

### 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
<b>GENERAL GAME RULES</b>		
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>
<b>FTC BLOCK PARTY! SPECIFIC GAME RULES</b>		
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>