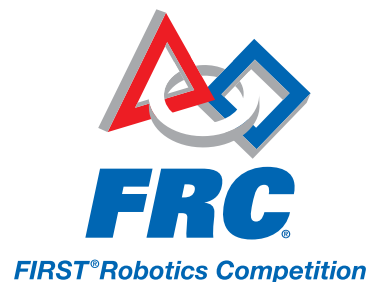


2015 *FIRST*[®] Robotics Competition (FRC[®])

Team Updates



200 Bedford Street
Manchester, NH 03101, USA
<http://www.usfirst.org/frc>

2015

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Team Update 2015-01-06

General Updates

You will note this change identifies the eight fields we will have at the FIRST Championship as ‘Subdivisions’. At this time, our intent is to keep the current four Division names – Archimedes, Curie, Galileo, and Newton - as Subdivision names, and add four new names to identify the rest of the Subdivisions. Divisions, which will consist of two Subdivisions combined, will be identified by the two Subdivision names joined by a hyphen. As an example, if the Curie and Newton fields, as Subdivisions, are joined to make a Division, the Division names would be Curie-Newton.

Section 6 - Awards

Section 6.1 - FIRST Robotics Competition Awards

The FIRST Robotics Competition (FRC) is about much more than the mechanics of building a robot or winning a competitive event. It is about the partnership among people who are part of the FIRST community and the impact on those who participate in FIRST programs with a united goal of achieving The FIRST mission. The FIRST mission is to change the way young people regard science and technology and to inspire an appreciation for the real-life rewards and career opportunities in these fields.

This chapter contains descriptions of the FIRST Robotics Competition Awards. Unless otherwise noted, all awards are earned at Regional events, District events, District Championships and the FIRST Championship.

For the purpose of awards at the FIRST Championship, all awards are given out at the Division level except the Finalist and Winner, which are given at the Subdivision level. Two Subdivisions are combined to create one Division.

Section 6.2 - Complete Awards List

Award	Description	Selected By	Regional	District	District CMP	FIRST CMP Division	FIRST CMP
Finalist	Celebrates the alliance that makes it to the final match of the competition	Robot Performance	✓	✓	✓	✓*	✓
Winner	Celebrates the alliance that wins the final match of the competition	Robot Performance	✓	✓	✓	✓*	✓

*These awards are given at the Subdivision level instead of the Division Level. All other awards marked “FIRST CMP Division” are given at the Division level.

Team Update 2014-12-19

General Updates

The Tables of Contents for Sections 2 and 4 have been updated to reflect the content of those sections.

Section 4 - At the Events

Section 4.9.1 - All Teams Should Attend

Should a team need to remain in their pit to continue to work on their robot during the Opening or Closing Ceremonies, they are allowed to. However, the team should **must** follow the rules below.

Section 5 - Robot Packaging and Transporting

Section 5.5.3 - Robot Displays

To assist teams with their promotional and community relations activities, robots may be unbagged and operated briefly after “Stop Build Day” for display purposes only.

- The intent of this option is to allow teams to briefly show their robot to their community, sponsors, or potential sponsors after “Stop Build Day”.
 - Unbagging a robot and putting it on display for many hours (i.e. more than four (4)) at a time would not be considered a “brief” display.
- The Robot Lock-Up Form must be used to track the unbagging and rebagging of the robot during this period. In the “Explanation” column of the form, enter “Robot Display”.
- No activity that could be considered “work on” or “practice with” the robot is allowed.
- Brief displays of robot functions - driving for example - are allowed, but not to the extent that they could be considered practice.
 - A good way to avoid turning a robot display period in to a practice session is to have non-drive team members operate the robot, and only for as short a time as necessary to show the robot’s capabilities.
- If you have any questions about this new Robot Display option, please email frcteams@usfirst.org.

Section 6 - Awards

Section 6.4.3.3 - Submission Process

- Enter in a link through YouTube for your official Chairman’s Video. This link does not need to be entered by the February 19th submission deadline. **FIRST** requests that the Team submit their video before the Team attends the first event at which it is eligible to compete for the Chairman’s Award. Failure to submit this link will not preclude a Team from earning the Chairman’s Award. (You will still be required to bring a copy to each event you are eligible at.)

Section 6.4.3.4 - Interview Process and VIDEO Requirements

Tips, Timelines & Tools

- [Guidelines and Tips](#) video by Paul Lazarus of White Dwarf Productions
- [Chairman’s Award Video Helpful Tips and Guidelines](#)
- [Chairman’s Award Video Suggested Shot List](#)
- [Chairman’s Award Video Tape Log \(example\)](#)
- [Chairman’s Award Video Tape Log \(blank\)](#)
- [Chairman’s Award Video Consent and Release Form](#)

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Team Update 2015-01-09

General Updates

This note is from Frank Merrick, Director of FRC

Hello Teams! You will see that several of these updates relate to the Noodle Agreement I talked about in the update from January 6th. As I said in that update, game design, like robot design, involves many trade-offs. These changes are not perfect, but I believe they will help ease the controversy over the Noodle Agreement, and encourage more enjoyable game play.

Frank

Section 1 - RECYCLE RUSH Summary

Figure 1-1 was updated to reflect the change to the LITTER description in *Section 2.3.3: LITTER*.

Alliances that ~~unscored~~ leave **unscored** Litter **marked in the other Alliance's color** on their side of the Field at the end of the match add points to the score of the other Alliance, as it is considered unprocessed and not properly disposed of.

Section 2 - The ARENA

Figures 2-1, 2-2, 2-21, and 2-22 were updated to reflect the change to the LITTER description in *Section 2.3.3: LITTER*.

2.1.4 - STEP

The STEP is a wooden platform that bisects the FIELD. It is painted white and is 6.25 in. tall and 2 ft. 1 in. wide. Mounted to the sides of the STEP facing each ALLIANCE WALL is a 0.25 in. thick by ~~6.375~~ **6.625** in. tall HDPE sheet (colored to match the ALLIANCE). This HDPE forms a .375 in. lip along both sides of the STEP. This lip is to help prevent the TOTES from being pushed off the STEP too easily.

2.1.5 - Zone Markings

Each ALLIANCE'S side of the FIELD contains the following zones:

- **AUTO ZONE:** Marked by, but does not include, 2 in. lines of **Red Burgundy** or **Blue Navy** gaffers tape corresponding to the ALLIANCE COLOR, each AUTO ZONE is a 6 ft. ~~6.2~~ in. wide **area infinitely tall volume** that spans the width of the field and is located between each ALLIANCE'S Platform Ramps (each edge is 3 ft. 1 in. from the Landmark).
- **LANDFILL ZONE:** Bounded by, but does not include, the STEP, GUARDRAILS, and a 2 in. line of White gaffers tape running between the GUARDRAILS on either side of the FIELD. Each LANDFILL ZONE **is an infinitely tall volume that** extends 4 ft. 3 in. from the edge of the STEP towards their ALLIANCE WALL.

2.2.1 - PLAYER STATIONS

The language from the Game Manual is as follows:

Each ALLIANCE WALL includes three (3) PLAYER STATIONS. Each PLAYER STATION is made from a 3 ft. tall diamond plate panel base topped with a 3 ft. 6 in. tall transparent plastic panel. An aluminum shelf is attached to each PLAYER STATION to support the DRIVE TEAM'S OPERATOR CONSOLE. The shelf is 5 ft. 9 in. wide and 1 ft. deep. There is a 4 ft. 6 in. long by 2 in. wide strip of hook-and-loop tape ("loop" side) along the center of the support shelf that may be used to secure the OPERATOR CONSOLE to the shelf.

[This section of the Field Tour Video](#) says that the "hook" side of hook-and-loop tape is installed on the player station shelf. The video is incorrect, and it is the loop side as stated above. Our apologies for any confusion.

2.2.2 - HUMAN PLAYER STATION

Teams feed the ~~litter~~ LITTER through a 3 in. diameter hole in the shield.

2.3.3 – LITTER

Each ALLIANCE starts the MATCH with ten (10) LITTER, all of which are located in a white Bin. The LITTER is marked 1 in. from each end and in the middle with 2 in. “Red” and “Electric Blue” gaffers tape to match the ALLIANCE STATION in which it starts.

...

LITTER will be removed from play if, in the judgment of the Head REFEREE, the LITTER is unsuitable for gameplay. Examples include but are not limited to: the length shortened, or a chunk more than approximately 1.5 in. deep and 3 in. long is removed, or tape has been removed. Small cuts or small pieces removed will not cause LITTER to be replaced.

(Caption) Figure 2-22: LITTER and ~~Litter~~ Bin Starting Locations

Section 3: The Game

Figures 3-5 and 3-6 were updated to reflect the change to the LITTER description in Section 2.3.3: LITTER.

3.1.2.1: AUTO

During AUTO, each ALLIANCE can earn points ~~are awarded for a~~ ROBOT SETS, TOTE SETS or STACKED TOTE SET, and CONTAINER SETS, ~~and STACKED TOTE SETS.~~

3.1.2.2: Coopertition

“Support” in reference to TOTES for COOPERTITION, AUTO, and TELEOP, is transitive through other TOTES. For example, a Yellow TOTE is “fully supported by the STEP” if it is resting on top of another Yellow TOTE that is in turn resting directly on the STEP (and thus both Yellow TOTES are “fully supported” by the STEP).

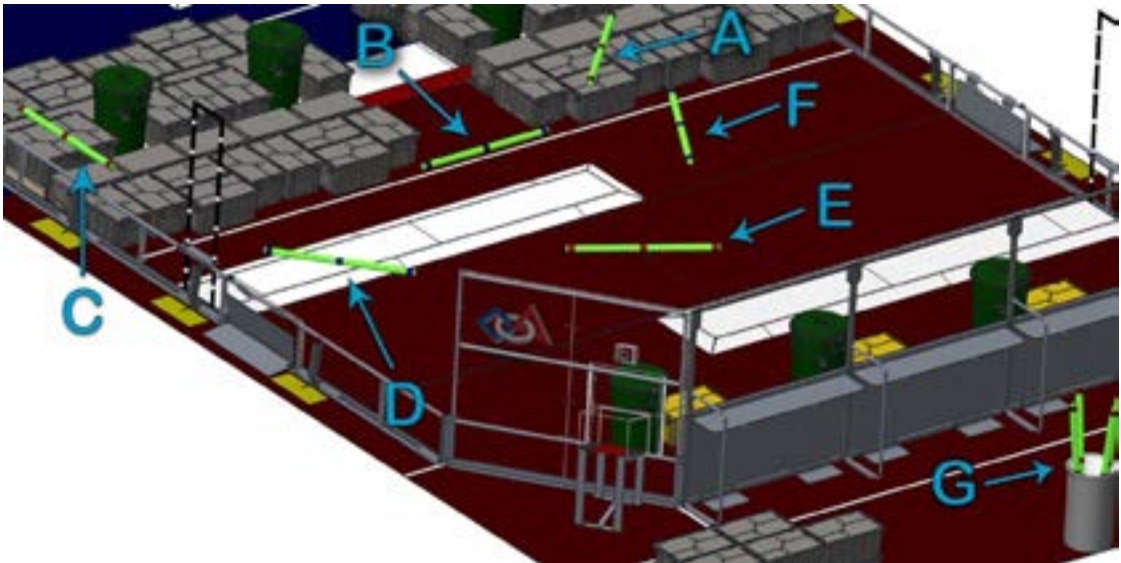
3.1.2.3: TELEOP

When REFEREES are assessing final scores at the end of the MATCH, if it is unclear whether a TOTE, RECYCLING CONTAINER, or LITTER (with the exception of LITTER in the LANDFILL ZONE) is being even partially supported by a ROBOT, the assumption will be that the ROBOT is supporting it (and thus it does not score). As such, it is highly recommend that DRIVE TEAMS make it very clear that their ROBOTS are not supporting any scored TOTES, RECYCLING CONTAINERS, or LITTER at the end of the MATCH.

...

Additionally, LITTER is considered scored in a LANDFILL ZONE when it is fully contained within a LANDFILL ZONE, with each ALLIANCE credited for the LITTER scored in the LANDFILL ZONE on their side of the FIELD. For example, in Figure 3-6 LITTER A and B are fully contained within the Red LANDFILL ZONE, regardless of whether they’re marked with Red or Blue and whether or not they are resting on top of TOTES. However, LITTER C is not entirely contained by the Red or Blue LANDFILL ZONE as it is hanging over onto the STEP and does not score. Litter D, E, and F, and G are not fully contained by the Red or Blue LANDFILL ZONE and do not score as LITTER in the LANDFILL.

Figure 3-6: LITTER within the ARENA at the end of a MATCH



Finally, ALLIANCES earn an UNPROCESSED LITTER Bonus for each LITTER that is fully contained by the opposite side of the FIELD, marked in their ALLIANCE’S color, and not scored in the LANDFILL ZONE or scored in a RECYCLING CONTAINER.

For example, in Figure 3-6 (above), LITTER C is not fully contained by the Red or Blue side of the FIELD and thus does not score as either LITTER in the LANDFILL or an UNPROCESSED LITTER Bonus for either ALLIANCE. LITTER D scores ~~as~~ an UNPROCESSED LITTER Bonus for the Blue ALLIANCE because it is a Blue marked Litter fully contained by the Red ALLIANCE side of the FIELD and not scored in the Red LANDFILL ZONE or a scored RECYCLING CONTAINER. LITTER E does not score an UNPROCESSED LITTER Bonus for the Blue ALLIANCE as it is not Blue marked LITTER. Additionally, LITTER ~~EF~~ also scores ~~as~~ an UNPROCESSED LITTER Bonus for the Blue ALLIANCE for the same reasons as LITTER D, even though it is partially within the Red LANDFILL ZONE. Finally, LITTER ~~FG~~ remains in the Bin and does not score as an UNPROCESSED LITTER Bonus as it is not on the FIELD.

3.2.3 General Rules

G16 The following actions are prohibited with regards to interaction with FIELD elements (items A-D exclude TOTES, RECYCLING CONTAINERS, and LITTER):

- A. grabbing
- B. grasping
- C. grappling
- D. attaching to
- E. becoming entangled
- F. hanging
- G. damaging (exception: unintentional damage to LITTER)
- H. tying

I. removing or repositioning LITTER tape

VIOLATION: FOUL. If the Head REFEREE determines that further damage is likely to occur, offending ROBOT will be DISABLED. Corrective action (such as eliminating sharp edges, removing the damaging MECHANISM, and/or re-Inspection) may be required before the ROBOT will be allowed to compete in subsequent MATCHES.

Section 5: The Tournament

Table 5-2: Quarterfinal and Semifinal MATCH Ranking Criteria

Table 5-2: Quarterfinal and Semifinal MATCH Ranking Criteria	
1st order sort	Playoff Average
2nd order sort	Cumulative sum of AUTO points
3rd order sort	Cumulative sum of scored RECYCLING CONTAINER points
4th order sort	Cumulative sum of scored TOTE points
5th order sort	Cumulative sum of scored LITTER points (LITTER in a scored RECYCLING CONTAINER + LITTER scored in the ALLIANCE'S LANDFILL ZONE + UNPROCESSED LITTER Bonus)

Section 6: Glossary

AUTO ZONE – the infinitely tall volume area bound by the GUARDRAILS and carpet between the SCORING PLATFORMS. The AUTO ZONE extends the full width of the FIELD, even though the SCORING PLATFORMS do not.

LANDFILL ZONE – the infinitely tall volume area bound by the plastic lip of the STEP on the ALLIANCE'S side of the FIELD, the GUARDRAIL on each side, and the landfill line (including excluding the tape).

SCORING PLATFORM – the elevated wood and polycarbonate HDPE structures, two (2) per ALLIANCE, on which ROBOTS stack TOTES.

UNPROCESSED LITTER – LITTER which is fully contained by an ALLIANCE'S side of the FIELD, marked in the opposing ALLIANCE'S color, but not scored in their LANDFILL ZONE or scored in a RECYCLING CONTAINER. Each ALLIANCE receives an UNPROCESSED LITTER Bonus for the UNPROCESSED LITTER on the opposite ALLIANCE'S side of the FIELD.

Team Update 2015-01-06

General Updates

This note is from Frank Merrick, Director of FRC

Hello teams! For this part of today's update I wanted to include a note directly from me, rather than generically from the Game Design Committee. I lead the GDC, so all information released by the GDC ultimately has my OK, but I thought it might help to let you know I'm writing this particular note myself.

There has been significant discussion and some anxiety on the Chief Delphi forums over what some are calling 'The Noodle Agreement', in which the two alliances in a Recycle Rush match could agree to collude, legally under the current rules, to simply drop their own litter on their side of the field, then not touch it, effectively giving both alliances easy bonuses to their score. The GDC talked about this specific possibility before the game was released. We actually talked about two different ways alliances could collude regarding noodles.

We had briefly considered, then quickly rejected, having the opposing alliance receive a bonus for ALL litter not in scoring position in the possession of an alliance. In other words, an alliance would have received a bonus for litter still sitting in the other alliance's bin. This was rejected right away, as we realized passive collusion would be easy – both alliances simply needed to agree to not touch the litter in their own bins, and it would be immediately obvious if one alliances was not holding up their side of the bargain. This led to the current rules, in which any litter remaining in the bin has no effect on the score.

The second form of collusion we had discussed was what is being talked about on the forums – both alliances dumping all their own litter on their side of the field and leaving it. This form of collusion is more difficult to pull off, as both alliances need to take some physical action to bring it about, and there would be some natural concern over whether or not the other alliance was going to follow through with their commitment. A game of chicken could ensue. Also, it seems that getting all six teams on both alliances to agree to take a physical action like this, that many would perceive as being contrary to the spirit of the game – if not the rules – would be trickier than taking no physical action, as in the option above, and simply letting the points accumulate passively.

This year we worked hard to keep the rules simple, and to keep both penalties and rules to a minimum number. I'll give you a specific example of an approach we occasionally used. You will note there are no rules in the manual giving penalties for teams building stacks of totes more than six high. Very high stacks are still somewhat of a concern, however, as they are harder for field reset to deal with and potentially could lead to game pieces exiting the field if the stacks are tipped over. Rather than telling teams they can't build over six totes high, and assigning a penalty to that, we simply said, per Section 3.1.2.3, that if any portion of the tote extends over the backstops on the scoring platforms, they won't be counted as scored. In this way, teams have no incentive to build high, as it's a waste of resources they otherwise could have turned into points. Will we still occasionally see high stacks? I think so. Some teams will have not picked up on this element in the manual, as it's not a 'G' numbered rule and has no penalty assigned to it. For those teams, we think they'll quickly get up to speed at events. The cost, though, of more aggressively working to prevent these outlying actions within the rules is a more complex manual, more nuisance penalties, and something else the refs have to watch for. We essentially were willing to keep the manual simpler in exchange for likely more often seeing stacks higher than we would like to.

We took a similar approach with the second form of collusion with the litter. We don't know how often this would happen at actual events, and actively preventing it likely means more complicated rules. However, looking at the forums, the possibility of this noodle agreement happening at events looks as if it's creating some concern in the community, and distracting from other strategic elements of the game. This still may not be likely to happen often at events under the current rules, but if it does, I think they will be less enjoyable.

So, in this case, we will be making some changes to the rules to discourage this activity. They won't be perfect, but they should be an improvement. Game Design, like robot design, means working through many trade-offs. The changes are not ready for today's update, but will follow shortly.

Frank

National Instruments has alerted us that they have received reports of the power terminals on some roboRIO's not being completely screwed in. Teams are encouraged to check the power connector's connection to the roboRIO.

The [Kickoff Kit Checklist](#) for the Separate Items has been updated with a new "Where to get more" for the Recycling Containers and Pool Noodles.

Section 2 - The ARENA

Section 2.1.3 - SCORING PLATFORMS

Each SCORING PLATFORM is adjacent to a BACKSTOP and positioned such that the bottom edge of the Platform Ramp is 3 ft. 3 in. from the center of the Landmark. Please see [Figure 2-5](#) for more details.

Section 2.1.5 - Zone Markings

■ ~~Taped Boxes~~ **STAGING ZONES**: Each ALLIANCE has three (3) STAGING ZONES...

Section 2.1.6 - The Landmark

Each AUTO ZONE contains one (1) Landmark, which is centered across the width of the zone and located ~~45~~ **13** ft. 7 in. from the ALLIANCE WALL.

Section 2.3.2 - RECYCLING CONTAINERS

The lids are secured to the **RECYCLING CONTAINERS** ~~garbage cans~~ using cable ties, and each lid has a 4.75 in. diameter hole in the center.

Section 2.3.3 - LITTER

Each LITTER is a solid core, green Pool Noodle, manufactured by Tundra (Part Number: SR20C). They are **between 4 ft. 7 in. long and 4 ft. 11** in. in length and have an outside diameter of approximately 2.6 in. **Given that the manufacturing process for Pool Noodles is not tightly controlled and the Pool Noodles used and distributed for the 2015 season were made in different production runs, teams should expect some variation in rigidity, length, diameter, and surface characteristics.**

Section 3 - The Game

Section 3.2.1 - Safety

G6-1 DRIVE TEAMS may not use any object to prop the CHUTE DOOR open.

VIOLATION: RED CARD

Section 4 - The ROBOT

Section 4.2 - General ROBOT Design

R3

Size constraints specified in part B may be met with additional aids such as bungee cords, minor disassembly, etc., provided transition from/to the TRANSPORT CONFIGURATION does not risk violation of other rules, particularly G5 and G6 G10 and G11.

Section 5 - The Tournament

Playoff Tournament MATCH nomenclature in Sections 5.4.4 and 5.6.3 was corrected to be consistent with nomenclature used in Figures 5-2 and 5-5.

Section 6 - Glossary

BACKSTOP – an aluminum structure positioned between each SCORING PLATFORM and the GUARDRAILS, primarily used to determine the LEVEL of a scored RECYCLING CONTAINER.

3.1.2.1: AUTO

During AUTO, each ALLIANCE can earn points are awarded for a ROBOT SETS, TOTE SETS or STACKED TOTE SET, and CONTAINER SETS, and STACKED TOTE SETS.

3.1.2.2: Coopertition

"Support in reference to TOTES for COOPERTITION, AUTO, and TELEOP, is transitive through other TOTES. For example, a Yellow TOTE is "fully supported by the STEP" if it is resting on top of another Yellow TOTE that is in turn resting directly on the STEP (and thus both Yellow TOTES are "fully supported" by the STEP).

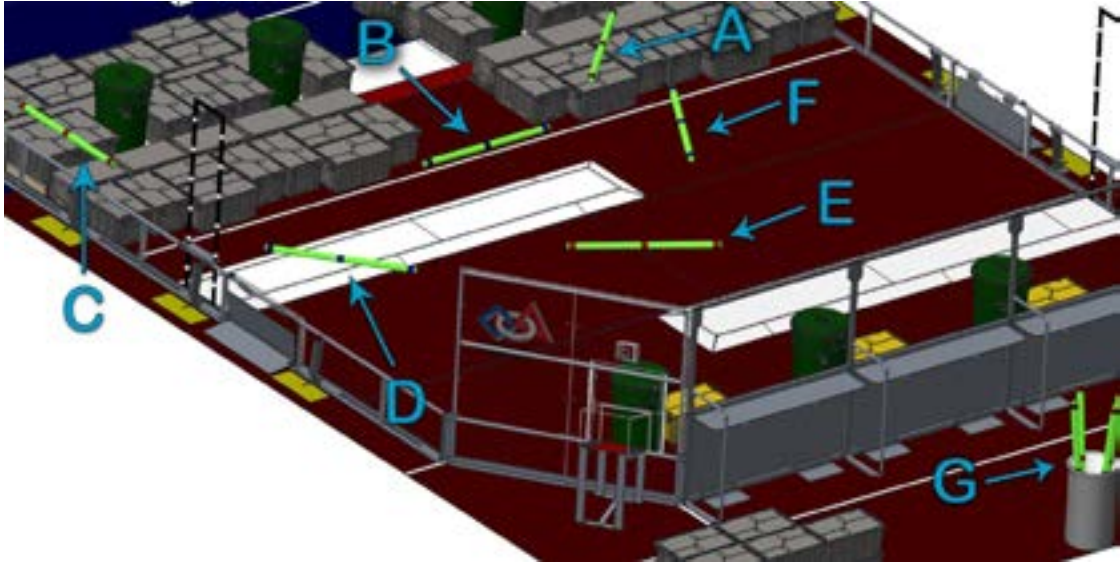
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