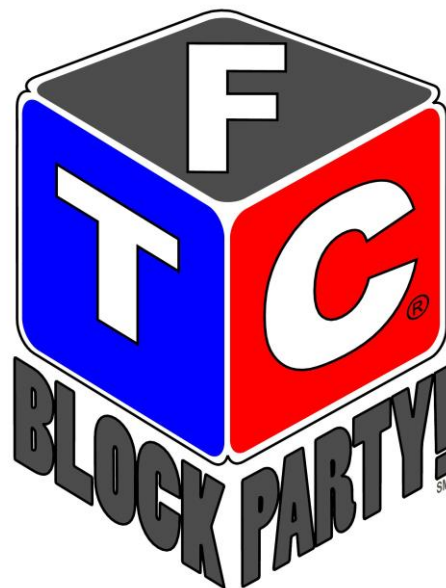




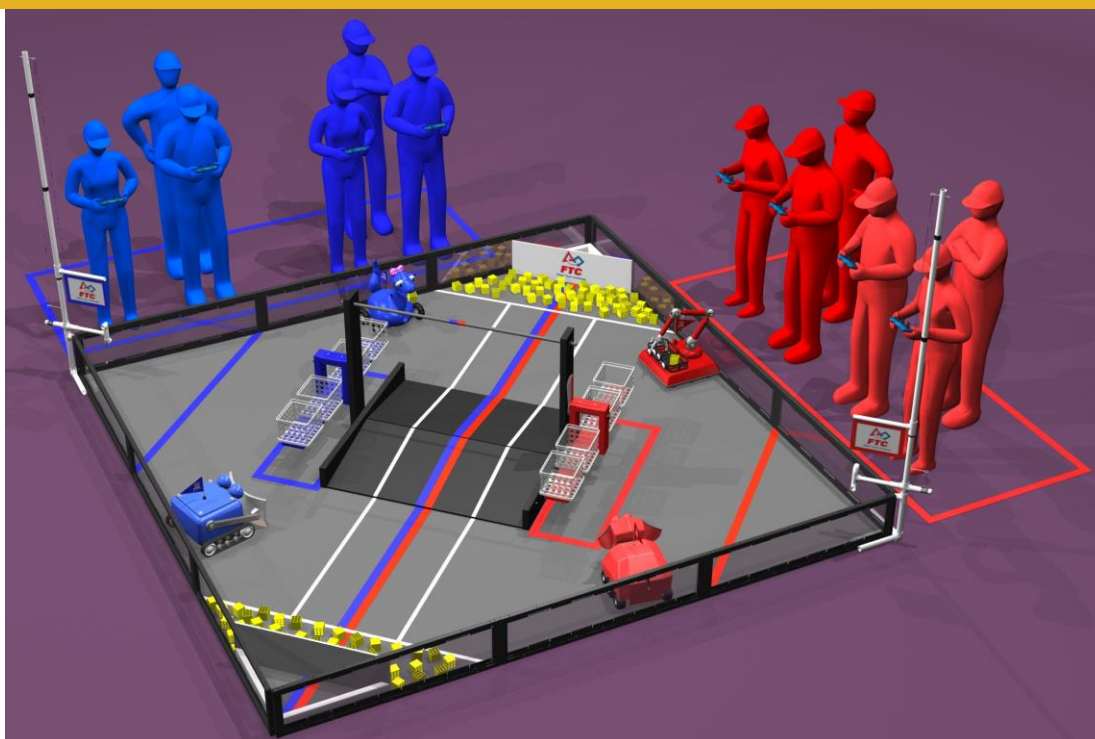
FIRST® Tech Challenge



FIRST TECH CHALLENGE

2013 - 2014 GAME MANUAL PART 2:

FTC BLOCK PARTY! GAME RULES



IMPORTANT NOTICE:

TEAMS MUST COMPLY WITH ALL RULES AND REQUIREMENTS STATED IN THIS DOCUMENT AND IN PART 1 OF THE *GAME MANUAL*. ANY UPDATES TO THE GAME RULES ARE ISSUED ON THE Q&A SECTION OF THE GAME FORUM AT FTCFORUM.USFIRST.ORG. FORUM RULINGS TAKE PRECEDENCE OVER INFORMATION IN THE MANUALS FOR THIS SEASON.

Revision History		
Rev	Date	Description
0	August 30, 2013	Limited Release – Affiliate Partners
1	September 9, 2013	Kick-off Release

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1.0 The Game

1.1 Overview

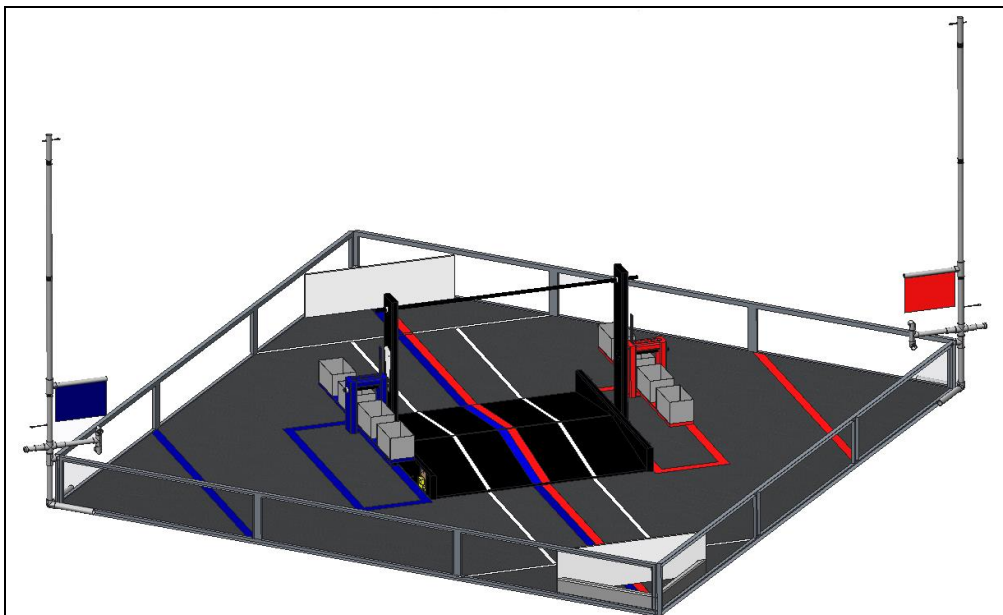
This section describes the *FIRST*[®] Tech Challenge game for the 2013-14 season called *FTC Block Party!* It also lists the Game rules and Game definitions. Terms in italics are defined in this Manual specifically for this Game.

1.2 Game Description

Matches are played on a *Playing Field* initially setup as illustrated in the figure below. Two *Alliances* – one “Red” and one “Blue,” composed of two Teams each – compete in each *Match*. The object of the Game is to attain a higher *Score* than the opposing *Alliance* by placing *Blocks* in various *Goals* on the *Pendulum* or *Floor Scoring Areas*. The Game is played in two distinct periods: *Autonomous* and *Driver-Controlled*.

In the 30-second *Autonomous Period*, Teams are challenged to use their *Robots* to *Score* pre-loaded *Blocks* into any of the *Goals*. *Blocks Scored* in a *Pendulum Goal* designated by a randomly placed Infrared (IR) beacon are worth more points. *Robots* can also autonomously navigate and drive onto the *Bridge* in the center of the *Playing Field* for additional points.

The two-minute *Driver-Controlled Period* follows the *Autonomous Period*. Teams earn points for their *Alliance* by placing *Blocks* into any of the *Goals* on the *Pendulum* or the *Floor Scoring Areas*. The *Outer Pendulum Goals* are worth more points than the *Inner Pendulum* or *Floor Scoring Areas*. The final 30- seconds of the *Driver-Controlled Period* is called the *End Game*. In addition to *Scoring Blocks*, Teams earn points by having their *Robot* raise their *Alliance Flag* up a *Flag Assembly*, having the *Robots Hang* above the *Playing Field* using the *Pull-Up Bar* across the center *Bridge*, or by ending the *Match* with a *Balanced Pendulum*.



Note: The illustrations in this Manual are only provided to give a general visual understanding of the Game. Teams should refer to the official Field drawings available at www.usfirst.org under “The FTC Game” for exact Field dimensions, a full Field *Bill of Materials* (BOM), and the exact details for construction. Items listed in the full BOM are recommended for an official Field Kit. Substitutions that don’t affect Game play are acceptable. Lower cost Field options are also provided at www.usfirst.org in the “The FTC Game” section.

1.3 Game Definitions

The following definitions and terms are used in the Rules below.

Alliance – A pre-assigned grouping of two Teams that work together for a given *Match*. *Alliances* are designated as either “Red” or “Blue.”

Alliance Area – The half of the *Playing Field* that corresponds to the *Alliance* color.

Alliance Station – The designated region where the *Drivers* and *Coach* stand or move within during *Matches*.

Area – The space defined by the vertical projection of the outside edge of a region’s boundary (e.g. gaffer’s tape, *Goal*, *Playing Field* perimeter wall, plywood, etc.) The boundary element (tape, wall, markings, etc.) is considered to be part of the *Area* for the purposes of determining *Inside* and *Outside*.

Autonomous Period – A 30- second period in which the *Robots* operate and react only to sensor inputs and to commands pre-programmed by the Team onto the onboard *Robot* Control System. Human control of the *Robot* is not permitted during this time.

Balance / In Balance – The angular orientation of the *Pendulum* relative to the *Playing Field* floor determines its state of *Balance*. The *Balanced* state of the *Pendulum* is measured by the relative position of a *Pendulum* pointer attached to the top of the *Pendulum* arm and a *Balance* indicator sign on the *Pull-Up Bar* brace. Pointers that are *Completely Inside* the *Balance* indicator sign signify a *Pendulum In Balance*.

Block – The Game Element for this year’s *FIRST* Tech Challenge game *FTC Block Party!* Each *Block* is an approximately 2-inch (5.08 cm) cube and weighs approximately 1.8 ounces (51 grams). A *Match* is played with 100 *Blocks*.

Block Score – The points for *Blocks Scored* into *Pendulum Goals* and the *Floor Scoring Area*, calculated at the conclusion of the *Driver-Controlled Period*.

Block Zone – The *Area* of the *Playing Field* where *Blocks* are placed before the start of the *Match*. There are two *Block Zones* on the *Playing Field* – front and back. Each *Block Zone* is a trapezoidal *Area* bounded by a *Block Zone* corner barrier, *Playing Field* perimeter walls, and a stripe of gaffer’s tape parallel to the corner barrier. Approximately half of the *Blocks* not given to *Robots* in the pre-*Match* setup are placed in each *Block Zone* in no particular arrangement or orientation.

Competition Area – The *Area* where all the *Playing Fields*, *Alliance Stations*, *Scoring tables*, and other Event officials and tables are located.

Control / Controlling – A *Block* is considered to be *Controlled* by a *Robot* if it is following the movement of the *Robot*. Pushing a *Block* still on the *Playing Field* is considered to be in *Control* of the *Robot*. See also *Possess / Possessing*.

Disable – If a Referee *Disables* a Team during a *Match*, he/she will ask the *Team* to move their *Robot* to a neutral position on the *Playing Field* and to place their Gamepad controllers on the floor in the *Alliance Station*.

Disqualified / Disqualification – A Team that is *Disqualified* from a *Match* will not receive credit for any points for the *Match* (i.e., no Qualifying or Ranking points).

Drive Team – Up to three representatives (two *Drivers* and one *Coach*) from a legally registered entity with *FIRST* and for the Competition.

Driver – A pre-college student Team member responsible for operating and controlling the *Robot* and wearing a “Driver” Badge or identifying marker.

Coach – A student or adult Mentor designated as the Team advisor during the *Match* and identified as the person wearing a “Coach” Badge or identifying marker.

Driver-Controlled Period – The two-minute time period in which the *Drivers* operate the *Robots*.

End Game – The last 30- seconds of the *Driver-Controlled Period*.

Field Control System (FCS) – The *Field Control System* is the computer hardware and software that will serve as the communications system between the *Drivers* and the *Robot* during a *Match*.

Flag Assembly – The *Flag*, *Flag Pole*, and *Crank* are located in the *Flag Zones* of the *Playing Field*. The *Flag Assemblies* are designated either “Red” or “Blue.”

Flag – The *Flag* can be raised using the *Crank* during the *End Game* to *Score* points. The *Flag* includes a PVC tee connector that guides the *Flag* by sliding up the *Flag Pole*; this tee connector is the portion of the *Flag* that determines the *Level* of the *Flag* for *Scoring* purposes.

Flag Pole – The *Flag Pole* is the vertical section of PVC pipe that guides the *Flag* when it is raised. The *Flag Pole* is marked to identify a *Low Level* and a *High Level*. *Levels* are indicated by 1” wide marks on the *Flag Pole*. The lower edge of the mark is the boundary of a *Level*.

Crank – The *Crank* is the handle of the *Flag* lift shaft that *Robots* spin to cause the *Flag* to raise up the *Flag Pole*. The *Crank* is the only means by which a Team should raise the *Flag*. The *Crank* will have no specific rotational orientation at the start of the *Match*.

Flag Zone – The triangular *Area* around the *Flag Assembly*. This *Area* is bounded by *Alliance*-colored gaffer’s tape and the corner of the *Playing Field* toward the audience and adjacent to the corresponding *Alliance Station*. The *Playing Field* has two *Flag Zones*, one designated “Red” and the other “Blue.”

Hanging – A *Robot* is legally *Hanging* if it satisfies all of the following constraints: i) *Robot* is supported solely by the *Pull-Up Bar* or is supported by a *Robot* that is supported solely by the *Pull-Up Bar*; ii) *Robot* is not in contact with the *Playing Field* floor or *Bridge*; and iii) the *Robot* is *Completely Inside* its *Alliance Area* plus a buffer region defined by the width of the gaffer’s tape designating the opposing *Alliance Hanging Zone*. It may be in contact with, but not directly supported by the *Pull-up Bar* braces or a *Robot* on the opposing *Alliance*.

Hanging Zone – The half of the *Bridge* and *Pull-Up Bar* that corresponds to the *Alliance* color.

Inside / Completely Inside – An object that has crossed the vertical extension of a defined *Area*’s boundary is *Inside* the *Area*. An object that is entirely within the vertical extension of a defined *Area*’s boundary is *Completely Inside* the *Area*.

Inadvertent / Inconsequential – Actions are ruled to be *Inadvertent* and/or *Inconsequential* when a Referee believes that the actions were not a planned strategy or the actions would not have an effect on which *Alliance* wins the *Match*. *Inadvertent* and/or *Inconsequential* actions by a Team may be excused without *Penalty* at the Referee’s discretion.

Match – A Match consists of an *Autonomous Period* followed by a *Driver-Controlled Period* for a total time of two minutes and thirty seconds (2:30).

Off / Completely Off – Not physically in contact with or supported by an object, surface, etc.

On / Completely On – Physically in contact with and supported by an object, surface, etc. An object that is entirely supported by another object, surface, etc. is defined as *Completely On* the object, surface, etc.

Out / Outside / Completely Out / Completely Outside – An object that has NOT crossed the boundary of a defined *Area*.

Penalty – A rule or procedure violation that is identified by a Referee. When a *Penalty* occurs, points will be awarded to the opposing *Alliance* that did not incur the *Penalty*. *Penalties* are further defined into *Minor Penalties* and *Major Penalties*.

Pin / Pinning – Preventing the movement in all directions of an opposing *Robot* while it is in contact with the *Playing Field* boundary wall, one or more *Field Elements*, or another *Robot*.

Playing Field – The part of the *Competition Area* that includes the 12' x 12' (3.66m x 3.66m) *Field* and all of the *Elements* described in the official *Field* drawings. The *Playing Field* is split into two *Areas* (Red and Blue) separated by connected red and blue gaffer's tape down the center and over the *Bridge*. The *Area* between the *Block Zone* corner barrier and the corresponding corner of the *Playing Field* perimeter wall is considered to be *Outside* of the *Playing Field*.

Possess / Possessing – A *Block* shall be considered in *Possession* if, as the *Robot* moves or changes orientation (e.g. moves forward, turns, backs up, spins in place, etc.), the *Block* remains in approximately the same position relative to the *Robot*. *Blocks* in *Possession* by a *Robot* are considered to be part of the *Robot*. See also *Control / Controlling*.

Robot – Any mechanism that has passed *Inspection* and a *Team* places on the *Playing Field* prior to the start of a *Match*. A more detailed definition of *Robot* is in the *Robot Rules* section in Part 1 of the *Game Manual*.

Scoring – Teams earn points for their *Alliance* based on the locations of *Robots* and *Blocks* at the end of the *Autonomous Period*, and the locations of *Robots*, *Blocks*, and *Flags* at the end of the *Driver-Controlled Period*.

Bridge – The center *Playing Field* *Element* is composed of two wooden ramps leading up to the *Pull-Up Bar*. *Robots On* or *Completely On* the *Bridge* at the end of the *Autonomous Period* earn points for their *Alliance*.

Flag – There are *Alliance*-colored *Flags* in the corners of the *Playing Field* adjacent to the corresponding *Alliance Station* that *Robots* can raise during the *End Game* for points by use of the *Crank* only. The top of the *Flag's* PVC tee determines the *Level* of the *Flag*. *Flags* are *Scored* successfully when the top of the *Flag's* PVC tee is *Inside* (i.e. above) the lower edge of a *Level* marker.

Floor Scoring Area – The *Alliance*-colored taped *Area* on the *Playing Field* floor beneath their *Pendulum Goals*. *Blocks* must be *Inside* the *Floor Scoring Area* to *Score*.

Pendulum – There are two *Alliance*-colored *Pendulums* (one Red and one Blue) in the center of the *Playing Field*. The *Pendulum* is the main *Scoring Area* for the *Blocks*. It is a board that holds four *Pendulum Goals* and acts as a *Balance Indicator*. The baskets on the *Pendulum* are further defined into *Inner Pendulum Goals* and *Outer Pendulum Goals*. The two *Inner Pendulum Goals* are those closest to the center of the board. The two *Outer Pendulum Goals* are those that are on the outside of the *Inner Pendulum Goals*. *Blocks Scored* successfully will be *Inside* a *Pendulum Goal*. At the end of the *Game*, *Blocks* that are *Inside* more than one goal will count only for the higher point value goal.

Pull-Up Bar – Across the *Bridge* above the *Playing Field* is a metal pipe that teams can use to *Hang Robots* during the *End Game* for additional bonus points. The *Pull-Up Bar* is divided into two *Hanging Zones* (one Red and one Blue).

Trap / Trapping – Preventing an opposing *Alliance Robot* from accessing or escaping from a constrained *Area* of the *Playing Field* for an extended period of time.

1.4 Game Play

Matches are made up of three periods totaling 2.5 minutes. Prior to the start of the *Match*, *Drive Teams* have to perform some basic *Robot* setup steps. Then there is a 30-second *Autonomous Period*, followed by a 2-minute *Driver-Controlled Period*. The last 30 seconds of the *Driver-Controlled Period* is called the *End Game*. At the end of the *Match*, the Referees will fill out the *Score* sheets and then signal the *Teams* to collect their *Robots* and leave the *Competition Area*.

1.4.1 Pre-Match

Teams may place their *Robots* in any orientation on the *Playing Field* tiles with the following constraints:

1. *Robots* are required to touch one, and only one, *Playing Field* perimeter wall.
2. *Robots* must be *Completely Inside* their *Alliance Area*.
3. *Robots* may not be placed with any portion of their *Robot* *Inside* a *Block Zone* or touching any of the *Blocks* in the *Block Zone*.
4. *Robots* must not have any part extend over the outer edge of the *Playing Field* perimeter wall.

Each *Team* will receive an *Alliance*-colored *Robot* identification *Flag* from *Field* personnel; this *Flag* must be mounted on the *Robot* as defined in the *Robot* rules.

Each *Team* is given one (1) *Autonomous Block* that must be placed in contact with their *Robot* during the pre-*Match* set-up by any member of the *Drive Team*. The *Autonomous Block* must be in contact with a single *Robot* and it may touch the *Playing Field*. A *Robot* can only touch one *Block* while in the pre-*Match* starting position. *Autonomous Blocks* are identical to the *Blocks* in the *Block Zones*. *Teams* are not required to accept/use an *Autonomous Block*. Unused *Autonomous Blocks* will be randomly placed in a *Block Zone* by *Field* personnel.

After *Teams* place their *Robots* on the *Playing Field* and pre-load the *Autonomous Blocks*, the Referees will place IR beacons adjacent to randomly-selected *Pendulum Goals*, one *Goal* per *Alliance*-specific *Pendulum*. Each IR beacon will be placed on the outer edge of the *Bridge*, directly below the selected *Pendulum Goal*. Once the IR beacons are placed, *Teams* may not touch or otherwise make adjustments to the *Robots*.

The 96 *Blocks* not offered to *Teams* as *Autonomous Blocks* are divided roughly evenly between the two *Block Zones* by *Field* personnel.

1.4.2 Autonomous Period

The *Match* starts with a 30-second *Autonomous Period* where *Robots* are operated via pre-programmed instructions only. Points will be awarded for *Autonomous Blocks* placed in a *Pendulum Goal* or the *Floor Scoring Area*.

Autonomous Blocks Scored in the *Pendulum Goal* designated by an IR beacon will receive even higher points. *Robots* also

earn points for their *Alliance* by being *On the Bridge* at the end of the *Autonomous Period*. A maximum of two *Autonomous Blocks* will count for the *Alliance* in any *Match*. Regular *Blocks* have zero *Score* value for the *Autonomous Period*.

The *Autonomous Score* is based on the location of *Autonomous Blocks* and *Robots* at the end of the *Autonomous Period*:

1. *Pendulum Goal* – A *Block Inside* a *Pendulum Goal* designated by an IR beacon earns 40 points. A *Block Inside* a *Pendulum Goal* that is not designated by an IR beacon earns 20 points.
2. *Floor Scoring Area* – *Blocks Inside* the *Floor Scoring Area* earn 5 points.
3. *Bridge Bonus* – A *Robot On* the *Bridge* earns 10 points for their *Alliance*. A *Robot Completely On* the *Bridge* earns 20 points for their *Alliance*.

1.4.3 Driver-Controlled Period

At the conclusion of the *Autonomous Period*, *Robot Drivers* pick up their Gamepad controllers and a two-minute *Driver-Controlled Period* begins. *Robots* are tasked with collecting *Blocks* from the *Block Zones* and placing them in the *Pendulum Goals* and/or the *Floor Scoring Area*. *Autonomous Blocks* that were not *Scored* during the *Autonomous Period* may be *Scored* as regular *Blocks* during the *Driver-Controlled Period*. *Blocks Scored* in the *Inner Pendulum Goals* have a different value than *Blocks Scored* in the *Outer Pendulum Goals*. They are also tasked with trying to keep their *Pendulum* as close to in *Balance* as possible to earn bonus points at the end of the *Match*. An *Alliance* may *Score Blocks* in their opponent's *Pendulum Goals* except for certain times of the *Match* (see Rules of Game Play below).

The *Block Score* is calculated based on the *Block* locations at the conclusion of the *Driver-Controlled Period*:

1. *Outer Pendulum Goal* – A *Block Inside* an *Outer Pendulum Goal* earns 3 points.
2. *Inner Pendulum Goal* – A *Block Inside* an *Inner Pendulum Goal* earns 2 points.
3. *Floor Scoring Area* – A *Block Inside* the *Floor Scoring Area* earns 1 point.

The *Autonomous Blocks* are treated the same as other *Blocks* for *Scoring* purposes at the end of the *Match*.

1.4.4 End Game

The last 30 seconds of the *Driver-Controlled Period* is called the *End Game*. During the *End Game* – and not before – *Robots* may raise their *Flag* using only the *Crank* in their *Alliance-specific Flag Zone*. Also during the *End Game*, *Robots* may *Hang* from the *Pull-Up Bar* over the *Bridge* to earn points. *Robots* that engage, grasp, grab, etc. the *Crank* or *Pull-up Bar* prior to the start of the *End Game* will cause their entire *Alliance* to receive zero *Score* for the corresponding *End Game Scoring Element*. *Robots* may continue to *Score Blocks* in *Goals* and try to get their *Alliance's Pendulum In Balance*. After the *Match* is over, the Referees will determine if the *Pendulum* is in *Balance* to earn a bonus multiplier for the corresponding *Alliance*.

Scoring in the End Game:

1. *Flag Score* – If the *Flag* has been raised to the *Flag Pole's High Level*, it earns 35 points; or if it has been raised to the *Flag Pole's Low Level*, it earns 20 points. If the *Flag* is determined to be *Inside* both the *High* and *Low Levels*, it will be *Scored* in the *High Level*.
2. *Hanging Score* – *Robots* that are deemed by the Referees to be legally *Hanging* will earn 50 points for their *Alliance*.
3. *Balance Score* – *Pendulums* determined to be in *Balance* by the Referee will earn bonus points equal to 50% of their *Block Score*.

1.4.5 Post Match

After the *Match* is over, the Referees will determine if *Robots* are *Hanging*, if the *Pendulums* are in *Balance*, what *Levels* the *Flags* have reached, and how many *Blocks* are in each *Goal*. After they are finished, the Head Referee will signal for the *Drive Teams* to enter the *Playing Field* and retrieve their *Robots*. The *Drive Teams* should return any unscored *Blocks* that are *Possessed* by the *Robot* to the Field and return the *Alliance*-colored *Robot* identification *Flag* to the Field Reset Crew. The Field Reset Crew will set up the *Playing Field* for the next *Match* at that time.

1.4.6 Penalty Scoring

Penalty points are added to the non-offending *Alliance's Score* at the end of the *Match*. *Minor Penalties* give the opposing (non-offending) *Alliance* 10 points per occurrence. *Major Penalties* give the opposing (non-offending) *Alliance* 50 points per occurrence.

1.5 Rules of Game Play

Game play is restricted by the Safety Rules (<S#>), the General rules (<G#>), and the Game Specific rules (<GS#>). Other rules to pay close attention to are the *Robot* rules, the Inspection rules, and the Tournament rules (defined in Part I of the *Game Manual*). Violation of these rules may lead to *Penalties* and/or *Disqualification* of the offending Team and/or *Alliance*.

1.5.1 Safety Rules

<S1> If at any time the *Robot* operation is deemed unsafe or has damaged the *Playing Field*, another *Robot*, Field Element(s), surface, or perimeter walls, by the determination of the Referees, the offending Team may be *Disqualified*. The *Robot* will require re-Inspection before it may again compete.

Note: Teams should pay close attention to other *Robot* Specific Safety Rules outlined elsewhere in other sections of the *Game Manual*.

<S2> If any portion of the *Robot* goes outside of the perimeter wall and makes contact with anything outside of the *Playing Field* it will be *Disabled* for the remainder of the *Match*.

1.5.2 General Game Rules

<G1> Before the start of a *Match*, each *Robot* must not exceed a volume of 18" (45.7cm) wide by 18" (45.7cm) long by 18" (45.7cm) tall. An offending *Robot* will be disabled/turned off for the *Match* at the Head Referee's discretion.

Alignment devices are allowed only if they are constructed from legal components and they remain within the starting volume constraint.

- <G2> Each *Drive Team* shall include up to two *Drivers* and one *Coach*. Electronic communications (cell phone, two-way radio, Wi-Fi, etc.) by *Drive Team* members after an *Alliance* has been called to the *Playing Field* for its *Match* are not allowed and will result in a *Minor Penalty* and/or *Disqualification*. Items that may be mistaken by a casual observer as being in violation should not be brought to the *Playing Field*.
- <G3> During a *Match*, the *Drivers* and *Coach* must remain in their *Alliance Station*. The first instance of leaving the *Alliance Station* will result in a warning, with any following instances resulting in a *Minor Penalty* and/or *Disqualification*. Leaving the *Alliance Station* for safety reasons will not result in a *Penalty*.
- <G4> During a *Match*, the *Drivers* and *Coaches* are prohibited from making contact with the *Playing Field* or any Game or Field object. The first instance of contact will result in a warning, with any following instances resulting in a *Minor Penalty* and/or *Disqualification*. Contact that affects *Scoring* and/or Game play will result in *Disqualification*.
- <G5> During a *Match*, *Robots* must be remotely operated only by the *Drivers* using the Gamepads supplied by the Tournament Director and/or by Software running in the on-board Control System. The first instance of *Coach* interference (e.g. touching a Gamepad) will result in a warning, with any following instances resulting in a *Major Penalty* and/or *Disqualification*.
- <G6> Scores will be calculated at the end of the Autonomous Period and Driver-Controlled Period when all objects on the *Playing Field* have come to rest.
- <G7> *Robots* may not deliberately detach parts during any *Match*, or leave mechanisms on the *Playing Field*. If a deliberately detached component or mechanism prevents additional *Scoring*, the *Robot* will be *Disabled* and the Team will be *Disqualified*. Multiple infractions may result in *Disqualification* for the entire Competition.
- <G8> *Robots* may not grab, grasp, grapple, or attach to any *Playing Field* Element or structure other than *Scoring* Elements, unless specifically allowed by Game-specific rule(s) listed in Section 1.5.3. Violations of this rule may result in a *Major Penalty* and/or *Disqualification*.
- <G9> Strategies and mechanisms aimed solely at the destruction, damage, tipping over, or entanglement of *Robots* are not in the spirit of the *FIRST* Tech Challenge and are not allowed. However, FTC Games are highly interactive and *Robot-to-Robot* contact and defensive Game play should be expected. Some tipping, entanglement, and damage may occur as a part of normal Game play. If the tipping, entanglement, or damage is ruled to be deliberate or chronic, the offending Team may receive a *Major Penalty* and/or be *Disabled* and *Disqualified* for that *Match*. Repeated offenses could result in a Team being *Disqualified* from the remainder of the competition. See also <G18>.
- <G10> A *Robot* cannot *Pin* or *Trap* another *Robot* for more than five seconds. If a Referee determines this rule is violated, the offending *Alliance* will receive a *Minor Penalty* for every five seconds that they are in violation and the offending *Robot* may be *Disabled* for the *Match*. A *Robot* cannot incur a *Pinning* or *Trapping Penalty* during the *Autonomous Period*. If a *Pinning* or *Trapping* occurrence happens during the *Autonomous Period*, the first action done by the offending *Robot* during the *Driver-Controlled Period* must be to back away from the *Pinned* or *Trapped Robot* or a *Minor Penalty* will be assessed. If a Referee declares a *Pinning* or *Trapping* warning during

the *Match*, the offending *Robot* must back away at least 3 feet (0.9m) or the approximate distance of 1.5 floor tiles from the *Pinned or Trapped Robot*.

- <G11> The actions of an *Alliance* or their *Robots* shall not cause an opposing *Alliance* or *Robot* to break a rule and thus incur penalties. Any rule violations committed by the affected *Alliance* shall be excused, and no penalties will be assigned.
- <G12> *Robots* must be designed to permit easy removal of *Scoring* Elements from any grasping, containing, or holding mechanism after the *Match* without need of the *Field Control System*. *Robots* should also be able to be removed from the Field without need of the *Field Control System* or damaging the *Playing Field*.
- <G13> At the beginning of a *Match*, each *Alliance Robot* must be set up on the *Playing Field* in accordance with section 1.4.1 Pre-Match. *Drive Teams* are required to stand in the *Alliance Station* location (station one or station two) specified by the *Match* schedule to assure that the Gamepads are assigned to the correct *Drive Team* and *Robot*.
- During the qualification *Matches*, the Blue *Alliance Robots* must be set up on the *Playing Field* first.
 - During the elimination *Matches*, the lower seeded (i.e. 3rd seed is lower than 2nd seed) *Alliance Robots* must be set up on the *Playing Field* first.
 - Alliances* may waive their right to place their *Robots* on the *Playing Field* first as specified above.
 - Teams that deliberately delay the start of the *Match* are not considered Gracious or Professional and will incur a *Minor Penalty* for each offense. Repeated offenses may lead to *Disqualification*.
- <G14> *Matches* are replayed at the discretion of the Head Referee only under the following circumstances:
- Failure of a Game Element that was likely to have impacted which *Alliance* won the *Match*.
 - Loss of control of a *Robot* due to a VERIFIABLE failure of the tournament-supplied FCS computer, FCS software, USB Hub, or Gamepad that was likely to have impacted which *Alliance* won the *Match*.
 - Loss of control of all four *Robots* due to a failure of the Field's wireless router that was likely to have impacted which *Alliance* won the *Match*.
- Unexpected *Robot* behavior in itself will not result in a *Match* replay. Team-induced failures, such as low battery conditions, processor sleep time-outs, *Robot* mechanical/electrical/software failures, *Robot* communication failures, etc. are **NOT** valid justifications for a re-Match.
- <G15> At the conclusion of the *Autonomous Period*, the Head Referee will if needed, untangle *Robots*, place *Robots* on their drivetrain, make minor adjustments to *Robot* position, etc. so that the *Robots* can participate in the *Driver-Controlled* portion of the *Match*. The Referee will do this after finding out from the Team where the best place is to touch their *Robot*.
- <G16> Field and Field Element tolerances may vary by as much as +/-1.0" (2.5cm). Teams must design their *Robots* accordingly.
- <G17> *Robots* may not deliberately remove Game Elements from the *Playing Field*. Field personnel will replace Game Elements that incidentally fall outside the *Playing Field* at the earliest convenient opportunity. Teams

deliberately removing Game Elements from the *Playing Field* will incur a *Minor Penalty* per occurrence. Continued violation of this rule may lead to *Disqualification*.

<G18> Egregious *Robot* or Team member behavior at the *Playing Field*, as determined by the Referees, will result in a *Major Penalty* and possible *Disqualification*. Subsequent violations will result in Team *Disqualification*. Egregious behavior includes, but is not limited to, repeated and/or flagrant violation of Game rules, uncivil behavior towards *Drivers*, *Coaches*, competition personnel, and Event attendees, and repeated or flagrant unsafe behavior or actions.

1.5.3 Game-Specific Rules

<GS1> *Robots* may not *Possess* or *Control* more than four (4) *Blocks* at any time. If a *Robot* is *Possessing* or *Controlling* more than four (4) *Blocks*, the *Alliance* will incur a *Minor Penalty* for each *Block* above the limit plus an additional *Minor Penalty* per extra *Block* for each 5-second interval that this situation continues. *Blocks* will not be legally *Scored* while a *Robot* *Possesses* or *Controls* more than four (4) *Blocks*.

<GS2> *Robots* may not make contact with an opposing *Alliance's Pendulum* unless they are in the act of *Scoring* in that *Pendulum* (see restriction in <GS3>). Violations will result in a *Major Penalty* per occurrence. Contact that is determined by the Referees to be *Inadvertent* and *Inconsequential* will not result in a *Penalty*.

<GS3> *Robots* may not *Score* or *de-Score Blocks* in the opposing *Alliance's Pendulum Goals* during the *End Game*. Violations will result in a *Major Penalty* and the Opposing *Alliance* will be awarded with a *Balance Score*.

<GS4> *Robots* may not *de-Score Blocks* from the *Pendulum Goals*, however they may be *de-Scored* from the *Floor Scoring Area*. If *Blocks* are *de-Scored* illegally, the offending *Alliance* will incur a *Major Penalty*. In other words, once a *Block* is *Scored* in a *Pendulum Goal*, it may not be removed by any *Robot*, even one of the same *Alliance's* color. *De-scored Blocks* will not contribute to an *Alliance Score*.

<GS5> *Blocks* that are in contact with a *Robot* on the corresponding *Alliance* for the *Goal* have zero *Score* value.

<GS6> During the *Autonomous Period*, *Robots* can only *Score* pre-loaded *Blocks*. If any *Blocks* other than the two *Autonomous Blocks* are *Scored* by an *Alliance* during the *Autonomous Period*, their *Autonomous Period Block Score* is zero. They can, however, still get a *Bridge Bonus*.

<GS7> During the *End Game*, an *Alliance's Robot* may not block access to the opposing *Alliance Hanging Zone* or interfere with an opposing *Alliance's Robot Hanging* on the corresponding side of the *Pull-Up Bar*. If this occurs, the offending *Alliance* will incur a *Major Penalty*.

<GS8> *Robots* may not make contact with the opposing *Alliance's Flag Assembly* at any time during a *Match*. If this occurs, a *Major Penalty* will be assessed to the violating *Alliance*. Contact that is determined by the Referees to be *Inadvertent* and *Inconsequential* will not result in a *Penalty*.

<GS9> *Robots* may not block access to the *Flag Zone* of the opposing *Alliance* during the *End Game*. If this occurs, a *Major Penalty* will be assessed to the violating *Alliance*.

<GS10> *Robots* that engage, grasp, grab, etc. the *Crank* or *Pull-up Bar* prior to the start of the *End Game* will cause their entire *Alliance* to receive zero *Score* for the corresponding *End Game Scoring* element. *Inadvertent* and *Inconsequential* contact made with either Element will not result in a *Penalty*.

<GS11> Teams are not allowed to touch their Robots once the IR beacons have been placed in their designated location for the Match. If this occurs, a *Minor Penalty* will be assessed to the violating Alliance and the affected Team's Robot is not eligible to Score the 40-point or 20-point *Autonomous Pendulum Goal Score*.

<GS12> Robots may grab, grasp, grapple, and attach to the *Pull-Up Bar, Flag Assembly Crank, and Blocks*.

1.6 Penalty Summary

There are two types of *Penalties* in *FTC Block Party!* – *Minor* (10 points) and *Major* (50 points). The following table shows the possible rule violations and their consequences:

Violation	Consequence	Rule
GENERAL GAME RULES		
Use of electronic communications after being called for a Match.	Warning to Team; followed by <i>Minor Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G2>
Drive Team outside of Alliance Station.	Warning to Team; followed by <i>Minor Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G3>
Drive Team contacts Field or Game object.	Warning to Team; followed by <i>Minor Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G4>
Coach touches Gamepad controller after start of Match.	Warning for first offense. Repeated offense will result in a <i>Major Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G5>
Robot deliberately detaches parts on Playing Field that prevent additional Scoring.	Robot is <i>Disabled</i> and team <i>Disqualified</i> for Match. Multiple infractions may result in <i>Disqualification</i> for the entire Tournament.	<G7>
Robot grabs or attaches to Playing Field Element or structure other than the excepted items.	Warning for first offense. Repeated offense will result in a <i>Major Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G8>
Deliberate tipping, entanglement, or damage.	Robot <i>Disabled</i> and Team <i>Disqualified</i> .	<G9>
Pinning or Trapping.	<i>Minor Penalty</i> per occurrence of offense. May lead to <i>Disqualification</i> for the Match.	<G10>
Team delays start of Match.	<i>Minor Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G13>
Deliberately removing Game Elements from the Playing Field.	<i>Minor Penalty</i> per offense. May lead to <i>Disqualification</i> .	<G17>
Egregious Robot or Team member behavior.	<i>Major Penalty</i> per offense. May lead to <i>Disqualification</i> for the Match.	<G18>
FTC BLOCK PARTY! SPECIFIC GAME RULES		
Robots Possessing or Controlling more than 4 Blocks.	<i>Minor Penalty</i> per offense per 5-seconds. Blocks will not Score if rule is violated.	<GS1>
Contact with opposing Alliance's Pendulum when not in the act of Scoring.	<i>Major Penalty</i> per occurrence.	<GS2>
Scoring in opposing Alliance's Pendulum during End Game.	<i>Major Penalty</i> per occurrence. Opposing Alliance also awarded a <i>Balanced Pendulum</i> .	<GS3>
De-Score Blocks from the Pendulum Goals regardless of ownership.	<i>Major Penalty</i> per occurrence.	<GS4>

Violation	Consequence	Rule
More than 2 <i>Blocks Scored</i> during <i>Autonomous Period</i> .	<i>Autonomous Period Block Score</i> for the <i>Alliance</i> is zero.	<GS6>
Interfering with an opposing <i>Robot</i> that is attempting to <i>Hang</i> during the <i>End Game</i> .	<i>Major Penalty</i> per occurrence.	<GS7>
Making contact with opposing <i>Alliance's Flag Assembly</i> .	<i>Major Penalty</i> per occurrence.	<GS8>
Denying access to opposing <i>Alliance's Flag Zone</i> during the <i>End Game</i> .	<i>Major Penalty</i> per occurrence.	<GS9>
Hanging on <i>Pull-Up Bar</i> or Raising <i>Flag</i> before the <i>End Game</i> .	<i>End Game Hanging Score</i> and/or <i>Flag Score</i> for the <i>Alliance</i> is zero.	<GS10>
<i>Drive Teams</i> touching <i>Robots</i> after IR beacons placed.	<i>Minor Penalty</i> per occurrence and <i>Autonomous Block</i> for the <i>Robot</i> will have zero <i>Pendulum Goal</i> value.	<GS11>