# 4   Advancement

Teams are only eligible to advance from events within their home region. Teams may be invited to compete at tournaments outside of their home region; however, they do so for the opportunity of additional gameplay and to compete with other teams from outside of their area and are not advancement eligible from these out-of-region events.

Teams can check what region they are assigned to on the FTC-Events page by looking up their team number. Teams in regions that do not have a local Program Delivery Partner, or who are geographically isolated within their home region can work with *FIRST* by emailing customerservice@firstinspires.org to get reassigned to another more accessible region once per season for advancement.

Figure 4-1: Region assignment display on FTC-Events page
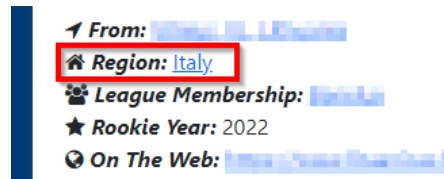
FIRST Tech Challenge tournament progression is shown in Figure 4-2. Teams can advance from any of their first three entry-level events: Qualifying Tournaments (QT) and League Tournaments (LT). Teams may only participate in one league per season. See section `14 League Play Tournaments (L)` for more details on League Tournaments. Teams may participate in more than 3 entry-level events but are not eligible to advance from them.

Figure 4-2: Tournament Advancement Structure
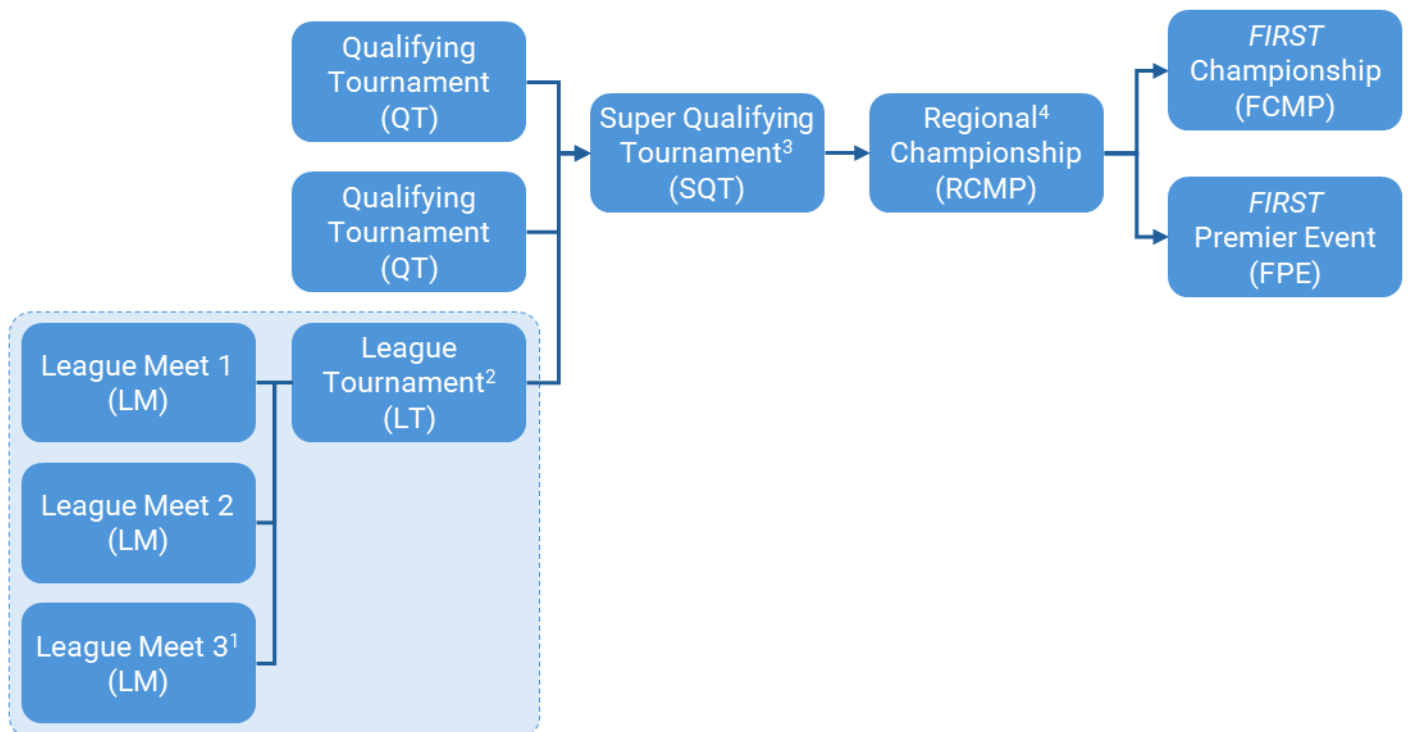
[1,3] *Optional Events, not offered in all regions*

[2] *All teams within a League play in the League Tournament*

[4] *Highest level of play within FIRST Tech Challenge Region. Can also be called State, Region, or Country Championship*

Teams may advance from their region's Qualifying Tournaments or League Tournament to either a Super Qualifying Tournament (SQT) or directly to a Regional Championship (RCMP). Super Qualifying Tournaments (SQT) are an optional advancement level often used in large regions which need more levels of competition. A team may only participate in one Super Qualifying Tournament(SQT).

The local Program Delivery Partner determines the advancement numbers from each tournament in their region, up to a Regional Championship. *FIRST* Staff determine the advancement from each Regional Championship to the *FIRST* Championship and *FIRST* Premier Events.

4.1　Advancement Points Calculation

For each advancing event, teams will be ranked based on the advancement points they earn through their overall performance at that individual event. The top ranked teams not already advanced will qualify for the next level of play, up to the total allocated advancement spots for that event. Advancement points are awarded to teams based on Table 4-1 below.

Table 4-1: Advancement Point Assignment

Category	Advancement Points Earned
Qualification Phase Performance	Normal distribution of points from 16 to 2 across the highest ranked team to the lowest based on the equation in section 4.1.1 Qualification Phase Performance. (This will result in a minimum of 2 points and a maximum of 16 points being awarded for qualification phase performance.)
ALLIANCE lead	Equal to 21 minus the ALLIANCE lead number (e.g., 18 points for ALLIANCE #3 lead)
Draft Order Acceptance	Equal to 21 minus the Draft Order Acceptance number (e.g., 18 points for the team which accepts the third draft position)
Playoff Advancement	40 points for 1st Place (Winners) 20 points for 2nd Place (Finalists) 10 points for 3rd Place 5 points for 4th Place (See Section 13.8 Dual Division Events for modifications to this section)
Team Judged Awards	60 points for Inspire Award 1st Place 30 points for Inspire Award 2nd Place 15 points for Inspire Award 3rd Place 12 points for all other 1st Place Awards 6 points for all other 2nd Place Awards 3 points for all other 3rd Place Awards (See A211 for a list of points-eligible awards)

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If there is a tie in the point totals between teams, the higher ranked team will be determined using the following additional sorting criteria in Table 4-2.

Table 4-2 Advancement Sorting Criteria Including Tiebreakers

Order Sort	Criteria
1st	Total Advancement Points (as calculated in Table 4-1)
2nd	Judged Team Award Points
3rd	Playoff Advancement Points
4th	ALLIANCE Selection Results Points (ALLIANCE lead or Draft Order Acceptance)
5th	Qualification Phase Performance Points
6th	Average Qualification MATCH Points (excluding FOULS)
7th	Average Qualification AUTO Points
8th	Highest individual Qualification MATCH Points (excluding FOULS)
9th	Second Highest individual Qualification MATCH Points (excluding FOULS)
10th	Random Selection by Event Management System

4.1.1   Qualification Phase Performance

The calculation of Qualification Phase Performance points is done using the equation below. This equation is an inverse error function which utilizes the following variables:

- **R** – the qualification rank of the team at the event at the conclusion of Qualification MATCHES (as reported by the Event Management Software and defined in Section 13.6.3 Qualification Ranking)
- **N** – the number of *FIRST* Tech Challenge teams participating in the Qualification rounds at the event
- **Alpha (α)** – a static value (1.07) used to standardize the distribution of points at events

$$QualificationPoints(R, N, \alpha) = \left\lceil InvERF\left(\frac{N - 2R + 2}{\alpha N}\right)\left(\frac{7}{InvERF\left(\frac{1}{\alpha}\right)}\right) + 9 \right\rceil$$

This formula generates an approximately normal distribution of Qualification Phase Performance points at an event, based on rank, with most teams getting a moderate number of points, and fewer teams getting the highest or lowest numbers of points available.

Table 4-3 displays sample Qualification Phase Performance points for variously ranked teams at a 28-team event. The system will automatically generate the appropriate points for each team based on their rank and the number of teams at the event.

Table 4-3 Sample Qualification Round Point Assignments

Rank	1	2	3	4	…	12	13	14	…	25	26	27	28
Points	16	15	14	14	…	10	10	10	…	6	5	5	4

4.1.2   ALLIANCE Selection Results

This attribute measures both individual team Qualification round seeding performance and recognition by peers.

ALLIANCE leads are recognized based on their Qualification phase seeding rank. This rank is a result of the rules of the game, which typically incorporate several team performance attributes, and are designed to eliminate ties in rank. ALLIANCE partners are rewarded based on peer recognition. To be invited to join an ALLIANCE, a team's peers have decided that the team has attributes that are desirable. Giving points for ALLIANCE selection also supports come-from-behind teams. A team taking several MATCHES to optimize their performance may be recognized as a late bloomer by a top seeded team, even if that performance isn't reflected in the rankings because of poor performance in early MATCHES. These points also have the potential to recognize teams employing a unique strategy with their ROBOT. Teams with unique or divergent ROBOT capabilities that complement the strengths of other ALLIANCE members may be selected to fill a strategic niche.

Note also that ALLIANCE leads are given the same number of points as the team drafted in the same sequence. For example, the team who accepts the pick from the 3rd ALLIANCE lead receives the same number of points as the 3rd ALLIANCE lead. Numerical analysis supports the idea that ALLIANCE leads are about as strong in ROBOT performance as equivalently drafted teams. An additional minor benefit to this system is that it allows teams who would traditionally not be a top ranked team the opportunity to be an ALLIANCE lead.

4.1.3   Playoff Performance

This attribute measures team performance as part of an ALLIANCE.

Teams earn points based on how far they progress into the Playoffs. Points are given to all teams within the ALLIANCE as described in Table 4-1.

See Section 13.7.2 Playoff MATCH Bracket for more details on the number of ALLIANCES that are formed for the Playoffs and an example of the Playoff MATCH bracket.

4.1.4   Team Judged Awards

This attribute measures team performance with respect to team awards judged at the event.

The points earned for team awards in this system are not intended to capture the full value of the award to the team winning the award, or to represent the full value of the award to *FIRST*. In many ways, the team's experience in being selected for awards, especially the Inspire Award, is beyond measure, and could not be fully captured in its entirety by any points-based system. Points are being assigned to awards in this system only to help teams recognize that *FIRST* continues to be "More than Robots®," and to assist in elevating award-winning teams above non-award-winning teams in the ranking system.

Teams only get points for team awards judged at the event. If an award is not judged, is not for a team (e.g., the Dean's List Award), or is not judged at the event (e.g., Safety Animation Award), no points are earned.

Points for awards not given at the event are not assigned to any team. See A211 for the list of points-eligible awards.

4.2   Advancement Distribution by Region

Advancement within a region is determined by the Program Delivery Partner and minimum advancement numbers should be made publicly accessible to participating teams as early as possible before the event, and no later than when ALLIANCE selection begins. Advancement information may be published on the FTC-Events page as shown in Figure 4-3.

Figure 4-3 Event Advancement Information as shown on the ftc-events.firstinspires.org/ page

Event Information

Basic information about the NYC QUALIFIER 1 can be found in the chart below. All times and dates displayed here and on the event's individual result pages are local to the event.

Event Code	USNYNYNYQ
Dates	⊘ Event Complete (Week 11 since kickoff) Sunday, November 17 to Sunday, 17 November 2024
Venue	East Harlem Tutorial Scholars Academy 2017 FIRST Avenue New York, NY USA
Region	New York - NYC
Advancement	8 teams advance to NYC SUPER QUALIFIER 2
Website	https://www.eastharlemscholars.org/high-school

Advancement to the *FIRST* Championship and *FIRST* Premier Events is determined by *FIRST* Headquarters based on a number of factors including:

- Number of teams registered within the region before the cutoff date (this season November 17th)
  - o Regions who meet minimum registration requirements
  - o Total number of teams within the region
- New developing regions with a Program Delivery Partner
- Global and regional representation

Regional allocations of advancement slots information will be published on the FTC-Events page starting in early December. Regionally allocated slots which are not secured by the event deadline will be returned to *FIRST* HQ or Premier Event Host for reallocation which may include reallocation to a new region or waitlist team invitation.