

# BunnyBot Scrimmage 2009

## Version 1.3 12/16/09

The BunnyBot Scrimmage is an annual event hosted by Catlin Gabel School Team 1540. Its purpose is to give local FRC teams a chance to get familiar with robot construction before the build season starts. This game is more relaxed than the FRC competitions and all in good fun.

### WHO'S INVITED

This competition is open to teams in Oregon and SW Washington. This is designed to be an easy event to host, however, so teams in other regions are more than welcome to host one of their own. Let Dale Yocum [dale@yocum.com](mailto:dale@yocum.com) of team 1540 know if you are interested in doing this so we can share details and score keeping software.

### HOW TO SIGN UP

There is no cost to attend the 2009 Oregon BunnyBot Scrimmage. You do need to drop Dale Yocum ([dale@yocum.com](mailto:dale@yocum.com)) an email, however, to reserve your space. Space is limited so it's first come first served. Teams can register more than one robot.

### ROBOT RULES

All FRC robot rules (that aren't game specific) from 2008

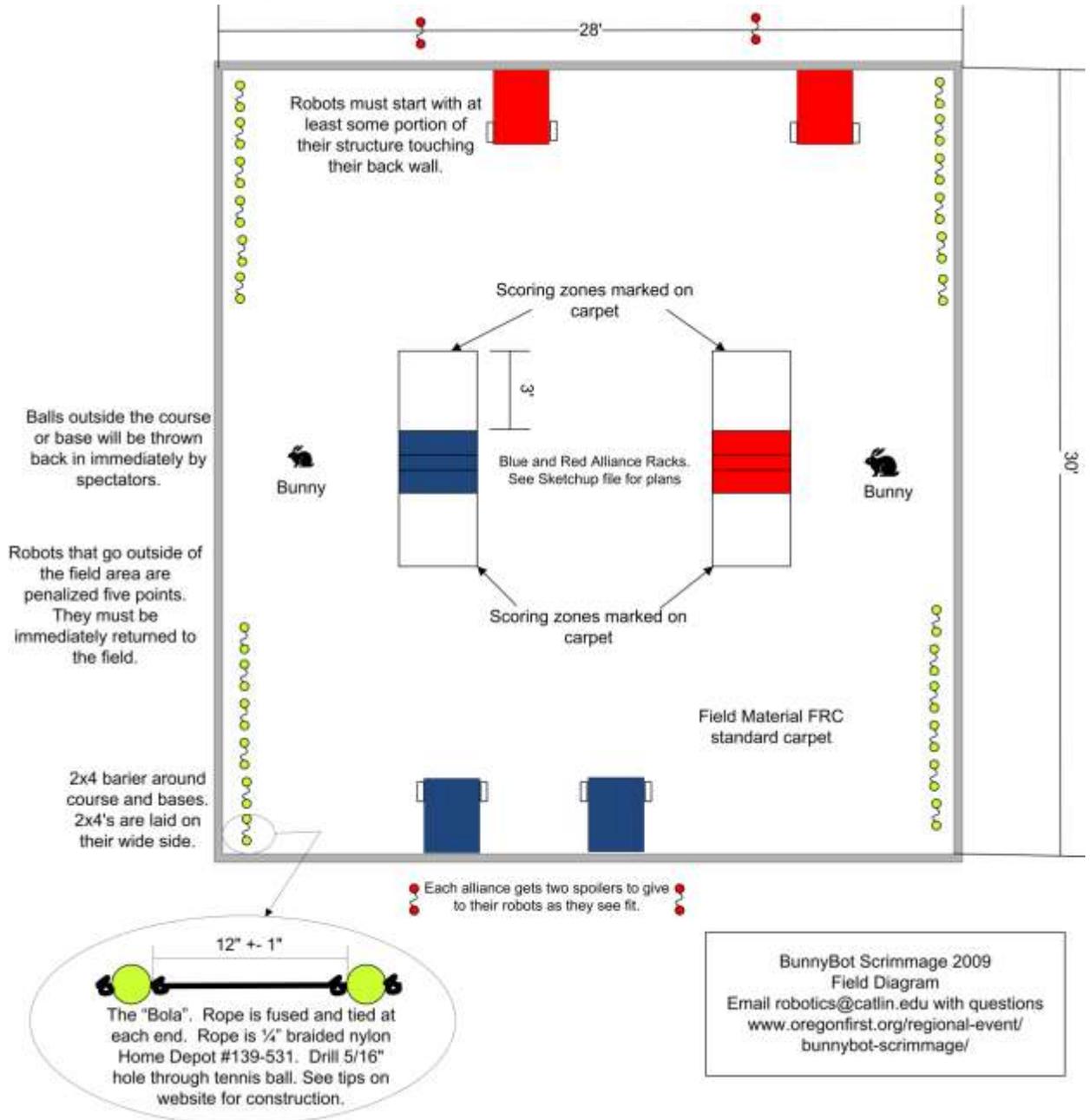
(<http://www.usfirst.org/roboticsprograms/frc/content.aspx?id=9152>) apply with the following modifications:

- 1) No more than two CIM motors are allowed for propulsion and steering of the robot. This is to keep the robots simple and avoid an undo advantage to veteran teams with their six motor shifting flux capacitor enhanced swerve drives.
- 2) No bumpers are required though they may be used if desired.
- 3) Robots in their starting configuration without their optional bumper must fit within a rectangle of 28"x38" with a maximum height of 60". Once started, they may extend outside of those dimensions as much as they'd like.
- 4) Robots may not intentionally detach pieces of themselves. Accidentally having parts fall off is fine.
- 5) The maximum weight of a robot, without its battery is 120 lbs, excluding bumpers if used .
- 6) *FIRST electrical rules don't apply. This allows you to use any control system you like, the 2009 controller, 2008 and earlier controllers, vex controllers, etc. Use common sense and follow FIRST wiring guidelines when possible. Make sure your radio system doesn't interfere with FRC radios if you are using something different. Make sure you have a master disable switch.*

- 7) There is no cost accounting for this but common sense would say you don't want to spend too much money for BunnyBot parts you can't use again.
- 8) Any motor or part that was legal for any previous year FRC competition may be used.
- 9) Vex and FTC parts are allowed.
- 10) There is no requirement that parts used on your BunnyBot be available off the shelf. This allows you to use random parts you might have lying around the shop or that have been removed from other devices. The idea is for people to not spend too much money on this.
- 11) Batteries must have been FIRST legal over the last 5 years. Only one battery can be on your robot at a time.
- 12) Each robot must have a place for a flag to be easily inserted and removed. Unlike the 2008 robot rules, there's no need for it to be raised high in the air but the flag holder must be roughly equivalent to the FIRST design (12"  $\frac{1}{2}$  diameter Schedule 40 PVC pipe capped at the end). The flag shaft will be  $\frac{1}{4}$ " in diameter.
- 13) Robots need team numbers. Each Robot should include 11" long or larger laminated signs on at least two sides. The robot will be announced in the form "Team 1234" by the announcer. If the robot has a name that will be announced as well. If a given FRC team has more than one BunnyBot, they should be labeled 1234A, 1234B, etc. The Robot's team number should be in large type, readable from at least ten feet away. Including your school(s) name and sponsors on the robot would be good marketing but is not absolutely required. Colors and other graphics are up to you. If you'd like to name your robot and include that on its signage that would be great as well.

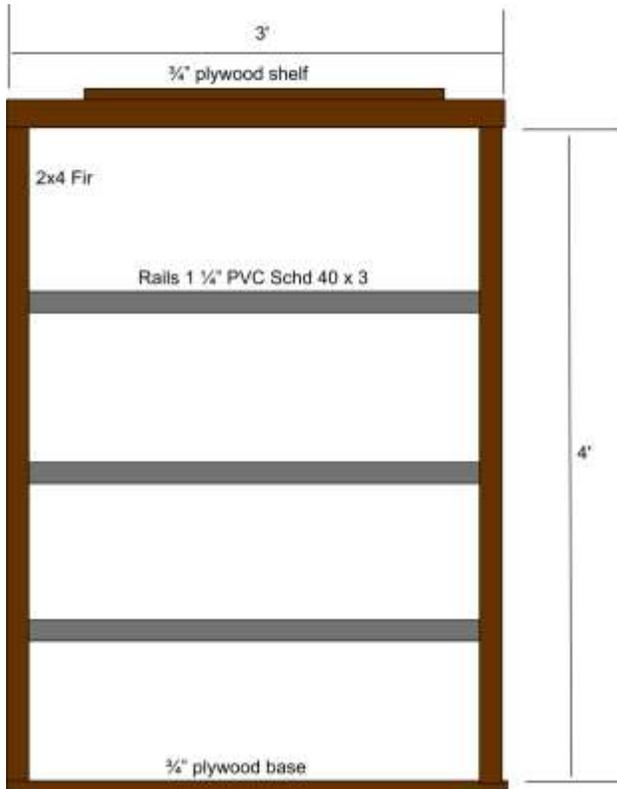
## GAME RULES

The 2009 BunnyBot scrimmage is played on a half FRC field, 28' x 30'. The layout is shown below:



## THE RACKS

Refer to the Google Sketchup drawing at [www.oregonfirst.org/regional-event/bunnybot-scrimmage/](http://www.oregonfirst.org/regional-event/bunnybot-scrimmage/) for detailed construction plans of the Rack. This is for illustration purposes only. The base of the Rack is 28" deep by 36" wide. The top shelf is 8" deep and 28" wide.



## THE GAME

Referring to the previous diagram. Two robots form an alliance. The primary scoring object this year is a “Bola”, a pair of tennis balls connected by 12” of ¼” braided nylon cord.

1. There are 24 Bolas distributed on the course as shown in the field diagram at the start of the game.
2. The alliance earns 1 point for each Bola on the base of their alliance’s rack at the end of the match. Both balls of the Bola must be completely supported by the plywood platform to count.
3. The alliance earns 3 points for each Bola hanging from **any** of the three PVC rails of the rack at the end of the match. There are no points for Bolas on the top shelf.
4. Once on the rack, Bolas can’t be removed by an opposing alliance. A 5 point penalty will be assessed for each Bola removed or knocked off by an opposing robot **whether accidental or not**.
5. Bolas on the carpet or plywood base of the racks can be picked up or moved by either alliance.
6. There are two Bunnies on the field at the beginning of the match. These bunnies are worth 15 points if they are resting on the top shelf or 2x4 of an alliance’s rack at the end of the match. The Bunnies are stuffed animals 12-18” high with a rough diameter of 8”. Robots intending to score with these should be able to handle a wide range of stuffed animals.
7. Bunnies can be removed from the shelf by either alliance at any time during the match.
8. Each alliance is given two Spoilers at the beginning of the match. These are special Bolas with red balls instead of green. If a Spoiler is present on a rail of an alliance’s rack, none of the Bolas on that rail score. If the balls or a Spoiler are fully supported by the plywood base of a rack, none of the (1 point) Bolas on that base score.
9. Spoilers are entered into play at any time by the alliance. They can be thrown onto the course, preloaded at the beginning of the match, or given to a robot by hand during the match. The operators may not touch the robot while doing this during a match, however.
10. Bolas or spoilers don’t count if they are thrown by humans onto a rack. Those will be removed by the referees at the first opportunity.
11. Spoilers can be removed from the rack by either alliance’s robot at any time during the match.
12. While each alliance is given two spoilers at the beginning of the match, there’s nothing that says they couldn’t come into possession of their opposing alliance’s spoilers and play them as well.
13. The course is bounded by 2x4s laid flat on the carpeted floor. Bolas outside of the field or on top of the 2x4s are returned immediately to play by spectators.
14. Spoilers do not affect the scoring of Bunnies on the top shelf.
15. At the end of the match, any game piece that is in contact with a robot will not count for that robot’s alliance. For example, suppose a bunny is on top of the blue alliance rack. If a

blue alliance robot is in contact with that Bunny it does not count. A red alliance robot would have no effect on that bunny. Likewise, if a blue alliance robot were in contact with a spoiler on the RED rack that spoiler wouldn't count. As a final example, if a blue alliance robot is in contact with a bola on the blue rack, that bola doesn't count. An exception is made for bolas on the plywood base. Robots can be in contact with those at match end without fear of losing those points.

16. One ball of the bola must be on either side of the rack's rail to score. Bolas tangled up in other bolas do not count unless they are straddling the rail.

## PENALTIES AND DISQUALIFICATIONS

1. A 5 point penalty is assessed for a robot that goes out of bounds (over the 2x4s). You are considered out of bounds if any portion of your robot touches the floor beyond the 2x4s. Once a robot is out of bounds, it is disabled, manually returned to the playing field, and re-enabled.
2. A 5 point penalty for each Bola removed from the rail of the opposing alliance **whether accidental or not**. Note there is no penalty for removing a Spoiler from a rail.
3. While some banging and movement is to be expected, Robots may not intentionally, ram or tip the racks. Robots attempting this will be disqualified for the match. Racks that are tipped over will cause the game to be paused and the rack restored, as much as possible, to its original condition.
4. Robots may not attach themselves or other devices to the racks. Robots doing this will be disqualified.
5. A robot can remain in a rack scoring zone for no more than 10 seconds. If any portion of the robot is inside the scoring zone for a time exceeding 10 seconds, a 10 point penalty will be assessed. That penalty will increase by one point per second from that point on until they are free of the zone. An exception to these penalties can be made by the referees if a robot is blocked by either a disabled robot or robots on the opposing alliance. This is entirely at the referee's discretion if it's clear that a robot can't extract itself from the scoring zone. A robot that becomes disabled while inside the scoring zone will cause the game to pause while the robot is manually moved aside.
6. The BunnyBot Scrimmage is a contact sport and robots should be built to withstand significant pushing and shoving. A 5 point penalty will be assessed for intentionally ramming another robot at high speed, however.

7. Robots are disqualified for intentionally damaging another robot or engaging in unsportsmanlike behavior.

Teams should keep in mind that spectators will be standing close of the field. Robots employing strategies that might harm people are not allowed.

## **QUEUES**

Robots will fill positions on the field in the order they have registered at the game master desk. Teams may only add themselves to the list at end of the queue or remove themselves from the queue because they aren't ready (and then add themselves to the end when they are). The two robots at the front of this queue will be the Red alliance and the next two the blue. If a robot isn't ready when called, that spot will go to the next robot in sequence and your robot will be removed from the list. It is therefore in team's best interest to have a reliable robot so you are never displaced from your position in the queue. The more matches you play, the higher your potential score. You are on your honor that when your robot is placed on the field, you have every reason to think it works! We won't run matches with dead robots ... those will be swapped out for the next robot in the queue.

Each robot will have a pit area within about 50' the arena. **We will have an on-deck waiting area.** You must be ready to go when you are called or else you'll forfeit your place in the queue.

If there are only two robots ready to go when their match is called, those teams have the option playing a one-on-one match or waiting for more robots.

## **SCORES**

Each member of the winning alliance will get two points for a winning match. In the case of a tie, all robots playing will get one point.

**At the end of the day, the robot with the most points wins. If there is a tie they will play a sudden death match one on one. A three way tie will result in two winning robots against the third helped by the robot of their choice from the remaining ones at the competition. Four way ties will be two on two and then one on one. There are no elimination rounds; we just play until a fixed time - 4:00pm. At that point there will be tie breaking rounds if needed and a brief award ceremony.**

## **THE VENUE**

The BunnyBot scrimmage is played in covered Tennis Court 1 at Catlin Gabel School next to the Gym. The field will open for teams to practice at 10:00am Saturday, Dec 19th. The doors open at 9:00am for field setup and robot unloading. Teams are free to come anytime between 9:00am and 10:30am. We'll start the matches at 11:00am. We'll conclude at 4:00pm unless we go into tie breaking rounds. Teams should bring their own lunches **or can buy pizza by the slice on site.** It would be best to stay on campus for lunch and talk with other teams. There is no off-campus food to speak of within walking distance. Teams can bring whatever tools and parts they like but they

must take care not to damage the surface of the court. Bring a tarp to put down in your pit area. Historically we run out of battery power before we run out of fun. Bring as many charged batteries as you can. The rounds go quickly and the batteries don't have as much time to recharge. If you are a new team, consider borrowing batteries from a team who isn't taking part. The batteries do wear out after a few years so test them before putting them on the field. Bring as many battery chargers as you can to the event.