professionalism

The **Energy Award** is based on team enthusiasm displayed at the event. The winning team will demonstrate boundless passion and energy throughout the competition – in the pit area, on the field, and in the audience, even when their robot is not playing.

Key criteria:

- Team maintains a high level of excitement and energy throughout the event
- Team's passion for competition and robotics enriches the event experience for others
- Teamwork, interview quality, and team professionalism

The **Innovate Award** is presented to a team that has demonstrated a strong combination of ingenuity and innovation in designing their VEX robot. This award will typically recognize a specific, unique piece of engineering that exemplifies thinking outside of the box and innovative engineering design. This robot feature should also be a part of the engineering design solution that solves the complex problems presented by the VRC game.

Key criteria:

- Robot design demonstrates an ingenious and innovative piece of engineering
- Innovative feature is soundly crafted and is an effective solution to a design problem
- Innovative solution is integrated as a part of an overall well-crafted robot
- Students understand and explain why the innovative feature was necessary
 - The award is not meant to recognize innovation for the sake of innovation, rather innovation for the sake of excellence
- Teamwork, interview quality, and team professionalism

At VEX Worlds the Innovate Award will be presented to a top contender for the Design Award.

The **Inspire Award** is presented to a team that has inspired Judges with their approach to competitive robotics. This team will effectively communicate their passion for the VRC 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 **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.

The **Sportsmanship Award** is presented to a team that has earned 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 treats others on the playing field in the spirit of friendly competition and cooperation
- Team demonstrates respect and willingness to help to event staff and spectators
- Team demonstrates excitement and enthusiasm throughout the event

The **Think Award** is presented to a team that has successfully utilized autonomous programming modes 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
- Team's autonomous code is consistent and reliable
 - Use of advanced programming techniques and/or sensors to control motion
 - Multiple autonomous modes
 - A simple mode which works consistently is preferred over an exaggerated mode which only works occasionally
- Teamwork, interview quality, and team professionalism

A simple way for Judges to evaluate teams for the Think Award is to watch the first two to three cycles of qualifying matches and recording what each team does during the autonomous portion of the match. Teams that consistently perform well during the autonomous portion of the match may be considered as finalists for Think. Judges should then check the team notebook to see if there is documentation of the team's software development. This does not necessarily mean every line of code ever developed is in the notebook, but rather that the team has documented the process of creating their code and included examples of their code in their notebook.

The **Volunteer of the Year Award** is presented to an individual who demonstrates a commitment and devotion to their community, putting in many hours of hard work with persistence and passion to help make the event happen. In most cases, the local organizing committee or the 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).

[illegible]

Student Interview and Discussion Tips

- Review the Engineering Notebooks and complete the appropriate section of the Design Award Rubric before meeting with teams.
- Be prepared to re-word your questions if you find that the team is struggling to understand or answer. It is important to be mindful of this point if the team or any of its members do not speak English as their first language.
- Try not to ask questions that allow the teams to answer with a yes or no, and encourage the teams to elaborate on their answers.
- The students may be nervous. A tournament can be a stressful experience. Asking them questions about their robot can help to put them at ease.
- Judges need to talk to students, not adults. Occasionally enthusiastic adults will want to answer a Judge's questions. In this case, the Judge should politely remind the adult that Judges are there to talk with the students and that input from adults is not considered.
- When talking to young children, take a knee and smile. This will get you on the students' level and help make them comfortable.
- Try to include as many student team members in your interview 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. Try to leave each team with a positive feeling about their performance at the event.
- 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 provided "sorry we missed you" note in the pit area for teams that you can't locate.
- 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.

Sample Questions

Getting the students talking is sometimes a harder task than it may seem. Here are some standard questions that are typically effective in helping to get students to express themselves:

- Tell me about what your robot does and how?
- Did you turn in an Engineering Notebook? When did you start making entries?
- What part of your robot are you most proud of? Why?
- What were the challenges of this year's game that you considered before designing your robot? How did you design your robot to meet those challenges?
- Has your approach to the game been effective? Why do you think your approach to the game has been effective?
- What does your robot do in autonomous mode? Who programmed it?
- What makes your robot effective at playing this year's game?
- Did you use any sensors? What are they used for? How do they operate in your autonomous mode? How do they operate in your driver-controlled mode?
- Based on your robot's performance so far, what would you like to improve?
- Were there any other robots that inspired your robot design?
- How many subsystems does your robot have? Who was responsible for integrating them?



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.



Judge's Note to Missed Teams



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: _____

Judge's Note to Missed Teams



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: _____

Design Award Rubric

(1 of 2)

Team # _____
 Judges _____

Directions: Mark the descriptor that best describes the team's performance for each criterion. Write the best features of the team's Engineering Notebook and Student Interview and Discussion on the back of this page.

Engineering Notebook: The notebook...			See Student Interview and Discussion Criteria on Next Page	
Criteria	Expert (3 points)	Proficient (2 points)	Emerging (1 point)	Points
Design Process: Challenge	Describes the challenge at the beginning of the notebook with words and pictures and states the teams' goals toward accomplishing that challenge.	Identifies the challenge at the beginning of the notebook.	Neglects to clearly identify the challenge.	
Design Process: Brainstorming	Generates an extensive list of possible approaches to the challenge with labeled diagrams.	Provides an extensive list of possible approaches to the challenge.	Contains a very short list or does not list the results of the brainstorming sessions.	
Design Process: Select Approach	Explains why the selected approach was chosen and why the other alternatives were not chosen.	Explains why the selected approach was chosen.	Does not document why the team selected the approach they did.	
Design Process: Build & Program	Records the building and programming process in such detail that someone outside the team could recreate the robot by following the steps in the notebook.	Documents the key steps in the process of building and programming.	Seems to skip some important steps in the process of building and programming the robot.	
Test & Redesign	Describes in great detail the process of troubleshooting, testing, and redesigning through all iterations (cycles) of the process.	Captures the key results of the troubleshooting, testing, and redesign cycle.	Leaves out important information about the troubleshooting, testing and redesign cycle.	
Usefulness	Is such a detailed account of the team's design process that the reader could recreate the project's history. It is a useful engineering tool. It contains evidence that team made decisions about design process based on previous entries. The team can explain why the notebook is organized the way it is.	Is a complete record of the process, documenting the key events of each work session. It is organized in a way that any team member can locate needed information.	Is missing, or lacks the detail needed for the reader to understand the team's history, and/or is not organized in a way that an outsider can make sense of it.	
Resources	Shows the team's efficient use of time with an overall project timeline. The team uses checkpoints to help them know how well they are staying on schedule and readjusts their schedule as needed. The notebook illustrates the good use of human resources by assigning members roles based on their strengths.	Documents the team's efficient use of time with planning and goal-setting for each day's session. It shows that the team used its human resources wisely by assigning members specific tasks.	Does not provide evidence of the team's wise use of the team's time or talents.	
Teamwork	Provides evidence that all team members were consistently involved in the process, that individual team members were self-directed enough to finish what needed to be done, and that all team members consistently shared ideas and respectfully considered each other's input.	Shows that all team members' were involved in the process, that members could be counted on because they did what they were supposed to, and that the whole team shared ideas and supported ideas of others.	Suggests that perhaps some team members did most or all the work, that one or more individuals had to be nagged or reminded to do their work, and/or that some team members did not contribute ideas or that their ideas were not considered.	
	Total the number of points earned from Notebook (Add 3 pts for a bound notebook & enter the number on page 2 of this rubric):			

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.

Design Award Rubric

(2 of 2)

Team # _____
 Judges _____

Student Interview and Discussion: During the interview ...			See Engineering Notebook Criteria on Previous Page	
Criteria	Expert (3 points)	Proficient (2 points)	Emerging (1 point)	Points
Design Process	Students describe the goals of the design process and how the team accomplished the challenge.	Students provide possible goals of the design process but do not clearly identify how team accomplished the challenge.	Students neglect to identify any goals of the design process and cannot describe how the team accomplishes the challenge.	
Design: Methods & Strategies	Students describe multiple design methods and strategies considered; explaining both how and why the current design strategy was selected	Students only describe their current design methods and strategy; explaining only one of either how or why the current design strategy was selected	Students do not describe any of the design methods or strategies considered; do not explain why or how the current design strategy was selected	
Team Work: Contributions	Students explain how each team member contributed to the design and strategy.	Students explain how some team members contributed to the design and strategy.	Students only explain how 1-2 members contributed to the design and strategy.	
Interview: Individual Contributions	All students independently answer the Judges' questions.	Students support each other as needed to answer the Judges' questions.	Students rely on one or two members to answer all the questions.	
Interview: Professionalism	Students present their answers in a respectful and courteous manner to the Judges and other team members, making sure each team member has a chance to contribute and waiting to speak until the other person has finished.	Students present their answers in a respectful and courteous manner to either the team members or the Judges.	Students do not present themselves in a respectful and courteous manner.	
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:				

The REC Foundation thanks Northeastern State University, Oklahoma teacher training program for developing this rubric.

Comments:

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.

The Event Partner and Judge Advisor should determine which of the following 4 pages are to be used at an event, if at all, 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.

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.”

Division		Judge		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)	Notes and Comments: <i>(continue on the other side)</i>
Think Award Ranking		Think			
Autonomous code consistent and reliable	Explains dear autonomous strategy	Autonomous code effective/clean/well-defined			
Create Award Ranking		Create			
Well-crafted, unique design, creative thinking	Highly creative design process & methodology	Committed to ambitious & creative game play			
Build Award Ranking		Build			
Professional construction, robust, clean, elegant	Efficient use: mech. & elect. components	Attention to competition hazards & rigors			
Amaze Award Ranking		Amaze			
Teamwork, interview quality, professionalism	Robot design, high scoring, competitive	Consistently successful autonomous	Robustly constructed, fulfills designed task		
Score each criteria cell 1 to 5, (5 is best)	Adjust Ranks after each interview	Use tick marks. (1 tick mark is best)			
Team #	All				

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.

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Key criteria:

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 - Integration of sensors for use in both autonomous and driver-controlled mode
- Teamwork, interview quality, and team professionalism

The **Build Award** is given to a team that has built a well-crafted and constructed robot that also shows a clear dedication to safety and attention to detail.

Key criteria:

- Robot construction is of professional quality; robust, clean and elegant use of materials
 - Solid construction (robot doesn't "wobble")
 - Robust drive train and mechanisms
 - Subsystems cleanly integrated, thought out and purposeful
- Robot efficiently uses mechanical and electrical 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
- Teamwork, interview quality, and team professionalism

The **Create Award** is earned by a team that has a robot design that incorporates a creative engineering solution to the design challenges of this season's game.

Key criteria:

- Robot is a well-crafted, unique design solution, demonstrating creative thinking
- Team has demonstrated a highly creative engineering design process and methodology
- Team has committed to ambitious and creative approaches to playing the game
- Teamwork, interview quality, and team professionalism

The **Think Award** is presented to a team that has successfully utilized autonomous programming modes during competition.

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
- Team's autonomous code is consistent and reliable
 - Use of advanced programming techniques and/or sensors to control motion
 - Multiple autonomous modes
 - A simple mode which works consistently is preferred over an exaggerated mode which only works occasionally
- Teamwork, interview quality, and team professionalism

[illegible]

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 **Innovate Award** is presented to a team that has demonstrated a strong combination of ingenuity and innovation in designing their VEX robot. This award will typically recognize a specific, unique piece of engineering that exemplifies thinking outside of the box and innovative engineering design. This robot feature should also be a part of the engineering design solution that solves the complex problems presented by the VRC game. The design process of innovative features must be evident and well documented in the team's Engineering Notebook.

Key criteria:

- Robot design demonstrates an ingenious and innovative piece of engineering
- Innovative feature is soundly crafted and is an effective solution to a design problem
- Innovative solution is integrated as a part of an overall well-crafted robot
- Students understand and explain why the innovative feature was necessary
- Teamwork, interview quality, and team professionalism

The **Sportsmanship Award** is presented to a team that has earned 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 treats others on the playing field in the spirit of friendly competition and cooperation
- Team demonstrates respect and willingness to help event staff, other teams and spectators
- Team demonstrates excitement and enthusiasm throughout the event

The **Energy Award** is presented to a team that 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 competition and robotics enriches the event experience for others
- Teamwork, interview quality, and team professionalism



Standard Award Description for Judge's Room



Overview

The following pages contain VRC 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

Exemplifies overall excellence in building a high quality VEX Robotics program

Key Criteria:

- Tournament Qualification Round ranking
- Robot Skills Challenge ranking
- Design Award ranking
- Other Judged Award rankings
- High quality VEX robotics program

A W A Z E

Team with an amazing, well rounded and top performing robot

Key Criteria:

- Robot design is consistently high-scoring and competitive
- Robot demonstrates a solid mechanical design and is robustly constructed to fulfill its designed task
- Robot autonomous mode is consistently successful
 - Integration of sensors for use in both autonomous and tele-operated mode
- Teamwork, interview quality, and team professionalism

BUDD

Team with a well-crafted robot

Key Criteria:

- Robot construction is of professional quality; robust, clean and elegant use of materials
 - Solid construction (robot doesn't "wobble")
 - Robust drive train and mechanisms
 - Subsystems cleanly integrated, thought out and purposeful
- Robot efficiently uses mechanical and electrical 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
- Teamwork, interview quality, and team professionalism

CREATING

Robot with a creative engineering solution

Key Criteria:

- Robot is a well-crafted, unique design solution, demonstrating creative thinking
- Team has demonstrated a highly creative engineering design process and methodology
- Team has committed to ambitious and creative approaches to playing the game
- Teamwork, interview quality, and team professionalism.

DESIGN

Demonstrates an organized and professional approach to the design process

Key Criteria:

- Engineering Notebook is a clear, complete document of the team's design process
- Team is able to explain their design and strategy throughout the season
- Team demonstrates personnel, time and resource management throughout the season
- Teamwork, interview quality, and team professionalism

ENERGY

Team with extraordinary enthusiasm

Key Criteria:

- Team maintains a high level of excitement and energy throughout the event
- Team's passion for competition and robotics enriches the event experience for others
- Teamwork, interview quality, and team professionalism

INNOVATE

Exemplifies thinking outside of the box and innovative engineering design

Key Criteria:

- Innovative design process evident and well documented in the team's Engineering Notebook
- Robot design demonstrates an ingenious and innovative piece of engineering
- Innovative feature is soundly crafted and is an effective solution to a design problem
- Innovative solution is integrated as a part of an overall well-crafted robot
- Students understand and explain why the innovative feature was necessary
 - The award is not meant to recognize innovation for the sake of innovation, rather innovation for the sake of excellence
- Teamwork, interview quality, and team professionalism

INSPIRE

Team that inspires judges with their approach to competitive robotics

Key Criteria:

- Team communicates their passion for the VRC 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
- Teamwork, interview quality, and team professionalism

JUDGES AWARD

Deserves special recognition for efforts leading up to and during the event

Possible Criteria:

- Team displays special attributes
- Exemplary effort and perseverance at the event
- Team accomplishments or endeavors throughout the season that may not fall under existing awards - but are nonetheless deserving of special recognition.

SERVICE

Team that is always willing and able to help other teams

Key Criteria:

- Team is willing to help others by sharing resources, knowledge, and encouragement
- Team has helped not only alliance partners, but all teams, by sharing resources
- Team has enriched local VRC events by volunteering personnel and/or resources

SPORTSMANSHIP

Team that is extremely courteous and most enthusiastic throughout the event

Key Criteria:

- Team is courteous, helpful, and respectful to everyone at the event, on and off the field
- Team treats others on the playing field in the spirit of friendly competition and cooperation
- Team demonstrates respect and willingness to help to event staff and spectators
- Team demonstrates excitement and enthusiasm throughout the event

TEAM

Team with impressive and effective autonomous programming

Key Criteria:

- Team's autonomous code is consistent and reliable
 - Use of advanced programming techniques and/or sensors to control motion
 - Multiple autonomous modes
 - A simple mode which works consistently is preferred over an exaggerated mode which only works occasionally
- 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
- Teamwork, interview quality, and team professionalism