2015-2016 FIRST® Tech Challenge Judge Manual



Volunteer Thank You

Thank you for taking the time to volunteer for a FIRST Tech Challenge Event. FIRST and FIRST TECH CHALLENGE rely heavily on Volunteers to ensure Events run smoothly and are a fun experience for Teams and their families, which could not happen without people like you. With over 4,500 Teams competing annually, your dedication and commitment are paramount to the success of each Event and the FIRST TECH CHALLENGE program. Thank you for your time and effort in supporting the mission of FIRST!



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	Revision History							
Revision	Date	Description						
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Introduction

What is the FIRST Tech Challenge?

FIRST Tech Challenge is a student-centered activity that focuses on giving students a unique and stimulating experience. Each year, Teams participate in a new Game that requires them to design, build, test, and program autonomous and driver-operated Robots that must perform a series of tasks.

The Playing Field for the Game consists of the FIRST Tech Challenge Game Pieces set up on a foam-mat surface, surrounded by a metal and Lexan Field frame. Each Tournament features Alliances, which are comprised of two Teams, competing against one another on the Playing Field. Teams work to overcome obstacles and meet challenges, while learning from and interacting with their peers and adult Mentors. Students develop a greater appreciation of science and technology and how they might use that knowledge to impact the world around them in a positive manner. They also cultivate life skills such as:

FIRST Tech Challenge is More Than Robots! While competing, students develop personal and professional skills they will be able to rely on throughout their

- Planning, brainstorming, and creative problem-solving.
- Research and technical skills.
- Collaboration and Teamwork.
- Appreciation of differences and respect for the ideas and contributions of others.

To learn more about FTC and other FIRST Robotics Competitions, visit www.firstinspires.org.

FIRST Tech Challenge Core Values

FIRST asks everyone who participates in FIRST Tech Challenge to uphold the following values:

- We display Gracious Professionalism with everyone we engage with and in everything we do.
- We act with integrity.
- We have fun.
- We are a welcoming community of students, Mentors, and volunteers.
- What we learn is more important than what we win.
- We respect each other and celebrate our diversity.
- Students and adults work together to find solutions to challenges.
- We honor the spirit of friendly Competition.
- We behave with courtesy and compassion for others at all times.
- We act as ambassadors for FIRST and the FIRST Tech Challenge.
- We inspire others to adopt these values.



Gracious Professionalism[™]

FIRST uses this term to describe the program's intent. This is one of the most important concepts that can be taught to a young person who is learning to get along in the work world. At FIRST, Team members help other Team members, but they also help other Teams.

Gracious Professionalism is not clearly defined for a reason. It can and should mean different things to everyone.

Some possible meanings of Gracious Professionalism include:

- Gracious attitudes and behaviors are win-win.
- Gracious folks respect others and let that respect show in their actions.
- Professionals possess special knowledge and are trusted by society to use that knowledge responsibly.
- Gracious Professionals make a valued contribution in a manner pleasing to others and to themselves.

In the context of FIRST, this means that all Teams and participants should:

- Learn to be strong competitors, but also treat one another with respect and kindness in the process.
- Avoid leaving anyone feeling as if they are excluded or unappreciated.
- Knowledge, pride and empathy should be comfortably and genuinely blended.

In the end, Gracious Professionalism is part of pursuing a meaningful life. When professionals use knowledge in a gracious manner and individuals act with integrity and sensitivity, everyone wins, and society benefits.

Watch Dr. Woodie Flowers explain Gracious Professionalism in this short video.



"The FIRST spirit encourages doing high-quality, well-informed work in a manner that leaves everyone feeling valued. Gracious Professionalism seems to be a good descriptor for part of the ethos of FIRST. It is part of what makes FIRST different and wonderful."

- Dr. Woodie Flowers, National Advisor for *FIRST*

An example of Gracious Professionalism is patiently listening to a Team's question and providing support despite having several pressing things to do on the day of the Event.

Youth Protection Program

The purpose of the FIRST Youth Protection Program (FIRST YPP) is to provide coaches, mentors, volunteers, employees, and others working in FIRST programs, Team members, parents, and guardians of Team members with information, guidelines, and procedures to create safe environments for everyone participating in FIRST programs.

The FIRST YPP sets minimum standards recommended for all FIRST activities. Adults working in FIRST programs must be knowledgeable of the standards set by the FIRST YPP. as well as those set by the school or organization hosting their Team.

Youth Protection Expectations and Guidelines

Coaches and Mentors are expected to read and follow elements in the FIRST Youth Protection Program guide that are labeled as required. These are mandatory in the United States and Canada, and may not be waived without the approval of the FIRST Youth Protection Department.



FIRST recommends that the standards set forth in the FIRST Youth Protection Program guide be applied outside of the United States and Canada to the extent possible. At a minimum, local regulations regarding youth protection must be complied with.

Everyone working with FIRST Teams should be familiar with the FIRST YPP policies.

Forms are available here: http://www.firstinspires.org/resourcelibrary/youth-protection-policy

Information on the US Screening process is available here: http://www.firstinspires.org/sites/default/files/uploads/about/US-Screening-Screen-Shots.pdf

Information on the Canadian Screening process is available here: http://vimeo.com/30137373

You can find FAQ and additional information about the FIRST Youth Protection Program on the FIRST website at: http://www.firstinspires.org/resource-library/youth-protection-policy

NOTICE OF NON-DISCRIMINATION

United States Foundation for Inspiration and Recognition of Science and Technology (FIRST®) does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Lee Doucette, Youth Protection Program Manager, 200 Bedford Street, Manchester, NH 03101, 603-666-3906. Ext. 250.



What is the FIRST Tech Challenge Judges Manual?

The purpose of the FIRST Tech Challenge Judge Manual is to:

- Define the role of a Judge at an FIRST Tech Challegne Event.
- Provide new Judges a baseline understanding of what to expect Volunteering as a Judge.
- Familiarize Judges with each Award and the criteria for each.
- Step by step instructions on the deliberation process.

This guide focuses on the skills and concepts needed for the development of the following general goals:



- Provide an understanding of the Team Interview process.
- Review the Engineering Notebook.
- Evaluate the Control Award.

This guide would not be possible without the contributions of time, ideas, and resources provided by the following people:

Content provided by Jill Wilker and Kevin Ross.

Position Description

- **Physical/Technical Requirements:**
 - Technical Medium
 - Physical Medium
 - Administrative Medium
 - Communication High
- Training Requirements: Judges should read and understand this Manual prior to Volunteering at an Event. They are required to watch the Judge training video, and can take an optional Certification Test to assess their knowledge. The approximate timeframe for training is 2 hours.
- **Time Commitment**: A Judge can expect to commit to a full days Event, approximately 10 hours.
- Proper Attire: Judges are often provided with a shirt to wear during Competition. Check with the Tournament Director prior to the Event if a shirt will be provided. Some Judges observe Matches, and Interview Teams in the pit area so be sure to wear comfortable, close toed shoes. ANSI Z87.1 certified safety glasses are required in the Competition Area.

FIRST TECH CHALLENGE is looking for Dean's List Interviewers and Deans List Reviewers. If you or someone you know is interested in certifying as a Dean's List Interviewer or a Dean's List Reviewer, please contact FTCDeansList@firstinspires.org, with the subject line "Volunteer". Please see Appendix G for role descriptions.

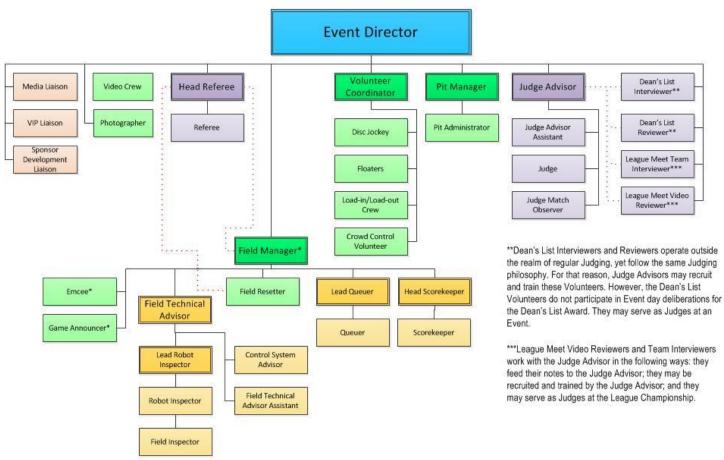
Judges are strongly encouraged to train and certify for the Dean's List Interviewer position. This would allow a Judge to not only interview Teams for the already required awards, but also double as an Interviewer for the Dean's List Award if there are nominations at that Event.



Organizational Chart

The Judge and Judge Assistants report to the Judge Advisor. Refer to the Organizational Chart below for the relationship between roles and Volunteer reporting at Tournaments. The Judge Advisor reports to the Tournament Director.

Suggested FIRST Tech Challenge Event Organizational Chart



^{*} For events without a Field Manager, all volunteers that report to the Field Manager will report to the Field Technical Advisor except the Game Announcer and Emcee who report to the Volunteer Coordinator.

Role Responsibilities

Judge

The primary role of a Judge is to interview Teams, and to decide which Teams deserve an Award based upon the Interview, the Robot, Match play, and the Engineering Notebook. Judges are paired in groups of 2-3 to Interview a set amount of Teams prior to the Competition beginning.

During the Event, Judges will:

- Conduct Team interviews.
- Review Team Engineering Notebooks.
- Observe Competition Matches.
- Determine the 3 top ranked Teams for each Judge Award.
- Come to consensus with other Judges on the recipient of each Award.
- Share their notes on top ranked and winning Teams with the Judge Advisor and other Judges for use in Award Ceremony script.

This guide will walk through all of the responsibilities, in detail that a Judge will have to prepare for on Competition day.

Lastly, make sure to smile, and have an enjoyable day!

Additional Roles

Judge Match Observer

Most of the Judges will be involved in the Judge Interviews, and will not have much time to see the Teams and Robots in action. Two or three Judges will be asked to serve as Judge Match Observers. Their role is to observe the Teams Gracious Professionalism, the action on the Field, and collect data on the quality of the Robot performance in the actual contest. These Observers will keep notes on each Team during a Match, collecting observations about:

Gracious Professionalism:

- How the Team responds to wins or losses.
- How the Team interacts with their Alliance partner.
- How the Team interacts with the Event Volunteers.
- How the Team interacts with other Teams.

Robot/Match Play:

- Autonomous Operation.
- Robots reliability during the Match.
- Team Strategy.





Many of the Awards that are discussed during deliberations have qualities that need to be observed during the Competition. The Judge Match Observer will be able to see all of the Teams more than once and collect information on each. We recommend having a Match Observer sheet for each Team to help keep things organized. The Match Observers will be involved in the deliberation process by providing much-needed feedback to the other Judges about the Team, the Team strategy, the Team's interactions with others, and the operational qualities of the Robots.

Judge Advisor Assistant

The Judge Advisor Assistant is responsible for assisting the Judge Advisor throughout the Event, providing computer support (word processing), and performing other duties as assigned. The Judge Assistant is not a Judge and does not Interview Teams or participate in Awards recipient selection process. The Judge Assistant is responsible for setting up the Judge's room on the evening before or morning of the Event. They are also responsible for breaking it down after the Judges have reached their decisions.

At the Event, the Judge Assistant will:

- Act as time keeper for Judge Interviews.
- Update Judges on any schedule changes that occur throughout the day.
- Provide Judges with Engineering Notebooks.
- Provide an extra pair of eyes and ears for the Judges.

Pre-Tournament Responsibilities

Prior to the Event, Judges read and watch the required training materials and take an optional Certification test to help reinforce their knowledge of the position.

Event Day Timeline

Below is an example timeline of what an Event day can look like.

6:45 – 7:15	7:30 – 9:30	9:30 – 10:00	10:15 – 10:30	10:30 – 12:00	12:00 – 1:00	1:00 - 2:00	2:00 - 2:30	3:30
Morning Meeting	Team Interviews	Initial Deliberations	Opening Ceremony	Pit Interviews/Match Observation	LUNCH	Final Deliberations	Award Scripts	Closing Ceremony

Review Game Manuals

Judges must review the Game Manual Part 1, particularly the following sections:

- Section 4.0 Tournament overview. This provides detailed information about the flow of the Event day.
- Section 7.3 Engineering Notebooks.
- Section 7.0 Judging and Award Criteria.

Judges can also review the Game Manual Part II (although not required) to be familiar with this seasons Game.

Conflict of Interest

"Conflict of Interest – a conflict between the private interests and the official responsibilities of a person in a position of trust. "Conflict of Interest." Merriam-Webster.com Merriam-Webster, n.d. Web. 2 Oct. 2014. http://www.merriam-webster.com/dictionary/conflict of interest"

All Judges will be asked to disclose any potential Conflicts of Interest, and to complete the Conflict of Interest and Disclosure form. During the Judges meeting, Judges will be asked to declare any potential conflicts to the rest of the Judging pool. Some scenarios of conflict of interests:

- A Coach/Mentor is volunteering as a Judge;
- A Parent/Relative of a Team member is volunteering as a Judge;
- An Alumni of a Team competing at the event is volunteering as a Judge;
- A Sponsor of a Team that is competing at the event is volunteering as a Judge.

Having a Conflict of Interest, or even the perception of a Conflict of Interest can impact a Teams experience, even if decisions that were made throughout the day were not biased in any way. The perception of potential favoritism is enough to discourage a Team, Coach or Mentor, and take away from their overall experience at an Event. Knowing what Conflict of Interest is, and how to avoid being in a position that could be seen as a Conflict will ensure all Teams feel they have been evaluated fairly.

Conflict of Interest, in some cases can be very black and white. In other cases, it may be a gray area, and it may be difficult to determine what constitutes a true Conflict of Interest. In some cases, the bias may be apparent, while other times a Conflict of Interest may be perceived by a Team or a Coach. It is best to keep the following in mind when Volunteering:

- Be open and forthcoming about Conflicts you may have with a Team competing at the Event.
- If there is a known Conflict of Interest, avoid making decisions about a Team that would change the outcome of the day, such as speaking for or against a Team in Judge Deliberations.
- Remove yourself from any situation that could be perceived as a Conflict of Interest.



FIRST TECH CHALLENGE Award Eligibility

To ensure fairness to all Teams and to provide equal opportunity for all Teams to win an Award at an FIRST TECH CHALLENGE Championship Tournament, Teams are only eligible to win an Award at the first three Championship Tournaments that they attend. Those Teams who compete in more than three Qualifying Tournament, League Championships, and Championship Tournaments do so for the purpose of being involved in the fun and excitement of the Tournament and not with the intention of winning Awards or advancing to the next Tournament level. This is not optional, and there are no exceptions to this rule.

Teams are allowed to win the Inspire Award only once during each Tournament level (Qualifying Tournament/League Championship, Championship) within a state or region. Once a Team wins the Inspire Award at a Qualifying Tournament, they are not eligible for consideration for the Inspire Award within that region, and are only eligible to win the other Judged or Alliance Awards at subsequent Qualifying Tournaments. Teams are required to notify the Tournament Director if they are not eligible for the Inspire Award. This is not optional, and there are no exceptions to this rule.

Teams are allowed to win the Inspire Award only once during each Championship Tournament level event with in a Super Region (the area that is supported by a Super Regional). Once a Team wins the Inspire Award at a Championship Tournament, they are not eligible for consideration for the Inspire Award at any other Championship Tournament within that Super Region, and are only eligible to win the other Judged or Alliance Awards at subsequent Championship Tournaments. Teams are required to notify the Tournament Director if they are not eligible for the Inspire Award. This is not optional, and there are no exceptions to this rule.

Teams may be Finalists for multiple awards, but may only win one Judged Award at any event. The Compass and Promote Awards are the only exceptions to this rule.

Tournament Day Responsibilities

Morning Meeting

Judges should plan to arrive at least one hour prior to the start of the Event. A morning meeting is held before any Judging takes place. This gives the Judge Advisor the opportunity to discuss the flow of the day, provide training where necessary, and provide the Event day schedule. It's also a great opportunity for the Judges to see the Event layout and where the Interviews and deliberations will take place.

Formal Team Interviews

The formal Interviews are a way for the Judges to evaluate each Team for every Award category. The formal Interview is where each Team will get to speak with a panel of 2-3 Judges, talk about their Robot, their journey, and have the Judges ask questions. Teams should arrive to the Interview with their Robot and their Engineering Notebook. At this point the Engineering Notebooks will be collected for later review. The only thing left behind after the Interview is the Engineering Notebook and at some events, the Control Award Content Sheet (if applying for the Control Award.)





Engineering Notebook

Since almost all of the Judged Awards require an Engineering Notebook to be submitted, make sure to understand the basic guidelines and format the Teams must follow. When reviewing the notebook, it's important to understand the differences between "requirements" and "nice to have" content and formatting.

Engineering Notebook Requirements

- 1. The Team Number and Team Name must appear on the outside of the Engineering Notebook. Engineering Notebooks will not be considered without this information.
- 2. A summary page must be attached to the front cover of the Engineering Notebook. The summary should be one page and include a summary narrative about the Team, school, or organization with bulleted highlights of the Team's season. The Team summary page should also include the Team number and a list of pages in the Engineering Notebook that the Team would most like the Judges to consider.





- 3. The Engineering Notebook must be divided into multiple sections, including:
 - a. An Engineering Section that includes the Robot design processes (required).
 - b. A Team Section that includes information about the Team and outreach activities (required).
 - c. And one or more of the following (not required).
 - i. A Business plan
 - ii. A Strategic plan
 - A Sustainability plan iii.

The Judges will later be broken up into specialized panel of 2-3 Judges that will review the Notebooks after initial deliberations.

It is also important to remember these notebooks aren't typical to what you would see in a professional/real life notebook. FIRST TECH CHALLENGE isn't just about the Robot; it's about the Team and their experiences while participating in the program. Expect to see their engineering process, along with Team pictures, bios, and outreach efforts.

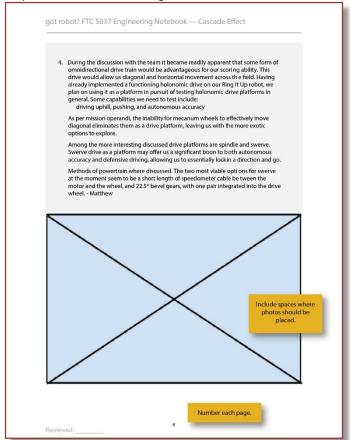
Judging the Engineering Notebook

- Judges review the Engineering Notebook directly after the Interview. Taking 1-3 minutes after the Interview can provide a quick idea about the content in the notebook.
- Each Judge panel will nominate between one or two notebooks that best satisfy all of the requirements outlined in Game Manual Part 1.

When judging the Engineering Notebook, Judges should be sure that the Engineering Requirements are met (see above). After the minimal requirements are met, content is king. Sometimes when judging the Engineering Notebook it's easy to focus only on the nuances of formatting and layout. The Judges reviewing the Notebook should not disqualify an engineering notebook simply for formatting or layout issues.

Judging the Control Award

The Control Award differs from the rest in that Teams must apply for this Award. A Team applying for this Award must pass in their Control Award Content Sheet (located in Game Manual Part 1). This Award focuses on a Team's ability to program a Robot that can reliably and efficiently accomplish tasks during Match play, in a way that enhances their ability to score during a Match. This is not limited to Autonomous operation; the Team might write programming that will run during the driver-controlled period that, for example, removes a task that a student Driver may otherwise have had to control using their Gamepad.



Judges Process

The Judges are responsible for collecting the content sheet at the beginning of the Teams' Interview. After the Team Interview is complete, the Judges will reference the sections of the Engineering Notebook that the Team has indicated on the Control Award Content Sheet. The Judges should look for:

- What sensors/hardware the Team has tried on the Robot; what worked, what didn't, and why.
- What algorithm or code the Team has programmed their robot with; what worked, what didn't, and

The Judges should pay attention to the program and design process rather that verifying of the Team entered the code into their notebook. The design process is more critical than the code itself.

Just like having Engineering Notebook reviewers, the Judge Advisor will assign a group of 2-3 Judges to review the Control Award Content Sheets and Engineering Notebooks once Interviews are complete.

The evaluation of the Control Award differs from the other Awards. Make sure to review the guidelines for the Control Award in the Game Manual Part I.

Observation

Once the Interviews have been completed, the Judges need to see the Robots in action. The Judges responsible for reviewing this award must visit the Competition area to watch the Matches. They must bring along the content sheets that illustrates the control functions of the Robot.

The Judges must also visit the Teams in the Pit to ask follow up questions. Some Teams may need to change strategy mid Competition to complement their Alliance partner, and the Teams actions on the Field could differ slightly that what was documented on the Content Sheet.

Initial Deliberations

Once the initial Team Interviews have been completed, it is time for the Judges to gather in the deliberation room and make some initial Award decisions. This initial round of deliberations will help the Judges start to pare down the top contenders based on their Interview alone. The Judges will still need to later observe Matches, and Interview Teams in the Pits if they can. Each Judge pair will recommend a Team for each Award, except for the Inspire Award. Initial deliberations must not include any recommendations for the Inspire Award.

Judges are not required to nominate Teams for each Award. If they do not have a contender, they shouldn't nominate.

The Inspire Award is the last Award determined. The Teams that wins this Award generally are nominated for multiple Award categories, and will "bubble up" to the top of the list. Nominating a strong Team only for the Inspire Award could leave them without any recognition for their accomplishments.

The process for handling Judge Deliberations is as follows:

- For each Award, the Judge Advisor will create a separate list on a whiteboard or oversized pad that the entire Judging panel can see. Put the names of the Awards on the top line (see Appendix F for an example).
- For each Award, each panel will give their top 2 Teams. Smaller Events may need the top 3. Do this for all Awards except for the Inspire Award. The Inspire Award nominees are handled differently.
- Judges may only nominate teams who have met the initial required Award criteria.



A few tips on creating the Award Candidates list:

- Panels are not required to nominate Teams for each Award. If they don't feel like they would be ready to make a strong case for a Team to win a particular Award, then not putting the Team on the list saves processing time for everyone. This is especially true for Events that are hosting more than 20 Teams.
- Include brief notes on why each Team is on the list.
- If the Team is very strong in all categories, then they should be nominated for all categories. No team is submitted directly to the Inspire category.
- Remember that every Award category now includes a list of requirements. All teams in consideration for Judged Awards must meet the requirements.

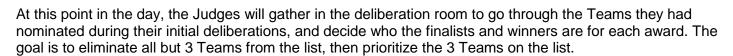
Pit Interviews and Match Observation

Once the initial round of deliberations is complete, it's time to gather additional information about the Teams. After the Judges have been reorganized into panels for each Award, the Judges should visit the Pits and the Competition area to talk with the Teams and watch Matches.

The Judges should visit as many Teams as possible, as time permits. Having the Judges Interview many Teams can provide an opportunity for a Team to present information they might not have shared in their Interview.



Once the Judges have had the chance to Interview Teams, see Match play, and visit the Teams, the Judges must come together and make final decisions on the winners of each Award.



As each panel nominates Teams for each Award, make sure to consider feedback from the panel of Judges that were assigned to the Engineering Notebook, the Judges that were assigned as Match Observers, and the Judges that were assigned to the Control Award. For example, the Judge Panel assigned to the Connect Award may place their top contenders on the list. However the Judges that reviewed the Engineering Notebook may have feedback that there wasn't a business plan listed in their Engineering Notebook. While creating the list, pay attention to each Award that requires the Engineering Notebook, and get feedback to ensure all requirements of each Award have been satisfied. Be sure to check with the Match Observers to learn how the Team interacts with others, and about their Game Strategy.

Once the list has been created, the winner and finalists of the Inspire Award must be determined. The Judges should look over the top contenders for the other Awards, and if these same Teams are repeated throughout multiple Award categories. At this point, it will be clear on which Teams should be placed into the Category of Inspire Award.

This may also mean that Teams must be taken out of other Award categories they were previously nominated for, especially if the list of nominated teams for an award is long. The best way to move through these Awards is to work down from the top of the Advancement list.



Equitable Distribution of Awards

When deciding the winners and finalists of each Award, it is necessary to understand that Teams can only win one Judged Award at an Event (this does not include the

Promote and Compass Award). Finalists of each Award do not count as Award winners (this includes 2nd and 3rd place Inspire Award finalists). Although it may be that a Team comes to the top of the list time and time again, ultimately they can only win ONE Judged Award. In cases where the same Team is up for multiple Awards, discuss each Award with the Judges and determine in which category the Team was strongest. Teams should win the Award for which they are best suited.

Although Teams can only win one Judged Award at the Event, they are eligible to receive a **Competition Award in addition to** a Judged Award.

Likewise, when making the final decisions, it may be that two Teams are so close the Judges feel both Teams should win, and that a tie should be made on a particular Award. Ties should never be given, it is up to the Judges to determine which of the top contenders is most deserving to be the winner of the Award.

Many regional Events have Judges Awards. These are given to Teams who may not fit into a standard category. This allows the Judges an opportunity to provide a deserving Team with recognition when the Team might not otherwise receive it. The Judges Award should never be treated as a 2nd place or replacement for an existing Award.

Award Scripts

Once Award winners have been identified, the Judges are responsible for writing Awards scripts. There is a format to the Awards scripts that we like to use. A good Award script is usually three sentences. The structure of the sentences is important.

- 1. Sentence one could apply to many Teams, but has a subtle hint.
- 2. Sentence two has a hint in which the winning Team might understand.
- 3. Sentence three has a bigger hint, leaving the Team somewhat sure who it is, but is not 100% positive.
- 4. The last sentence is: "And the Award goes to..."

Example: Team 3344 is called the Robo-Knights, from Carnation, WA. They are winners of the PTC Design Award. Their Team colors are blue, they have a Robot with an impressive arm design, and the Robot has a shiny blue finish. The Award script might say:

"This VALIANT effort required many nights designing a Robot with an impressive array of features. In particular, a strong arm and a solid design have their opponents turning BLUE with envy. A SHINING example worthy of a knight at the round table of Camelot, the PTC Design Award goes to Team 3344 the Robo-Knights from Carnation, WA."

Key points about Award scripts:

- Judges should write them. They have the notes and details needed.
- Always read them aloud when making final edits. They often read and speak differently.
- Do the Emcee a favor: Avoid long sentences and long words. Someone else needs to read your script.
- Pay attention to words to emphasize, and capitalize them for the Emcee.
- Don't reveal the winner in the first sentence. Rewrite it to reveal the result only at the end.

Keep in mind that scripts are only needed for the winners of the Award. The Judges do not need to write scripts for the Finalists.



End of the Day

Awards and Closing Ceremony

Once the Awards have been decided, and the Award scripts written, the Judges will attend the Awards and Closing Ceremony. At most Events the Judges will join the rest of the Event Volunteers and participate in the Award Ceremony.

When it comes time to announce the finalists and winners of each Award, the Judges line up for a "High Five Line". When the winner of each Award is announced, the Team will come up to the Stage to pick up their trophy. The Team will then high five each Judge in the line



Feedback to Teams

FIRST Tech Challenge does not endorse feedback provided to Teams during or after their Interview has taken place. FIRST Tech Challenge Judging is a subjective process; the goal is to prepare student Team members with real life Interview skills, and to continue to build upon those skills from Event to Event. Sometimes a Team may request feedback from Judges once the Event is over, and the Judges are not permitted to provide feedback to Teams.

FIRST encourages Teams to utilize the Self-Reflection Sheet to evaluate themselves through the Interview. This sheet is accessible online. If a Team requests feedback, direct them to this sheet and explain that an essential aspect of FIRST Tech Challenge Judging is the subjectivity, and that FIRST Tech Challenge encourages students to learn how to self-evaluate. Although it may be that Teams are discouraged by this, learning this process is an invaluable life skill.

Notes Taken During Judging

Notes that Judges take during interviews and deliberations should be treated as confidential and left with the Judge Advisor at the end of the day for disposal. Under no circumstances are notes to be shared with people who are not a part of the Judging pool, either intentionally or by accident.

2015-2016 FIRST Tech Challenge® **Judge Manual**

Appendices



Appendix A - Resources

Volunteer Training and Certification

In order to access the training video and optional certification for this role, please click on the following link and follow the registration instructions to create an account in Schoology. IMPORTANT: Please use the same email as your VIMS account. Link:

https://docs.google.com/forms/d/1jhhBRch5_xlM7xfQUS6plHFe64OmMXw8Lwf6V_MMXdQ/viewform?usp=se nd form

Game Forum Q&A

http://FTCforum.usfirst.org/forum.php

FIRST TECH CHALLENGE Game Manuals - Part I and II - http://firstinspires.org/node/4271

FIRST Headquarters Support

Phone: 603-666-3906 or toll free 800-871-8326

Email: FTCTeams@firstinspires.org

FIRSTINSPIRES.ORG

FIRST Tech Challenge Webpage – For everything FIRST Tech Challenge.

FIRST Tech Challenge Forum – to ask questions about the annual game challenge and participate in information sharing.

FIRST Tech Challenge Team Resources – for access to all documents related to Team management and Robot building.

FIRST Tech Challenge Technology page – links to the forum and provides an overview of the new technology development and rollout.

FIRST Tech Challenge Technology Forum – to ask questions and learn more about the new Androidbased technology.

Intelitek Training modules – for step-by-step training on using the FIRST Tech Challenge Androidbased technology.

FIRST Tech Challenge Social Media

Twitter Feed - If you are on Twitter, follow the FIRST Tech Challenge twitter feed for news updates. Facebook page - If you are on Facebook, follow the FIRST TECH CHALLENGE page for news updates.

YouTube Channel – Contains training videos, Game animations, news clips, and more.

Blog – Weekly articles for the FIRST Tech Challenge community, including Outstanding Volunteer Recognition!

Team Email Blasts – contain the most recent FIRST Tech Challenge news for Teams.

Google+ community - If you are on Google+, follow the FIRST Tech Challenge community for news updates.

Product Support

FIRST will handle questions about team registration, grants, events and partners. Pitsco will handle questions about ordering, payment and delivery of competition sets and materials.

U.S. & Canada: 800-835-0686 FREE

Outside U.S. and Canada: 620-231-0100

U.S. Fax: 800-533-8104

Feedback

We strive to create support materials that are the best they can be. If you have feedback regarding this manual, please email FTCteams@firstinspires.org. Thank you!



Appendix B – Sample Judge Questions

Here are some sample questions to provide your Judges:

- What does it mean to be a *Gracious Professional*™?
- What does your Robot do?
- How did you come up with the overall design?
- What role does each of your Team members play on your Team?
- How do you manage your time?
- How does your Team attract additional Mentors?
- What did you learn by being a part of the Team?
- How do you fundraise?
- Does your Team perform any type of community service?
- Does your Team reach out to other Teams? In what way?
- Describe a way that your Team has displayed *Gracious Professionalism*™.
- Which of your student Team members participated in an outreach activity?
- How many student members are there on your Team?
- Which of your student members participate in community service?

The additional questions below may help the Judges understand the role to the other FIRST Teams with which it is connected.

- What role did your Team play in determining what outreach activities and community service your FIRST Teams did?
- Were there any activities where your Team took the lead?
- How did you work with the other *FIRST* Tech Challenge/FRC Team(s)?

Unique Situations:

Sometimes, a Judging panel will interview a team that is a little or a lot larger than the maximum of 15 students. These teams often have very impressive outreach credentials, and it's difficult to find a fair way to provide an equitable amount of credit towards the outreach of a team of 20 students, versus the outreach that a team of 5 may have achieved, but that is exactly what we're asking you to do. If all things are equal, the work that a smaller team does should count for more than the equal amount of work that a larger team has done.

Appendix C – Judge Summary Sheet

CONFIDENTIAL - NOT TO BE SHARED WITH TEAMS

Team Name: Team #:	Needs Improvement	Fair	Good	Excellent	Comments
For All Awards					
Team must demonstrate respect and Gracious					
Professionalism toward everyone they encounter					
at an FIRST Tech Challenge event (required)					
Think Award – Engineering Notebook required					
Notebook must demonstrate that team has a clear					
understanding of the engineering design process,					
with pictures or drawings and details documenting					
all stages of Robot Design (required)					
Notebook must recount the Team's journey,					
experience and lessons learned throughout the					
season (required)					
Engineering Notebook must include entries					
describing underlying science, mathematics, and					
game strategies (required)					
Content reflects the creative design process:					
identifying the problem, research, brainstorming,					
choosing the best solution, developing and					
prototyping (required)					
Teams should flag 6 to 8 pages of the Engineering					
Section to support entries on the summary page					
Engineering Notebook should be organized and follow					
the formatting guidelines provided by FIRST and					
include a Summary Page.					
Connect Award – Engineering Notebook Required	•		•	1	
An Engineering Notebook must be submitted and					
must include a Business or Strategic Plan that					
identifies their future goals and the steps they will					
take to reach those goals. The plan could include					
fundraising goals, sustainability goals, timelines,					
outreach, and community service goals (required)					
Team provides clear examples of developing in					
person or virtual connections with the engineering,					
science, or technology community (required)					
Team actively engages with the engineering community to help them understand FIRST, the					
FIRST Tech Challenge, and the Team itself					
(required)					
Shows strong communication skills in articulating how,					
as individuals and as a Team, they have grown and					
interacted with others during the season.					



CONFIDENTIAL - NOT TO BE SHARED WITH TEAMS

Rockwell Collins Innovate Award — Engineering Notebook required Team must submit an Engineering Notebook with an Engineering Section that documents the design process and how the Team arrived at their design solution (required) Robot or Robot sub-assembly must be elegant and unique in its design (required) Robot design is efficient and consistent with Team plan and strategy (required) PTC Design Award — Engineering Notebook required Team must submit an Engineering Notebook with an Engineering Section that includes detailed Robot design drawings (required) Team demonstrates industrial design principles, striking a balance between form, function, and aesthetics (required) Basis for the design is well considered (i.e. inspiration, function, etc.) (required) Use of PTC's Creo is not required to be eligible, however, Teams that use them in their design are given extra consideration for this award Motivate Award The Team is an ambassador for FIRST programs (required) Team can clearly demonstrate the successful recruitment of new Teams, mentors, coaches and volunteers who are not otherwise active within the STEM community (required) All team member, and how these attribute to the overall success of the Team (ream (required)) All team members participate in their presentation, and actively engage with the Judges		Imp_			Ex	
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CONFIDENTIAL - NOT TO BE SHARED WITH TEAMS

Team Name: Team #:	Needs Improvement	Fair	Good	Excellent	Comments
Control Award – Engineering Notebook required					
Team must apply for the Control Award by filling out the Control Award Content Sheet (required)					
The Engineering Notebook must include an Engineering Section that documents the control components (required)					
Control Components must enhance the functionality of the Robot on the field (required)					
Advanced software techniques and algorithms are encouraged					
Control Components should work reliably					

Additional no	tes on Team:
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Additional notes on Robot:



^{*}Inspire Award Nominees are those Teams that are nominated in multiple categories. Bold items are award requirements.

^{**}Promote and Compass Awards are not Judged at Events.

Appendix D – Judge Match Observer Sheet

Team Number:			
ream Number:			

Match#	Autonomous Mode	Game Play	Reliability	Standout Notes

Appendix E - Award Categories

Inspire Award

This judged award is given to the Team that truly embodied the 'challenge' of the FIRST Tech Challenge program. The Team that receives this award is a strong ambassador for *FIRST* programs and a role model FIRST Tech Challenge Team. This Team is a top contender for many other judged awards and is a gracious competitor. The Inspire Award winner is an inspiration to other Teams, acting with Gracious Professionalism™ both on and off the Playing Field. This Team is able to communicate their experiences, enthusiasm and knowledge to other Teams, sponsors, their community, and the Judges. Working as a unit, this Team will have demonstrated success in accomplishing the task of designing and building a Robot.

The winner of the Inspire Award at each tournament level has received an automatic invitation to the next tournament level. Once a Team has won an Inspire Award at a Championship, they are no longer eligible to win the Inspire Award at additional championship tournaments they may attend. Similarly, once a Team wins an Inspire Award at a Qualifying tournament or League Championship, they are no longer eligible to win the Inspire Award at subsequent Qualification tournaments or League Championships within the same region.

Required criteria for the Inspire Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- Team is a strong contender for several other Judged awards. The Inspire Award celebrates the strongest qualities of all the Judged Awards.
- The Team is an ambassador for FIRST programs and demonstrates and documents their work in their community.
- Team dynamic is positive and inclusive, and each Team member contributes to the success of the Team.
- Engineering Notebook must be submitted, and must include an Engineering Section, a Team Section and a Business or Strategic Plan. The entire Engineering Notebook must be high quality, thoughtful, thorough, detailed and well organized.
- Robot design is creative and innovative, and the Robot performs reliably on the field. Team communicates clearly about their Robot design and strategy to the judges.
- Team presentation is professional and engaging.

Think Award

Removing engineering obstacles through creative thinking.

This judged award is given to the Team that best reflects the journey the Team took as they experienced the engineering design process during the build season. The Engineering Section of the notebook is the key reference for judges to help identify the most deserving Team. The Team's Engineering Section should focus on the design and build stage of the Team's Robot. Journal entries should include those describing the underlying science and mathematics of the Robot design and game strategies, the designs, re-designs, successes, and those interesting moments when things weren't going as planned. A Team is not a candidate for this award if they have not completed the Engineering Section of the Engineering Notebook.



Required criteria for the Think Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- Engineering Notebook must demonstrate that the Team has a clear understanding of the engineering design process, with pictures or drawings and details documenting all stages of Robot design.
- Notebook must recount the Team's journey, experience and lessons learned throughout the
- Engineering Notebook must include entries describing underlying science, mathematics, and game strategies.

Strongly suggested criteria for the Think Award:

- Teams should tab/flag 6 to 8 pages of the Engineering Section to support entries on the summary page.
- Engineering Notebook should be organized and follow the formatting guidelines provided by FIRST and include a Summary Page. Note: Teams should review the Engineering Notebook section of this manual for a complete description and format specifications.

Connect Award

Connecting the dots between community, *FIRST*, and the business world.

This judged award is given to the Team that most connects with their local science, technology, engineering and math (STEM) community. A true FIRST Team is more than a sum of its parts, and recognizes that engaging their local STEM community plays an essential part in their success. The recipient of this award is recognized for helping the community understand FIRST, the FIRST Tech Challenge, and the Team itself. The Team that wins the Connect Award aggressively seeks engineers and explores the opportunities available in the world of engineering, science and technology. This Team has a clear Business or Strategic Plan and has identified steps to achieve their goals.

Required criteria for the Connect Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- An Engineering Notebook must be submitted and must include a Business or Strategic plan that identifies their future goals and the steps they will take to reach those goals. The plan could include fundraising goals, sustainability goals, timelines, outreach, and community service
- Team provides clear examples of developing in person or virtual connections with the engineering, science, or technology community.
- Team actively engages with the engineering community to help them understand FIRST, the FIRST Tech Challenge, and the Team itself.

Rockwell Collins Innovate Award

Bringing great ideas from concept to reality.

The Rockwell Collins Innovate Award celebrates a Team that not only thinks outside the box, but also has the ingenuity and inventiveness to make their designs come to life. This judged award is given to the Team that has the most innovative and creative Robot design solution to any or all specific field elements or components in the FIRST Tech Challenge game. Elements of this award include elegant design, robustness, and 'out of the box' thinking related to design. This award may address the design of the whole Robot, or of a sub-assembly attached to the Robot. The creative component must work consistently, but a Robot does not have to work all the time during matches to be considered for this award. The Team's Engineering Notebook should be marked with journal entries to show the design of the component(s) and the Team's Robot in order to be eligible for this award, and entries should describe succinctly how the Team arrived at that solution.

Required criteria for the Rockwell Collins Innovate Award:

- Team must demonstrate respect and Gracious Professionalism towards everyone they encounter at an FIRST Tech Challenge event.
- Team must submit an Engineering Notebook with an Engineering Section that documents the design process and how the Team arrived at their design solution.
- Robot or Robot sub-assembly must be elegant and unique in its design.
- Creative component must be stable, robust, and work reliably.
- Robot design is efficient and consistent with Team plan and strategy.

PTC Design Award

Industrial design at its best.

This judged award recognizes design elements of the Robot that are both functional and aesthetic. All successful Robots have innovative design aspects; however, the PTC Design Award is presented to Teams that incorporate industrial design elements into their solution. These design elements could simplify the Robot's appearance by giving it a clean look, be decorative in nature, or otherwise express the creativity of the Team. The winning design should not compromise the practical operation of the Robot but complement its purpose. This award is sponsored by Parametric Technology Corporation (PTC), developers of the CAD tools, Creo and Mathcad. PTC gives licenses to the FIRST Tech Challenge student Teams for these software products to help them with their designs.

Required criteria for the PTC Design Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- Team must submit an Engineering Notebook with an Engineering Section that includes detailed Robot design drawings.
- Team demonstrates industrial design principles, striking a balance between form, function, and aesthetics.
- Robot differentiates itself from others by its aesthetic and functional design.
- Basis for the design is well considered (i.e. inspiration, function, etc.).
- Use of PTC's Creo is not required to be eligible; however Teams that use them in their design are given extra consideration for this award.



Motivate Award

More than Robots!

This judged award celebrates the Team that exemplifies the essence of the FIRST Tech Challenge competition. through Team building, Team spirit and exhibited enthusiasm. This Team embraces the culture of FIRST and clearly demonstrates what it means to be a Team. This is a Team who makes a collective effort to make FIRST known throughout their school and community, and sparks others to embrace the culture of FIRST.

Required criteria for the Motivate Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- The Team is an ambassador for *FIRST* programs.
- Team can clearly demonstrate the successful recruitment of new Teams, mentors, coaches and volunteers who are not otherwise active within the STEM community.
- Team can articulate the individual contributions of each Team member, and how these attribute to the overall success of the Team.

Strongly suggested criteria for the Motivate Award:

- All Team members participate in their presentation, and actively engage with the judges.
- Team can show a creative approach to materials that market the Team and FIRST.

Control Award

Mastering Robot intelligence.

The Control Award celebrates a Team that uses sensors and software to enhance the Robot's functionality on the field. This award is given to the Team that demonstrates innovative thinking in the control system to solve game challenges such as autonomous operation, enhancing mechanical systems with intelligent control, or using sensors to achieve better results on the field. The control component should work consistently on the field. The Team's Engineering Notebook must contain details about the implementation of the software, sensors, and mechanical control.

Required criteria for the Control Award:

- Team must demonstrate respect and Gracious Professionalism toward everyone they encounter at an FIRST Tech Challenge event.
- Team must apply for the Control Award by filling out the Control Award Content Sheet, located in Appendix C.
- The Engineering Notebook must include an Engineering Section that documents the control components.
- Control Components must enhance the functionality of the Robot on the field.

Strongly suggested criteria for the Control Award:

- Advanced software techniques and algorithms are encouraged.
- Control Components should work reliably.

Promote Award (Optional)

Many decisions, but choosing FIRST was easy!

This judged award is optional and may not be given at all tournaments. Please contact your tournament director to determine if it will be given at an event you attend.

The Promote Award is given to the Team that is most successful in creating a compelling video message for the public designed to change our culture and celebrate science, technology, engineering and math. Teams must submit a one-minute long public service announcement (PSA) video based on the PSA subject for the season.

PSA Subject for 2015 – 2016 Season:

"Now that I've succeeded in FIRST...."

Required criteria for the Promote Award:

- Video must meet the following criteria:
 - Video cannot be longer than 60 seconds.
 - Video must be of a high quality, as submissions may be used at a later time to promote
 - o Team must have rights to music used in the video.
 - Video must have strong production value.
 - Video must be submitted by the designated deadline.
- Team must present a thoughtful and impactful video which appeals to the general public.
- Creativity in interpreting the annually assigned theme is required.
- Follow video award submission quidelines.

Compass Award (Optional)

A beacon and leader in the journey of *FIRST* Tech Challenge.

An FIRST TECH CHALLENGE Team is about more than building Robots and competing in tournaments. It is a journey to a destination through trial and error, success and failure, with challenging new technology and obstacles to navigate where no road maps are provided. How does a Team find their way?

The Compass Award recognizes an adult Coach or Mentor who has provided outstanding guidance and support for a Team throughout the year, and demonstrates to the Team what it means to be a Gracious Professional. The winner of the Compass Award will be determined from candidates nominated by FIRST Tech Challenge Team members, via a 40-60 second video submission, highlighting how their Mentor has helped them become an inspirational Team. We want to hear what sets the Mentor apart.

Required criteria for the Compass Award:

- Video must meet the following criteria:
 - Video cannot be longer than 60 seconds.
 - Video must be of a high quality, as submissions may be used at a later time to promote
 - Team must have rights to music used in the video.
 - Video must be submitted by the designated deadline.
- Video highlights the mentor's contribution to the Team and demonstrates what sets the mentor apart.
- Follow video award submission guidelines.



Judges' Award

During the course of the competition, the judging panel may encounter a Team whose unique efforts, performance or dynamics merit recognition, yet doesn't fit into any of the existing award categories. To recognize these unique Teams, FIRST offers a customizable judges award. The judging panel may select a Team to be honored, as well as the name of the judges' award. The Judges Award recognizes a Team for their outstanding efforts, but does not factor into the Advancement Criteria.

Winning Alliance Award

This award will be given to the winning alliance represented in the final match.

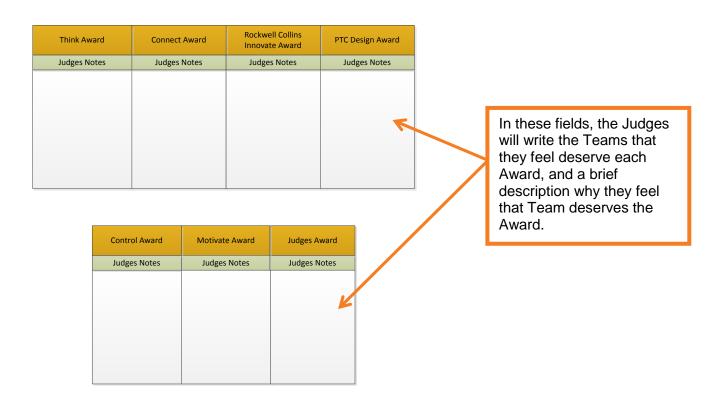
Finalist Alliance Award

This award will be given to the finalist alliance represented in the final match.

Appendix F - Sample List for Deliberations



On a whiteboard (or chalkboard) write each Award Category, and add each nominee under each Award. Write notes about each Nominee as to why they have been nominated for that Award.





Appendix G - FIRST Dean's List Award

Overview

In an effort to recognize the leadership and dedication of FIRST's most outstanding FIRST TECH CHALLENGE students, the Kamen family sponsors an award for selected top students known as the FIRST Dean's List. Similar to the very prestigious National Merit Scholarship Award winners, there are three (3) "categories" of FIRST Dean's List Award students:

1. FIRST Dean's List Semi-Finalists

a. FIRST Dean's List Semi-Finalists are the group of students nominated by each team to compete for the FIRST Dean's List Finalist spots.

2. FIRST Dean's List Finalists

a. The group of students selected to be recognized at each State/Regions Championship that compete for the FIRST Dean's List Winner spots.

3. FIRST Dean's List Winners

a. The group of students who are the final selection for the Dean's List Award at the FIRST Championship.

Dean's List Award Evaluation Structure

There are 2 Volunteer roles that are recruited to evaluate the Dean's List Award Semi-Finalists and Finalists:

- Dean's List Interviewer
- Dean's List Reviewer

Dean's List Interviewer

Working in pairs, Dean's List Interviewers conduct informal 5 – 10 minute interviews with the students nominated by their team to be Dean's List Semi Finalists. Interviewers update a FIRST database with their findings. Dean's List Reviewers determine Award Finalists for their region based on the input of the Dean's List Interviewers.

The Tournament Director or Volunteer Coordinator will recruit at least two Interviewers for the Dean's List Award for each Event. These Interviewers will be asked to review all entries prior to the Event, and conduct all interviews for this Award during the Event. This position is separate from the standard Judge Volunteer position, as they only conduct the interview; they do not participate in deliberations for this Award at the Event.

There are three levels of Competition where a Dean's List Semi-Finalist must be interviewed:

- **Qualifying Tournament**
- League Championship
- Remote Interview (for regions that have not yet implemented Qualifying Tournaments or League structures).

Every nominated student must be interviewed. Interviewers work with the Tournament Director to set up the student interviews. Dean's List Award Interviewers should ensure there are 10 minutes allotted for each interview; five minutes for the interview itself and five minutes for the Judges to make notes and complete Dean's List Evaluation Form.

Dean's List Reviewer

Working to come to consensus, Dean's List Reviewers read the nominations and Dean's List Interviewer feedback, and select two Dean's List Finalists for their region. Finalists are recognized at the State or Regional Championship Tournament.

The Dean's List Reviewer is responsible for deciding the Dean's List Award Finalists. The Reviewer must access the Dean's List Award System to view the original submission as well as the notes from the Dean's List Interviewer. Once all of the submissions and notes have been taken into consideration, the Reviewer is responsible for choosing two Finalist students to be announced at the State/Region Championship. Dean's List Reviewers do not need to be present at the Event; rather they review each Semi-Finalist and enter the Finalists in the Dean's List Award System. This information will feed up to the State Championship Tournament Director.

