ROBOTICS EDUCATION & COMPETITION FOUNDATION

Judge Guide

2019-2020

For the Judges, the Judge Advisor, the Event Partner, and Teams

TABLE OF CONTENTS

Judge Guide

New This Year

- This document includes information for Judging at VEX IQ Challenge, VRC, and VEX U events.
- Several VRC and VEX U awards have been eliminated because they were underused or redundant: Cooperate Award, Educate Award, Future Award, and Teamwork Award.
- The judging process for Design Award and Excellence Award has been clarified.
- The scheduled releases of the Game Manual updates may include clarifications or corrections to the awards criteria.
- The Community Award is now an online challenge. Refer to the REC Foundation Online Challenges for more information.

How to Use this Guide

The judging process involves multiple volunteer roles and responsibilities. This guide informs each of these volunteers on the judging process. Below is a summary of the roles involved in the judging process. Find your role and use the guide as described:

- The **Judges** work in teams of two under the guidance of the Judge Advisor and perform the primary judging activity at the event. A few weeks before the event, the Event Partner will send Judges a list of judged awards that will be offered at the event and other judging resources. Judges should review those resources and study this guide through the section titled, “Judging Process for Other Judged Awards”. Focus on the judged awards offered at the event and skim the others. The typical time commitment for a Judge is 1 hour a few weeks before the event to study this guide and review the other resources provided, plus the day of the event.
- The **Judge Advisor** guides Judges and is responsible for the judging process at the event. The Judge Advisor must know and understand the role of the Judges. The Judge Advisor should review this entire guide as if she/he were a Judge. The Judge Advisor should pay special attention to the section of this guide titled, “The Judge Advisor Responsibilities”, focusing on the organizational and time-management requirements of the role. The typical time commitment for a Judge Advisor is 1-2 hours a few weeks before the event (studying this guide and discussing judging with Event Partner), plus another 1 hour in the week before the event (finalizing judging schedule and roster of Judges), plus the day of the event.
- The **Event Partner** oversees the operation of the entire event and provides support for the Judges and Judge Advisor. The Event Partner must know and understand the role of the Judges and Judge Advisor. The Event Partner should review this entire guide as if she/he were a Judge and a Judge Advisor. The Event Partner should pay special attention to the section of this guide titled, “The Event Partner Role”, focusing on the organizational, communication, and individual award requirements of the role. The typical time commitment for an Event Partner to prepare is about 1 hour in the 2-3 months before the event (determining awards and ordering trophies), 1-2 hours in the month before the event (recruiting Judges and Judge Advisor), and 1-2 hours in the weeks before the event (sending emails to Judges and Judge Advisor, printing and gathering materials for Judges).

  NOTE: The Event Partner is not a Judge. Decisions on all judged team awards are made by the Judges in consultation with the Judge Advisor. **Event Partners may not recommend or assign judged awards to any team.**

Introduction

To ensure a consistent judging process is followed at all VEX Robotics Competitions, this guide describes the judged award criteria and informs the Judges, Judge Advisor, and Event Partner on their roles and responsibilities in the judging process. Additionally, this guide helps coaches and teams understand the judged award criteria and processes so they may improve their performance on judged awards.

Local qualifying events and events that qualify teams directly to VEX Robotics World Championship must follow the criteria and processes in this guide, or those events will not qualify teams to higher level events. The criteria and processes in this guide are consistent with that used at VEX Worlds.

Note: Should anything in this guide contradict the Game Manuals or Qualifying Criteria Documents the Game Manuals and/or Qualifying Criteria Documents will take precedence.

In the VEX Robotics Competition, teams of students showcase their knowledge and skill in designing, building, and programming a robot. Students demonstrate their knowledge of the engineering design process by documenting their design process in an Engineering Notebook. Student drive teams exhibit their driving skill and game strategy during match play and skills challenges. All these activities are to be completed by the students with minimal adult assistance. Students must make the decisions, complete the work, and demonstrate their learning and knowledge for their team to qualify for judged awards.

It is important for Judges to recognize student accomplishments. Students will exhibit a wide range of maturity, interpersonal skills, and experience. Your warmth, patience, and enthusiastic support of their learning and sharing will make a positive impact on them during the event and afterwards.

Judges and Judge Advisor for VEX IQ Challenge Events	Judges and Judge Advisor for VRC/VEX U Events
• The Judge Advisor must be an adult. • For local qualifying events, adults are preferred as Judges, but high school students may be paired with adults as Judges. Elementary and middle school students are not to be Judges. • For State/Multi-State/Provincial/National Championship event or Signature Events, Judges must be adults. Anyone age 18 or older and is not a high school student is considered an adult for VEX IQ Challenge judging.	• The Judge Advisor must be an adult. • For all VRC events, Judges must be adults. No students, except college students, are to be Judges. Anyone age 18 or older and is not a high school student is considered an adult for VRC judging. • For all VEX U events, Judges must be adults over the age of 21.

Feedback to Judges

Any event volunteer may provide feedback to the Judges, Judge Advisor, or Event Partner about the conduct of teams, coaches, mentors, or parents using the “Field Note to Judges” form. Volunteers may report conduct such as a team that helps another by loaning a motor or assisting in some other way. Volunteers may report conduct such as a team that is impolite or consistently late arriving to matches.

The REC Foundation Code of Conduct

Any conduct that may be a violation of the REC Foundation Code of Conduct shall be reported immediately to the Event Partner. The Event Partner shall immediately contact their Regional Support Manager to discuss the possible violation. The REC Foundation Code of Conduct can be found here: https://www.roboticseducation.org/documents/2018/05/rec-foundation-code-of-conduct.pdf

Overview of Awards

There are three types of awards: Performance awards, judged awards, and individual awards. Not all awards are offered at all events. The Event Partner will provide a list of the awards offered at the event.

Performance awards are based on robot performance on the field in match play and skills challenges. Judges do not determine on the field performance awards. Team rankings on robot performance, but not the winners of the performance awards, are considered by Judges when deliberating on the Excellence Award:

Offered?	Performance Awards	Criteria
☐	Tournement Champion (VRC) Teamwork Champion (IQ)	1st Place Finals Match Alliance (Robot Performance)
☐	Tournament Finalist (VRC) Teamwork Finalist (IQ)	2nd place Finals Match Alliance
☐	Robot Skills Champion	Team with highest combined top Programming and top Driving Skills Challenge score (Robot Performance)
☐	Robt Skills 2nd Place	2nd place Robot Skills score
☐	Robot Skills 3rd Place	3rd place Robot Skills score

Judged awards are based on the award criteria in this guide. Team rankings on judged awards offered at the event are considered when deliberating on the Excellence Award. These judged awards are presented at most local events and State/Multi-State/Provincial/National events:

Offered?	Performance Awards	Criteria
☐	Excellence	Top all around team (Robot Performance and Judged)
☐	Design	Team with most effective and efficient design process
☐	Judges	Team deserving recognition from Judges for special accomplishments

Technical Judged Awards: Some or all of these judged awards are presented at larger Local events and State/Multi-State/Provincial/National events:

Offered?	Performance Awards	Criteria
☐	STEM Research Project Award (VEX IQ Challenge only)	At local events, the team with the best STEM research project presentation video submission. At events that qualify teams directly to VEX Worlds, and at VEX Worlds, a certain number of top contenders as judged from the video submissions will be eligible to deliver their presentation to a panel of judges.
☐	Amaze	Team with an amazing, well-rounded, and top performing robot
☐	Think	Team with impressive and effective autonomous programming (VRC) Team with impressive and effective robot programming (IQ)
☐	Innovate	Team with an effective and efficient design process
☐	Build	Team with a well-crafted robot
☐	Create	Team with a creative engineering solution

Other Judged Awards recognize specific team attributes:

Offered?	Performance Awards	Criteria
☐	Community (VRC/VEX only) Now an Online Challenge	Team with extraordinary community involvement. Refer to the REC Foundation Online Challenges for more information.
☐	Energy	Team that demonstrates extraordinary enthusiasm
☐	Inspire	Team that inspires Judges
☐	Service (VEX Worlds only)	Team that goes above and beyond to assist other teams
☐	Sportsmanship	Team that demonstrates respect and great enthusiasm

Individual awards recognize the contribution of an adult volunteer or sponsor and are determined by the Event Partner or event planning committee before the event. Judges do not determine individual awards. Individual awards do not affect a team's eligibility for other judged awards:

Offered?	Performance Awards	Criteria
	Volunteer of the Year	Recognizes contribution of an adult event volunteer
	Mentor of the Year	Recognizes contribution of an adult team mentor
	Teacher of the Year	Recognizes contribution of a teacher
	Partner of the Year	Recognizes contribution of an event or program partner/sponsor/supporter
	STEM Hall of Fame - Inspiration All-Star	Recognizes adult STEM All-Star (presented only at VEX Worlds)

Overview of the Event

The Competition Area

The competition area is where matches and skills challenges take place. Judges should spend time observing teams in the competition area. Judges can validate statements made by teams during their interview and can and evaluate their robot performance and game strategy. Additionally, Judges can assess a team's sportsmanship, energy, and enthusiasm while observing them in the competition area.

VEX IQ Challenge

Matches take place on a 4'x8' competition field. A match lasts 1 minute and is scored by Referees. Teams play 6-8 qualification matches, randomly paired in each match in an alliance with another team. Teams work together to score as many points as possible, and both teams are awarded the same points. After qualification matches are played, teams are paired by ranking in an alliance. Each alliance plays one finals match. The alliance with the highest score in the finals matches becomes the Teamwork Champion.

Teams may also demonstrate their own team's abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may typically run 3 of each at an event.

For VEX IQ Challenge game details, please visit:

roboticseducation.org/competition-teams/vex-iq-challenge/

VEX Robotics Competition

Matches take place on a 12' x 12' competition field. A match lasts 2 minutes, including a 15-second programming-only period, and is scored by Referees. Teams play 6-8 qualification matches, randomly paired with other teams. Matches are played with 4 robots on the field; two paired as the Red Alliance and two paired as the Blue Alliance. The two alliance teams work together to score more points than the other alliance, and both teams in the alliance receive a win, loss, or tie for the match. Qualification matches are followed by Alliance Selection and Elimination Rounds, played in a sports bracket format. The alliance that completes Elimination Rounds undefeated becomes the Tournament Champion.

Teams may also demonstrate their own team's abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may typically run 3 of each at an event.

For VRC game details, please visit:

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

VEX U

Matches take place on a 12' x 12' competition field. A match lasts 2 minutes, including a 45-second programming-only period, and is scored by Referees. Teams play 6-8 qualification matches. Matches are played with one team as the Red Alliance and one team as the Blue Alliance. Each alliance works to score more points than the other alliance, and each alliance receives a win, loss, or tie for the match. After qualification matches are complete, teams are ranked and play Elimination Rounds in a sports bracket format. The alliance that completes Elimination Rounds undefeated becomes the Tournament Champion.

Teams may also demonstrate their own team's abilities by participating in Programming and Driving Skills Matches. Each type of skills match lasts 1 minute. Teams may typically run 3 of each at an event.

For VEX U game details, please visit:

roboticseducation.org/competition-teams/vex-u

The Judges Room

The judges room is a private room for the exclusive use of the Judges; it is separate from other volunteer rooms. The judges room is where evaluations of Engineering Notebooks, judging deliberations, and private discussions among Judges are conducted. A whiteboard, bulletin board, and/or Post-it® notes stuck on the wall may be used to assist the Judges in deliberations. The room must be separate and private from other volunteer rooms to ensure confidentiality is maintained in the judging process. The Event Partner is not a Judge and therefore should not be in the judges room after the event starts.

The Pit Area

The pit area is the home-base for teams at the event. Teams are provided a table in the pit area that serves as their work area and storage space for their robot, batteries, laptop, tools, and other equipment. Practice fields are usually located in the pit area. The pit area is an informal setting and is a good place to observe teams and assess their sportsmanship, energy, and enthusiasm.

Judges at local events interview teams in the pit area. Judges at events that qualify teams directly to VEX Worlds and judges at VEX Worlds will interview teams in the pit area. Judges at local events help prepare teams for the judging at higher-level events by interviewing teams in the pit area.

Sample Judging Schedule

All judging takes place during the competition. This sample schedule shows judging activities for a typical event. The Event Partner will provide an event agenda, and the Judge Advisor will provide a detailed judging schedule for the timing of judging activities within the event agenda:

Sample Judging Schedule	
7:30 – 8:00 a.m.	Judge Advisor arrives, reviews awards offered, and gathers judging materials.
8:00 – 9:30 a.m.	Judges arrive and receive training. Judge Advisor assigns Judge Teams and assigns teams to be interviewed. Engineering Notebooks are reviewed, and Judge Teams begin team interviews.
9:30 – 9:45 a.m.	Judges attend Opening Ceremony.
9:45 – 11:30 a.m.	Judge Teams complete initial interview of assigned teams. Engineering Notebook Judges complete the first page of the Design Award Rubric for the select notebooks that qualify.
11:30 – 12:30 p.m.	Working lunch – initial deliberations – each Judge Team identifies their top candidates for each award and use Post-it® notes to list teams under the award categories. Judge Advisor identifies teams that require follow-up interviews, especially for Design and Excellence awards, and assigns Judge Teams for follow-up interviews.
12:30 – 1:30 p.m.	Judges observe teams in pit area and competition area for follow up interviews and observation as necessary to complete rankings for each award category. If possible, several Judge Teams should visit with the top contenders for each award.
1:30 – 2:30 p.m.	Judges return to Judge Room to conduct final deliberations and determine judged award winners. **Judged award winners should be determined between the last round of qualifying matches and before the first round of VRC Finals matches or before VEX IQ Challenge Finals matches. This allows qualifying rankings to be considered for the Excellence Award and allows awards to be announced during finals matches.**
2:30 – 2:45 p.m.	Judge Advisor oversees entry of judged award winners into Tournament Manager software.
2:45 – 4:30 p.m.	If possible, Judges attend finals matches and award ceremony. Judges may be asked to read an award script and announce a judged award winner if comfortable doing so.

Fundamentals of the Judging Process

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 ensuring that the program remains student-centered.

Teams must be student-centered. Students must do the majority of the work designing, programming, and repairing their robot. Coaches, mentors, and parents may provide minimal assistance but may not do any of this work without students present and involved. For example, it is acceptable for a coach, mentor, or parent to guide a brainstorming session on a design. It is not acceptable for a coach, mentor or parent to offer design suggestions during a brainstorming session. Likewise, it is acceptable for an adult to hold a small part for a younger student while the student assembles or repairs a robot. It is not acceptable for an adult to assemble or repair a robot whether or not students are present. Through observation and interviews with teams, Judges identify teams that are student-centered. These teams understand that the purpose of the program is to enhance the learning process, not to win at any cost. Judges shall give higher consideration to teams that favor the enhancement of student learning over teams that favor winning at any cost.

Judges, with input from event staff, should identify teams that are not student-centered. Teams that are not student-centered should not receive judged awards. Examples of teams that are not student-centered:

- Teams with robots that are built or programmed or repaired by adults.
- Teams with robots that are built or programmed or repaired by older students (for example, high school students/teams building robots for middle school students/teams).
- Teams with two or more identical robots at one school or club, or so-called “clone bots”.
- Teams with adults that criticize students from alliance teams for poor performance, or adults who blame other teams for low scores.

Team Supervision

Teams are to be student-centered, but teams must be supervised by at least one adult. An adult must be present at the event at all times. Anyone age 18 or older who is not a high school student is considered an adult.

Judging Concepts and Guidelines

Judges are in a position of trust. To ensure the judging process is an effective, equitable, and positive experience, it is important for Judges to understand these concepts and follow these guidelines:

- **Confidentiality:** The judging process includes frank discussions about teams. These discussions must remain confidential and Judges 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 and Event Partner of any possible conflicts of interest and remove yourself from discussions and decisions in which you may have a personal interest. Event Partners may not recommend, advise, or assign judged awards to any team.
- **Engagement:** Demonstrate your full interest and involvement in discussions with students and your Judge Team by refraining from distractions such as phone usage or side conversations.
- **Youth Protection:** Do not be alone with students. Always work with at least one other Judge and two or more students. Do not meet with teams in a private space.

- **Discretion:** All written judging materials, including Judges notes, Design Award Rubrics, awards worksheets, and so on are to be given to the Judge Advisor for disposal after the event. None of these materials are to be given back to teams or given to the Event Partner. Judges should not discuss deliberations, awards, or judging with teams after an event. These discussions are easily misinterpreted or misunderstood by students, coaches, mentors, and parents. Please refer any inquiries about the judging process to the Judge Advisor.
- **Judgement:** Judges are expected to apply qualitative judgement when making final decisions on all judged awards. For example, the Design Award Rubric is quantitative in nature, but Judges must deliberate and apply qualitative judgement when making a final decision on the Design Award winner.
- **Inclusion:** Only a limited number of teams at an event will earn a judged award. However, every team at an event should be interviewed by Judges regardless of their status for a Judged award.
- **Equitability:** No team shall be awarded more than one judged award at an event. Top teams often win robot performance awards in addition to judged awards. Individual awards presented to adults, such as Volunteer of the Year Award, do not affect a team's eligibility for a judged award.
- **Common Sense:** When reading and applying the rules, criteria, and processes in this document, please remember that common sense always applies.
- **Team Ethics and Conduct:** Ethics is an important part of every engineer's professional training and practice. The REC Foundation considers the positive, respectful, and ethical conduct of teams to be an essential component of the VEX competition. A team includes the students, teachers, coaches, mentors, and parents associated with a team. Judges will consider all team conduct when determining judged awards.

The Judges Role

Judges work in teams of two under the guidance of the Judge Advisor and perform the primary judging activity at the event. All of the materials needed for Judges and the judging process should be provided by the Event Partner or Judge Advisor, but is also available online at: https://www.roboticseducation.org/volunteers/volunteer-resources/

Decisions on all judged team awards are made by the Judges in consultation with the Judge Advisor. **Event Partners may not recommend or assign judged awards to any team.**

Training

The Event Partner or Judge Advisor will arrange some form training at or before the event. The training should include a review of this guide, discussion of the key concepts of the judging process, a review of the game challenge, and a discussion of the Design Award Rubric and the Award Scoring Sheets. Training does not replace the preparation necessary by Judges before the event.

One-two Weeks Before the Event

Judges should set-aside about one hour a few weeks before the event to prepare using the resources provided by the Event Partner or Judge Advisor. Check with the Event Partner or Judge Advisor if you have any questions:

- Review the event location, your scheduled arrival time, and estimated departure time.
- Print this guide. Refer to the list of awards offered at the event provided by the Event Partner. Highlight the judged awards that will be offered at the event and strike through those not offered.
- Review this guide at least through the section titled, “Judging Process for Other Judged Awards”, paying special attention to the awards offered at the event. It may be helpful to have a basic understanding of all the awards available within the program, but you will only be judging the specific awards offered at the event.
- Review the game introduction video and one-page game description. Pay special attention to the game objectives that teams will be trying to achieve with their robots and game strategy.
- Review the REC Foundation Code of Conduct.
- Scan the Game Manual if time permits.

Day of the Event

Judges move throughout the venue on event day, so be sure to wear comfortable closed-toed shoes and comfortable business casual clothing that is team-neutral (i.e., does not show any team numbers or team branding). Eyeglasses or safety glasses are recommended when in the pit area or competition area.

Below are the Judge’s activities on the day of the event. Follow the Judging Schedule and guidance from the Judge Advisor as some activities might be done in a different order depending on the event:

- Sign in with the Judge Advisor and inform of any affiliations with teams at the event. Affiliated Judges are not disqualified from judging. However, they should not wear team shirts or other items associated with affiliated teams, they should not interview affiliated teams, and they should recuse themselves from deliberations involving affiliated teams.
- Sort the Engineering Notebooks and identify teams with Outstanding Engineering Notebooks using the first page of the Design Award Rubric. This may be done by a Judge Team as assigned by the Judge Advisor. Teams with outstanding Engineering Notebooks will be contenders for the Design and Excellence Awards. The judging process for these awards is detailed later in this guide.
- Interview teams as assigned by the Judge Advisor. Interviews should be conducted in the Pit Area. All teams will be interviewed but contenders for the Design and Excellence Awards will have more in-depth interviews and may be cross-interviewed by different Judge Teams. The Judge Advisor will assign additional interviews as needed during the event.
    - Review the match schedule for your assigned teams. Plan to find and interview teams during one of the larger breaks in the team’s match schedule.
    - Use the Student Interview and Discussion Tips to help guide your team interviews.
    - Immediately after interviewing a team rank them using the Awards Scoring and Ranking Sheets, and if contenders for the Design Award, complete the second page of the Design Award Rubric. Complete the worksheets in private and not in front of the teams or during the interview.
    - For awards with multiple contenders, under the guidance of the Judge Advisor, the Judges will deliberate after team interviews are complete to determine judged awards.
    - Plan to interview one team every 10-15 minutes.

    - If you are unable to locate an assigned team for interview after several visits to the team's pit area, leave a "Judge's note to missed teams" on their pit table. Indicate the team should try to find you in the competition or pit area during a break in their match schedule.
- Observe teams in the competition area during match play and skills play, with a focus on the teams you have been assigned to interview by the Judge Advisor.
- Identify student-centered teams with positive, respectful, and ethical conduct during the team interviews and team observations.
- Take notes during interviews and observations to support your evaluations and assist with deliberations.
- Attend the Opening Ceremony and Awards Ceremony, if possible.
- Share all questions or concerns with your Judge Advisor.

Deliberate for the award recipients under the guidance of the Judge Advisor. Deliberations should be conducted during the last round of qualifying matches and concluded before the first round of VRC Finals matches or before VEX IQ Challenge Finals matches.

- Post or share your top-ranked teams for each award as advised by the Judge Advisor. Typically each Judge Team will post the top five teams for each award or 25% of the Judged teams, whichever is greater. A white board, flip charts, or Post-it® notes may be used to post the top-ranked teams underneath award descriptions so they are visible to all Judges.
- Work cooperatively with other Judges to reach consensus on the award recipients.
- Deliberations include frank discussions about teams and are confidential. What is discussed in the Judges Room stays in the Judges Room. Only Judges are allowed in the Judges Room.
- Remove yourself from discussions involving affiliated teams or any teams that may present a conflict of interest.
- Leave notes, rubrics, and all other judging materials with the Judge Advisor after deliberations. The Judge Advisor will destroy these materials as they are not to be returned to teams, the Event Partner, or anyone else.
- Do not discuss any judging or deliberations with any teams, the Event Partner, or anyone else. The judging process is confidential.
- Share all questions or concerns with the Judge Advisor.

Resources

Here are links to resources for the judging process:

For VEX IQ Challenge Judges	For VRC/VEX U Judges
• Judge Guide *(this document)* • REC Foundation Code of Conduct • VEX IQ Challenge Squared Away Game Video • VEX IQ Challenge Squared Away Game Manual	• Judge Guide *(this document)* • REC Foundation Code of Conduct • VRC Tower Takeover Game Video • VRC Tower Takeover Game Manual • VRC Tower Takeover Game Skills Appendix • VRC Tower Takeover Game Appendix E–VEX U

Judging the Design Award

The Design Award criteria is the foundation for the Excellence Award and helps rank teams for other awards. Therefore, the Design Award judging process is fundamental to award rankings and deliberations.

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. The team's Engineering Notebook and Judges interview will demonstrate the team's ability to produce a quality robot with minimal adult assistance.

Key criteria

- Engineering Notebook must be submitted (usually at team check-in).
- Engineering Notebook demonstrates clear, complete, organized record of robot design process.
- Team demonstrates effective management of time, talent, and resources.
- Team interview demonstrates their ability to explain their robot design and game strategy.
- Team interview demonstrates effective communication skills, teamwork, and professionalism.

The Engineering Notebook

One of the primary missions of the REC Foundation is to help students acquire real world life skills that will benefit them in their academic and professional future. Following the engineering design process and creating an Engineering Notebook helps students practice and develop a variety of real-world life skills including project management, time management, brainstorming, communication, and teamwork. The engineering design process and the Engineering Notebook are used by engineering and design professionals in many different fields.

When teams register with the REC Foundation, they receive a bound Engineering Notebook in the Welcome Kit. It has instructions and examples in the front. Teams may use the notebook provided or purchase their own from VEX Robotics or most office supply stores. A bound quad-ruled notebook is the preferred format, and bound notebooks are given bonus points on the Design Award Rubric. The notebook must have been bound before any entries were made in it.

Judges will not accept or evaluate any electronic notebooks including those on laptops, thumb drives, or cloud-based servers.

The engineering design process is iterative. Students identify and define a problem, brainstorm design ideas to solve the problem, test their design ideas, and continue to improve their design ideas until a solution is reached. During the engineering design process, students will encounter obstacles, successes and failures, and learn many lessons. Everything a team does throughout the engineering design process should be documented by the students in their Engineering Notebook.

All Engineering Notebooks should contain these elements:

- Team number on the cover
- Written in ink with errors crossed out using a single line (so errors can be seen)
- Notebook has not been edited
- All pages intact; no pages or parts of pages removed even if they contained errors
- Each page numbered and dated in chronological order
- Each page signed by student author
- Team meeting notes as they relate to the design process
- Pictures, CAD drawings, documents, examples of code, or other material relevant to the design process are glued into the notebook (tape is acceptable, but glue is preferred)

Outstanding Engineering Notebooks should contain these additional elements:

- Table of contents
- Each page signed by a student witness as well as student author
- First entry is the first team meeting, and each team meeting has an entry
- Descriptions of brainstorming sessions
- Descriptions, sketches, and pictures of design concepts and the design process
- Observations and thoughts of team members about their design and the design process
- Records of tests, test results, and evaluations of specific designs or design concepts
- Team organization practices as they relate to the design process
- Project management practices including their use of personnel, financial, and time resources
- Notes and observations from competitions to consider in the next design iteration
- Descriptions of programming concepts, programming improvements, or significant programming modifications
- A person unfamiliar with the team's work would be able to recreate the robot design based only on information in the Engineering Notebook

Judging Process for the Design Award

Follow steps 1-2 below to evaluate the Engineering Notebooks and identify the outstanding Engineering Notebooks. These teams will be contenders for the Design Award and by extension, the Excellence Award. Then follow steps 3-4 below to interview teams, complete the Design Award Rubric, and deliberate to rank the teams for Design Award.

Note that the Judge Advisor may assign one Judge Team as the Design Judge Team, with the primary responsibility of determining contenders for the Design Award:

- At a smaller event, the Design Judge Team would follow steps 1-3 below, including the Design Award interviews and completing page 2 of the Design Award Rubric for the contenders. The Judge Advisor would assign two Judge Teams to interview the top contenders, then the Judge Teams would deliberate under the guidance of the Judge Advisor to rank the contenders and complete step 4 below.
- At a larger event, the Design Judge Team would follow steps 1-2 below and identify teams that qualify for a Design Award interview. The Judge Advisor would assign Judge Teams to interview the teams and complete page 2 of the Design Award Rubric. The Judge Advisor would assign Judge Teams to cross-interview the top contenders, then the Judge Teams would deliberate under the guidance of the Judge Advisor to rank the contenders and complete step 4 below.

(1) Perform a quick scan of all the Engineering Notebooks and divide them into two categories: Developing and Fully Developed.

- **Developing** Engineering Notebooks contain little detail, will have few drawings, and will not be a complete record of the design process. These are usually turned in by new teams without a fully developed robotics program. These teams will not be contenders for the Design Award. To save Judges time, the Design Award Rubric will not be completed for these teams. However, the Engineering Notebooks should be retained for consideration of other awards.
- **Fully Developed** Engineering Notebooks will contain much detail, will include detailed drawings, will include tests and test results, will include solutions to problems the team encountered, and will be a complete record of the design process. These are usually turned in by teams with a developed robotics program and a strong emphasis on the design process. These teams may be contenders for the Design award. These shall be roughly the top 10 teams or top 30% of teams (whichever is larger).

(2) Complete the first page of the Design Award Rubric for the Fully Developed Engineering Notebooks and divide them into two categories: Intermediate and Outstanding. The Design Award Rubric **MUST** be used for this evaluation:

- **Intermediate** Engineering Notebooks will lack some details and will not be as complete as Outstanding notebooks. These teams will not be contenders for the Design Award.
- **Outstanding** Engineering Notebooks will be a complete record of the team's engineering design process. Outstanding notebooks shall be the top 5 teams or top 20% of teams (whichever is larger).

(3) A Judge Team shall interview the teams with Outstanding Engineering Notebooks. The Judge Team shall complete the second page of the Design Award Rubric immediately after the interview.

The Design Award Rubric **MUST** be used for this evaluation:

- Design Award interviews shall be conducted in the team pit area. The Judge Team shall compare the rubrics and discuss the quality of the team interviews. Through this deliberation, the Judge Team shall rank all teams with Outstanding Engineering Notebooks. If two Excellence Awards are offered, the Judge Team shall rank all teams *at each level* with Outstanding Engineering Notebooks. Refer to the heading titled, "Blended Events" in the section, "Judging the Excellence Award" for more information on blended events.
- Judges should recognize that Engineering Notebooks will improve during the season, and that early season Engineering Notebooks will include less of the iterative design process. However, even early in the season, notebooks should include documentation of the robot up to its current state in the design process.
- Judges should refer to the Student Interview and Discussion Tips page in this guide for suggestions on how to conduct the team interviews and sample questions to ask teams.
- Judges should remember that younger students communicate their ideas differently than older students, and that judging of notebooks should consider an age-appropriate level of review.

(4) When all Design Award contenders have been interviewed and ranked, Judges should follow the Excellence Award judging process to determine the Excellence Award winner. The highest-ranked contender for the Design Award that is not the Excellence Award Winner should be the winner of the Design Award.

Design Award at VEX Worlds

Key Criteria and Judging Process: The key criteria and judging process for the Design Award at VEX Worlds are the same as for local events and events that qualify teams directly to VEX Worlds.

Prequalification: To be eligible for the Design Award at VEX Worlds, a team must have been awarded the Excellence Award or Design Award at an event that qualifies teams directly to VEX Worlds. Eligible teams must submit their Engineering Notebook at VEX Worlds during the first day of check-in. Eligible teams will be notified by email after the second weekend in March.

VEX U: There are no prequalification requirements for the Design Award at VEX Worlds. Teams must submit their Engineering Notebook during the first day of check-in (Wednesday).

Judging the 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 robotics program. This team is a strong contender in numerous award categories.

Key Criteria

- Engineering Notebook must be submitted (usually at team check-in)
- Ranking for Design Award
- Ranking for Qualification Matches
- Ranking for Robot Skills
- Ranking for other judged awards
- Quality of the team's interview with the Judges
- High-quality robotics program
- Team conduct

Blended Events

Events having at least ten (10) teams at each level registered two weeks prior to the event must offer two (2) Excellence Awards, one for each level. Each recipient must meet all the Excellence Award criteria. The Event Partner shall inform Judges if two (2) Excellence Awards are offered at the event.

Judging Process for the Excellence Award

(1) Judges complete the rankings for the Design Award following the Design Award Judging Process. The top contenders for the Design Award should be considered candidates for the Excellence Award. Excellence Award candidates should:

- be at or near the top of the Design Award rankings;
- be ranked in the top 10 or top 30% of teams (whichever is larger) in qualifying rounds during the last round of qualification matches played;
- be ranked in the top 5 or top 20% of teams (whichever is larger) in Robot Skills;
- rank among the top teams in other judged awards;
- exhibit a high-quality team interview with the Judges;
- exhibit a high-quality robotics program;
- be student-centered, show positive team conduct and dynamics, sportsmanship, and professionalism.

Note that a team does not have be among the Teamwork or Tournament Champions or Finalists to receive the Excellence Award but must be competitive in the qualification and skills rankings.

(2) Judges use their best qualitative judgment based on observations and interactions with the teams to choose the team they believe best exemplifies the best overall robotics program at the event. Judges should ask themselves the following questions:

- Has the team met the criteria to be considered excellent?
- Does the team exemplify overall excellence?
- Would the Judges want the team to be emulated by other teams?
- Do the "Field Note to Judges" forms returned by event volunteers reflect the candidate's overall excellence?

Excellence Award at VEX Worlds

Key Criteria and Judging Process: The key criteria and judging process for the Excellence Award at VEX Worlds are the same as for local events and events that qualify teams directly to VEX Worlds. Online Challenges are not required to be eligible for the Excellence Award at VEX Worlds. However, Judges will consider Online Challenges as part of the overall team evaluation if they are submitted.

Prequalification: To be eligible for the Excellence Award at VEX Worlds, a team must have been awarded the Excellence Award at an event that qualifies teams directly to VEX Worlds during the current competition season. Eligible teams must submit their Engineering Notebook at VEX Worlds during the first day of check-in. Teams that have won the Excellence Award at VEX Worlds in the previous three years are not eligible for the Excellence Award at VEX Worlds. Eligible teams will be notified by email after the second weekend in March.

VEX U: There are no prequalification requirements for the Excellence Award at VEX Worlds. Teams must submit their Engineering Notebook during the first day of check-in. Teams that have won the Excellence Award at VEX Worlds in the previous three years are not eligible for the Excellence Award at VEX Worlds.

If No Teams Meet the Minimum Criteria for Design or Excellence Award

There may circumstances where the Judges should not award the Design Award and by extension the Excellence Award to any team at an event. This may happen when either no teams submit an Engineering Notebook, or no Engineering Notebooks include the first three criteria of the Design Award Rubric. In either case, the minimum requirements for the Design Award and by extension the Excellence Award have not been met and therefore neither should be awarded to any team at the event.

The Event Partner must be notified as soon as possible if the Design Award or Excellence Award will not be awarded at the event. The results of the event cannot be published until the Event Partner adjusts the award configurations for the event.

The objective in not awarding Design or Excellence under these circumstances is: (1) To avoid situations where only one or two teams turn in notebooks that consist of a title page and little more being recognized as Design or Excellence winners. (2) To avoid recognizing a team as excellent and worthy of emulation by other teams when no team has yet achieved at least the minimum level of excellence.

This is not meant to punish teams but rather to encourage them to improve. It is expected that these circumstances will be rare and only arise early in the season before teams have had time organize themselves. If Judges decide not to award Design or Excellence, the Judge Advisor should make an event-wide announcement and remind teams that the Design Award Rubric and the instructions in the front of the supplied notebook may be used as guides to help teams develop their notebooks.

Judging Process for Other Judged Awards

Teamwork, professionalism, interview quality, and team conduct shall be considered in scoring of all judged awards. 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 new teams to the teams you ranked previously. Remember to look for candidates for the Judges Award while ranking other “technical” awards.

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 **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
- 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 **Think Award** is presented to a team that has developed and implemented quality robot programming as part of their strategy to solve the game challenge. Teams must participate in the Programming 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 are able to explain how they worked together to develop their robot programming

Think Award for VEX IQ Challenge	Think Award for VRC/VEX U
To evaluate teams for the Think Award, watch two or three programming skills matches and record the performance of the teams. Teams that consistently perform well during programming skills matches may be considered as contenders for Think Award. Review the Engineering Notebook for documentation of the programming development. This does not mean the notebook must contain every line of code, but rather demonstrates that the team has developed and documented a strategy for creating their robot program to solve the game challenge	To evaluate teams for the Think Award, watch two or three qualifying matches and record what each team does during the autonomous period. Teams that consistently perform well during programming skills matches and autonomous may be considered as contenders for Think Award. Review the Engineering Notebook for documentation of the programming development. This does not mean the notebook must contain every line of code, but rather demonstrates that the team has developed and documented a strategy for creating their robot program to solve the game challenge.

The **Innovate Award** has different criteria for VEX IQ Challenge and VRC:

Innovate Award for VEX IQ Challenge	Innovate Award for VRC/VEX U
The **Innovate Award** is presented to a 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 presented by Judges to a top contender for the Design Award. 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 **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: • 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 • Students understand and are able to explain the innovative design solution

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 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
- Students understand and explain how they worked together to develop their robot

The **Create Award** is presented to a team whose robot design incorporates a creative engineering solution to the design challenges of this 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

Other Judged Awards

The **Community Award** is only presented at VEX Worlds to a VRC/VEX U team that should be recognized for making a difference in the community. This sponsored award is now an Online Challenge for VEX Worlds. More information, including eligibility and submission criteria, can be found at roboticseducation.org

The **Energy Award** is presented to a team that shows extraordinary enthusiasm at the event. The team demonstrates 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
- Students demonstrate teamwork and effective communication skills

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 robotics 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 **Service Award** is only presented at VEX Worlds to a VRC/VEX U 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

The **Sportsmanship Award** is presented to a team that has earned the respect and admiration of the volunteers and other 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

Judging the VEX IQ Challenge STEM Research Project Award

The **STEM Research Project Award** is presented to the team that shares the most effective STEM Research Project video presentation. The 4-minute video presentation demonstrates the students' depth of understanding of the season's STEM research topic and the student's research findings.

Only the submitted video entries will be considered. In-person presentations at events are not allowed. The STEM research topic will be posted this Fall on the VEX IQ Challenge web page.

The Event Partner will send the link to the STEM Presentation videos to a team of judges at least a week before the event. Judges will use the STEM Research Project Rubric included in this guide as a tool to evaluate the 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.

For events that qualify teams directly to VEX Worlds

At each event that qualifies teams directly to VEX Worlds, the top five (5) contenders for the STEM Research Project Award as judged from the video submissions, will deliver their 4-minute presentations in-person to a panel of two (2) judges at the event. Additionally, judges will have up to 4 minutes for questions and answers. The winning team will be selected from the in-person presentations as judged using the STEM Research Project rubric.

For VEX Worlds

Key Criteria and Judging Process: The key criteria and judging process for the STEM Research Project Award at VEX Worlds are the same as for local events and events that qualify teams directly to VEX Worlds.

At VEX Worlds, the top five (5) contenders at each level (Elementary School and Middle School) for the STEM Research Project Award as judged from the video submissions, will deliver their 4-minute presentations in-person to a panel of two (2) judges at VEX Worlds. Additionally, judges will have up to 4 minutes for questions and answers. The winning team will be selected from the in-person presentations as judged using the STEM Research Project rubric.

Prequalification: To be eligible for the STEM Research Project Award at VEX Worlds, a team must have been awarded the Excellence Award or STEM Research Project Award at an event that qualifies teams directly to VEX Worlds during the current competition season. Eligible teams will be notified by email after the second weekend in March with instructions for submitting their video for consideration at VEX Worlds.

The Judge Advisor Role

The Judge Advisor guides Judges and is responsible for the judging process at the event. The Judge Advisor must know and understand the role of the Judges.

Decisions on all judged team awards are made by the Judges in consultation with the Judge Advisor. **Event Partners may not recommend or assign judged awards to any team.**

Two-three weeks before the event:

- Discuss with the Event Partner the judged awards to be offered at the event.
- Review and study this entire guide, focusing on the judged awards to be offered at the event.
- In consultation with the Event Partner, assist recruiting Judges as needed.
- Schedule a time to train the Judges on their role and responsibilities, whether in advance of the event or the day of the event. Plan to spend about 15-30 minutes training Judges for their role.

One-two weeks before the event:

- Inform the Judges of the scheduled training time/place.
- Ensure the Judges have reviewed this guide before the Judges training.
- Make a judging schedule based on the agenda for the event. Refer to the sample agenda earlier in this guide for assistance. Print one copy of the judging schedule for each Judge Team.

Day of the event:

- Assist the Event Partner in preparing the Judges Room if necessary.
- Keep a record of which teams submitted Engineering Notebooks during check-in.
- Ensure the Judges follow the award criteria and judging process in this guide.
- Place a copy of the previously-prepared judging schedule in each Judge Team folder.
- Have Judges sign in using the Judge Sign in Sheet and note any team affiliations.
- While they are signing in, ask Judges about their personal and professional skills and experience so you may assign Judges to the Judge Teams and roles that best suit them.
- Pair Judges to act as a Judge Team.
- You may wish to assign one Judge Team as the Design Judge Team, with the primary responsibility of determining contenders for the Design Award. Refer to the section titled, “Judging the Design Award” for details.
- Assign teams to be interviewed by each Judge Team.
- Train the Judges on their role and responsibilities.
    - Review the judging schedule.
    - Review the awards offered at the event.
    - Highlight the major sections of this guide so Judge Teams can easily reference it.
    - Review the fundamentals of the judging process.
    - Review the Design Award Rubric and the process for scoring.
    - Review the Judged Award Scoring Sheets and the process for scoring.
    - Review the game challenge and discuss the game objectives in general.
- Ensure all teams are interviewed regardless of their status for a Judged award.
- Manage time and resources to ensure judging progress according to the event schedule.
- Lead the deliberation process for awards with multiple contenders.
- Record the results of all judged award winners.
- Collect all written judging materials, including Judges notes, Design Award Rubrics, awards worksheets, and so on. After the event, shred or destroy all of these materials. Under no circumstances are any of these materials to be returned to teams or the Event Partner.
- Bring the Judged Awards results to the Tournament Manager operator and oversee the entering of the Judged Awards into the competition software. Some events may provide a tablet or computer for the Judge Advisor to personally enter the results of the judged awards. If this is the case, ensure another judge reviews the entries for accuracy.
- Obtain award scripts from the Tournament Manager operator or Event Partner.
- Return the Engineering Notebooks to the teams. This is usually done by placing the notebooks on a table in the competition area before the finals matches begin and making announcements in the competition area and the pits for teams to pick up their notebooks.

The Event Partner Role

The Event Partner oversees the operation of the entire event and provides support for the Judges and Judge Advisor. The Event Partner must know and understand the role of the Judges and the Judge Advisor.

Decisions on all judged team awards are made by the Judges in consultation with the Judge Advisor. **Event Partners may not recommend or assign judged awards to any team.**

Detailed checklists of the Event Partner responsibilities are contained in these event planning documents at roboticseducation.org, on the Event Partner Resources & Documents page:

- Pre-Event Checklist
- Event Day Checklist

Two-three months before the event:

- Consult your Regional Support Manager to determine the awards for the event.
- Order the trophies for the event. Depending on eligibility, Event Partners may receive an EP Support Bundle (which includes sponsor banners and a Qualifying Event Trophy Pack), a Qualifying Event Trophy Pack, or a Championship Event Trophy Pack for free (pay only shipping). Consult your Regional Support Manager for details.

VEX IQ Challenge Trophy Packs		
Qualifying Event Trophy Pack SKU: 228-3053	**Additional Trophy Pack SKU: 228-5366**	**Championship Event Trophy Pack SKU: 228-5367**
Trophies Included: (7) Small Trophies	Trophies Included: (5) Small Trophies	Trophies Included: (7) Large Trophies
Award Plates Included: (2) Excellence (2) Teamwork Champion (1) Design (1) Judges (1) Robot Skills Champion (1) Volunteer of the Year (8) Date Plate	Award Plates Included: (2) Teamwork Challenge 2nd Place (1) Amaze (1) Think (4) Date Plate	Award Plates Included: (2) Excellence (2) Teamwork Champion (1) Design (1) Judges (1) Robot Skills Champion (1) Volunteer of the Year (8) Date Plate
Trophies may also be ordered individually through your EP administration account at robotevents.com: https://www.robotevents.com/admin/ep_products		

VRC/VEX U Trophy Packs		
Qualifying Event Trophy Pack SKU:	**Additional Trophy Pack SKU: 276-3126**	**Championship Event Trophy Pack SKU: 276-5365**
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) Amaze (1) Think (1) Innovate (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
Trophies may also be ordered individually through your EP administration account at robotevents.com: https://www.robotevents.com/admin/ep_products		

One-two months before the event:

- Recruit the Judge Advisor and the Judges. Good sources include local professional or technical workers affiliated with an event sponsor, school administrators, college students, and local service organizations. The two main skills required for a Judge is an interest in engineering or technology and the ability to converse in a relaxed and comfortable way with students.
- If the event is blended, determine whether two (2) Excellence Awards must be offered. If ten (10) or more teams are registered at each level (Elementary & Middle School for VEX IQ Challenge or Middle & High School for VRC) two weeks before an event then two (2) Excellence Awards must be offered. If necessary, order an extra Excellence Award trophy, award plate, and date plate for the additional Excellence Award. Contact your Regional Support Manager to make the award configuration change at robotevents.com. Note that if there are fewer than 10 teams at each level, 2 Excellence Awards cannot be offered.

Two weeks before the event:

Email information needed by the Judges and Judge Advisor:

- Send the Judge Advisor the contact information for the Judges.
- Send the Judge Advisor and the Judges the following to prepare for the volunteer role:
  - Links to: The Judge Guide (this document), Game Video, Game Manual.
  - A list of the judged awards for the event.
  - An agenda for the event including expected arrival time and estimated departure time for Judges and Judge Advisor on the day of the event.

Gather these judging materials:

- Name tags or ID badges for each Judge and the Judge Advisor
- Shirts for Judges and the Judge Advisor, if available (optional)
- Clipboards, pens, highlighters for each Judge and the Judge Advisor
- Legal pad or scrap paper for each Judge and the Judge Advisor
- Post-it® notes or scrap paper for deliberations
- Transparent tape and/or painter's tape for deliberations
- Colored dots for marking pit signs

Reserve the Judges Room and prepare the trophies:

- Reserve a private room for the Judges with tables and bulletin board or whiteboard. This should be a separate room and not used by other event volunteers.
- Assemble the trophies and award plates for the event

Print these documents, collate, and place them in a folder, one for each Judge Team and one for the Judge Advisor:

- Event agenda
- List of awards to be offered at the event
- Judge Guide (this document)
    - (contained in this guide, VEX Awards Scoring and Ranking Sheets)
    - (contained in this guide, Student Interview and Discussion Tips Sheet)
    - (contained in this guide, Judges Note to Missed Teams)
- Map of the event/pit area (if available)

Print these documents and place in the Judge Advisor's folder:

- List of Judges names and contact information
- One Design Award Rubric per team plus a few extras
- One set of the Standard Award Descriptions for awards that will be offered at the event (to be posted in the Judges Room)

Individual Awards

Determine the Individual Awards, if offered at the event. The Event Partner or the event planning committee will determine recipients of individual awards: Volunteer, Mentor, Teacher, Partner. Refer to the Game Manual Awards Appendices for more information on these awards.

The day before the event during setup:

- Prepare the Judges Room; may also be done with help from the Judge Advisor.
- Put all of the gathered judging materials in the Judges Room.
- Post the list of awards to be offered in the Judges Room.
- Post the Standard Award Descriptions for the awards that will be offered on a bulletin board, whiteboard, or wall in the Judges room. Allow room for Post-It® notes or scrap paper with notes to be posted below the Standard Award Descriptions.

Event day after check-in closes and the match schedule has been generated:

Print the following from Tournament Manager and distribute one to each Judge Team and the Judge Advisor:

- Team list
- Match list by team number
- Match list by match number
- One set only of the Awards Ceremony Scripts for the Judge Advisor only

During the event:

- **DO NOT** make any decisions or recommendations on any Judged awards, except the individual awards that are awarded to adults.
- In the (rare) case that no teams meet the minimum requirements for the Design and Excellence Awards, contact your Regional Support Manager. The award configurations will need to be adjusted at robotevents.com. The Tournament Manager Operator will also need to uncheck the awards using Tools, Options, Awards.
- Just before the last qualifying rounds begin, print a copy of the Match Rankings and Skills Rankings and deliver to the Judge Advisor for consideration during judging deliberations.

After the last finals match has been scored:

Assist the Tournament Manager operator to upload and finalize the event in Tournament Manager:

- At the Awards tab, click Auto Fill Winners to populate the performance awards fields.
- At the Awards tab, verify the Award Winners for the Judged Awards are populated with the winning teams as entered by the Judge Advisor.
- Click File, Upload Results to Robotevents.com, click the Finalize check box, and click Upload Now.
- Note that the event results will not upload and finalize unless the awards in Tournament Manager and the awards at robotevents.com match exactly. Contact your Regional Support Manager if you have difficulty uploading and finalizing the results.
- If the event qualifies teams to a higher-level event, the qualification emails will be sent to the team contact listed in RobotEvents.com after the results have been uploaded and finalized.

Design Award Rubric

Page 1 — *Engineering Notebook Review*

Rubrics are strictly confidential; they are not shared beyond the Judges/Judge Advisor and shall be destroyed at the end of the event.

Team #: _____

Program level: ☐ Elementary ☐ Middle ☐ High or VEX U

Judges: _____

Directions: Write the points in each row for the criterion that best describes the performance of the Engineering Notebook on each topic. Total the points.

Topic		Criteria			Points
		Expert *(4-5 points)*	**Proficient** *(2-3 points)*	**Emerging** *(0-1 points)*	
Engineering Design Process	Identify game and robot design challenges and goals	Identifies the game challenge or robot design challenge in detail at the start of each design process cycle with words and pictures. States the goals for accomplishing the challenge.	Identifies the challenge at the start of each design cycle. Lacking details in words, pictures, or goals.	Does not identify the challenge at the start of each design cycle.	
	Brainstorm and diagram or prototype solutions	Lists three or more possible solutions to the challenge with labeled diagrams. Citations provided for ideas that came from outside sources such as online videos or other teams.	Lists one or two possible solutions to the challenge. No citations provided for ideas that came from outside sources.	Does not list any solutions to the challenge.	
	Select the best solution and plan	Explains why the solution was selected through testing and/or a decision matrix. Fully describes the plan to implement the solution.	Explains why the solution was selected. Mentions the plan.	Does not explain why the solution was selected or does not mention the plan.	
	Build and program the solution	Records the steps to build and program the solution. Includes enough detail that the reader could recreate the solution following the steps in the Notebook.	Records the key steps to build and program the solution. Lacks sufficient detail to recreate the solution.	Does not record the key steps to build and program the solution.	
	Test solution	Records all the steps to test the solution, including test results.	Records the key steps to test the solution.	Does not record the steps to test the solution.	
	Repeat design process	Shows that the design process is repeated multiple times to improve performance on an individual design goal or overall robot or game performance.	Shows that the design process is not often repeated for individual design goals or overall robot or game performance.	Does not show that the design process is repeated.	
Usefulness and repeatability		Records the entire design and development process in such great clarity and detail that the reader could recreate the project's history and build the current robot from the notebook.	Records the design and development process completely but lacks sufficient detail to fully recreate the entire project or robot.	Does not record the design and development process or lacks sufficient detail to understand the design process.	
Record of team and project management		Provides a complete record of team and project assignments; written in ink; notes from team meetings including goals, decisions, and accomplishments; name or initials of author; each page numbered and dated. Design cycles are easily identified. Includes Table of Contents and/or Index so anyone can easily locate needed information.	Records most of the information listed at the left. Not written in ink. Organized so that team members can locate most of the needed information.	Does not record most of the information listed at the left. Not organized; needed information difficult to locate.	
Notebook construction		Five (5) points if notebook is bound. Notebook must have been bound before any entries were made in it.	Zero points for any other notebook construction.	Zero points for any other notebook construction.	
Describe a few of the best features of the Engineering Notebook:				Total points for Engineering Notebook	

Design Award Rubric Page 2 — *Team Interview with Judges*

Rubrics are strictly confidential; they are not shared beyond the Judges/Judge Advisor and shall be destroyed at the end of the event.

Team #: _____

Program level: ☐ Elementary ☐ Middle ☐ HS or VEX U

Judges: _____

Directions: Write the points in each row for the criterion that best describes the performance of the Engineering Notebook on each topic. Total the points.

Topic	Criteria			Points
	Expert *(4-5 points)*	**Proficient** *(2-3 points)*	**Emerging** *(0-1 points)*	
Design process and Engineering Notebook	Students clearly explain all aspects of the design process and how they recorded their use of the design process in the Notebook.	Students can explain most aspects of the design process and how they recorded their use of the process.	Students can explain only limited aspects of the design process and how they recorded their use of the process.	
Game strategies and robot designs	Students can describe three or more game strategies and robot designs that were considered; students can fully explain how and why the current game strategy and robot design were chosen.	Students can describe two game strategies and robot designs that were considered; students can explain how and why the current game strategy or robot design were chosen.	Students can describe only their current game strategy and design, or they cannot explain how and why the current game strategy or robot design were chosen.	
Project and team management	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; students can explain management of material resources.	Students can explain how team progress was monitored, or how students were assigned to tasks, or management of material resources.	Students cannot explain how team progress was monitored or how students were assigned to tasks or how material resources were managed.	
Teamwork and communication	Students can explain how multiple team members contributed to the robot design and game strategy. All students answer questions independently.	Students can explain how most team members contributed to the robot design and game strategy. Students support each other as needed to answer questions.	Only one team member answered questions or contributed to the robot design process.	
Respect and courtesy	Students answer respectfully and courteously. Students make sure each team member contributes. Students wait to speak until others have finished.	Students answer respectfully and courteously. Some students attempt to contribute but are interrupted by other students.	Students do not answer respectfully and courteously. Students interrupt each other or the Judges.	

Describe a few of the best features of the team interview:		
	Total points for Team Interview:	
	Total points for Engineering Notebook:	
	Total points for Design Award Rubric:	

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 #: _____

Team Name: _____

Program level: ☐ Elementary ☐ Middle

Judges: _____

For more details review the STEM Research Project and VEX IQ Challenge Awards Appendix on the VEX IQ Challenge web page.

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

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

Describe the best features of this video presentation:
(Continue 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

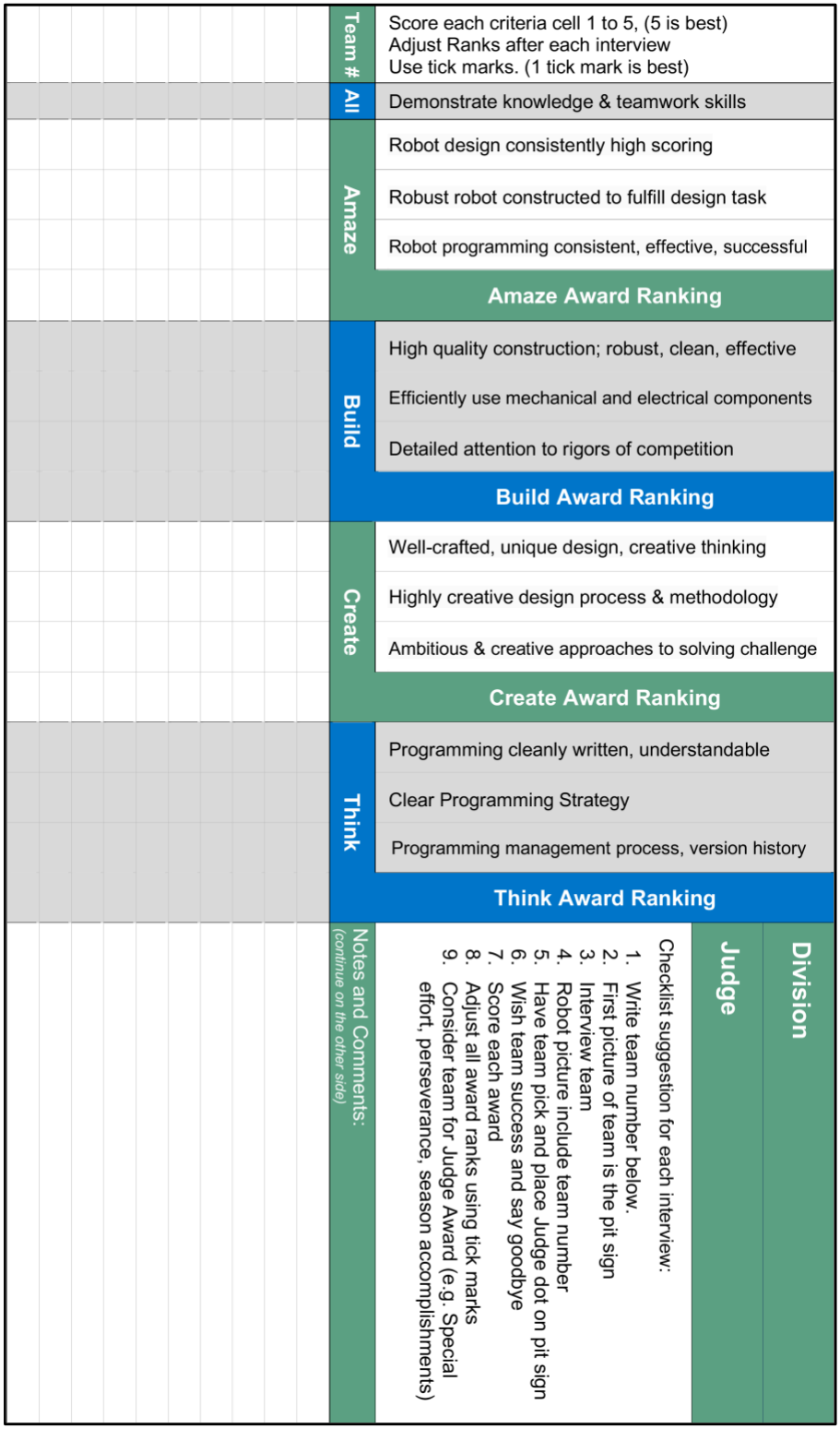
_____

_____

_____

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.

VEX IQ Challenge
Awards Scoring and Ranking



VRC/VEX U Awards Scoring and Ranking

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

Judge | **Division**

VRC/VEX U Awards Scoring and Ranking

										Team #	Score each criteria cell 1 to 5, (5 is best) Adjust Ranks after each interview Use tick marks. (1 tick mark is best)
										All	Teamwork, interview quality, professionalism
										Innovate	Ingenious/innovative engineering design
											Soundly crafted, effective problem solution
											Solution integrated into overall well-crafted robot
											Understand & explain innovative feature
											Innovate Award Ranking
										Sportsmanship	Courteous, respectful, helpful to all at event
											Spirit of friendly competition/cooperation
											Respect & help event staff & others
											Excitement & enthusiasm
											Sportsmanship Award
										Energy	High level of excitement and enthusiasm
											Enriches event for all by passion for competition & robotics
											Energy Award Ranking
										Notes and Comments: *(continue on the other side)*	**Judge** / **Division** 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)

Student Interview and Discussion Tips and Sample Questions

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?

Student Interview and Discussion Tips and Sample Questions for Judges

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 place 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 programed 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 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: _____

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

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: _____

Judge Sign-in Sheet

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).

Name	Please provide your email	Please give a cell phone number that you may be contacted at during the event	Please list any team numbers you are affiliated with

Field Note to Judges

MATCH#		DATE:	
TEAM Number			
TEAM Name			
School Name			

GREEN	Please tell the judges what you have observed. This may be either positive feedback, which you want judges to know, or reporting a problem that you believe judges should be aware of during their confidential deliberations.	RED

Referee Emcee Div. Manager	Print and sign full name	TIME:	

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

VEX IQ CHALLENGE

REC Foundation

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.

VEX IQ CHALLENGE

REC Foundation

AMAZE

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

BUILD

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

VEX IQ CHALLENGE

REC Foundation

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

VEX IQ CHALLENGE

REC Foundation

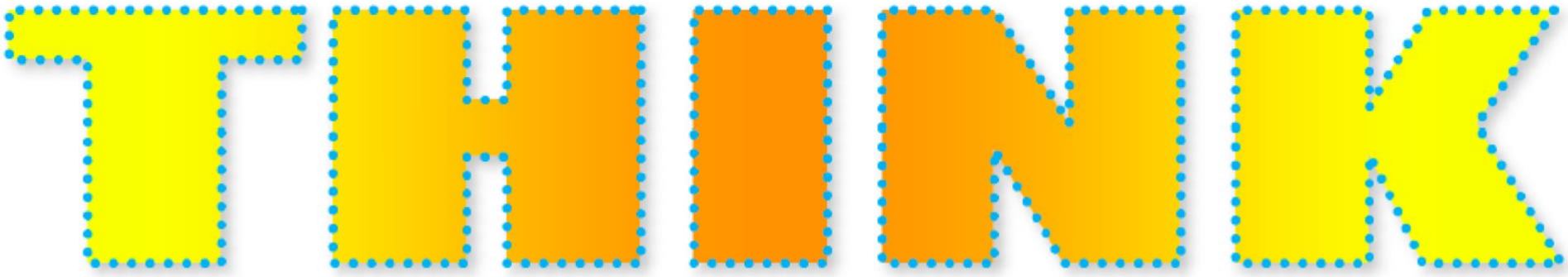
Displays a high level of enthusiasm and passion at the event

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

VEX IQ CHALLENGE

REC Foundation



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

VEX IQ CHALLENGE

REC Foundation

SPORTSMANSHIP

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

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

VEX ROBOTICS COMPETITION

REC Foundation

AMAZE

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

VEX ROBOTICS COMPETITION

REC Foundation

BUILD

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

VEX ROBOTICS COMPETITION

REC Foundation

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.

VEX ROBOTICS COMPETITION

REC Foundation

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

VEX ROBOTICS COMPETITION

REC Foundation

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

VEX ROBOTICS COMPETITION

REC Foundation

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

VEX ROBOTICS COMPETITION

REC Foundation

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

VEX ROBOTICS COMPETITION

REC Foundation

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.

VEX ROBOTICS COMPETITION

REC Foundation

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

VEX ROBOTICS COMPETITION

REC Foundation

SPORTSMANSHIP

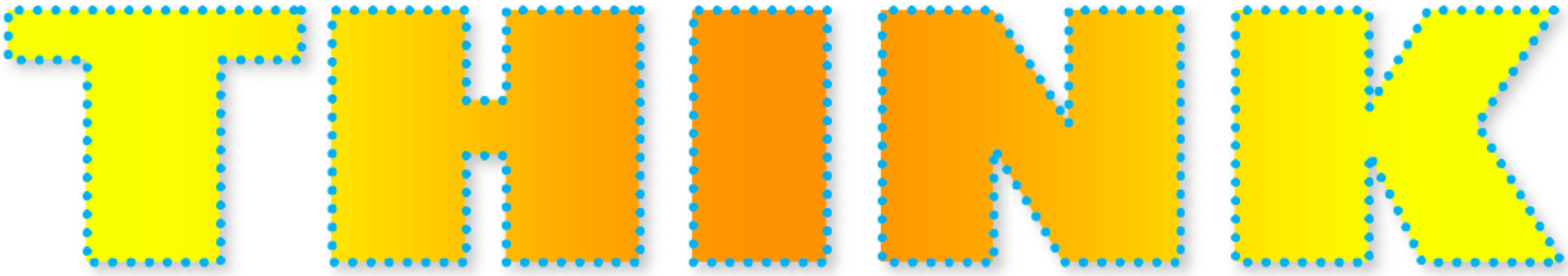
Team that is extremely courteous and most enthusiastic throughout the event

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

VEX ROBOTICS COMPETITION

REC Foundation



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

VEX ROBOTICS COMPETITION

REC Foundation