

## 2009 BunnyBot Scrimmage

### Tips for making Bolas

After a lot of trial and error, here's how we've been making the Bolas:

- 1) Drill at 5/16" hole through two tennis balls. We just support the ball on top of a half opened vise and drill it with a power hand drill. This seems to work better than clamping it inside the vise.
- 2) Cut the rope to 26.5-27" and heat seal the edges. We do this in one step with a Weller heat tool [http://www.cooperhandtools.com/brands/CF\\_Files/model\\_detail.cfm?upc=037103211330](http://www.cooperhandtools.com/brands/CF_Files/model_detail.cfm?upc=037103211330) but a soldering gun would do the trick as well if you just want to get a new tip for it when you're done. Other use a torch-based hot knife. You can do it with a normal knife and then use a lighter to heat seal the ends but you'll probably need to adjust how long a rope you cut initially because more of it will be consumed as you melt the ends and there will be a bigger blob of nylon on each end. Be sure you're using ¼" braided nylon rope, not twisted.
- 3) Tie a single half hitch at the very end of one end of the rope.
- 4) Use a flexible grabber tools similar to this one [http://www.amazon.com/36-Claw-Pick-Up-Tool/dp/B0002ZANR8/ref=pd\\_sim\\_dbs\\_hg\\_3](http://www.amazon.com/36-Claw-Pick-Up-Tool/dp/B0002ZANR8/ref=pd_sim_dbs_hg_3) available at most hardware stores for \$2-\$3. Insert it through the ball and grab the rope with the end of it.
- 5) Pull the rope through the ball.
- 6) Tie one knot to secure the ball at the end. Note the new standard is to have knots on BOTH side of the ball.
- 7) Tie a loose half hitch somewhere in the middle of the rope. Don't tighten it.
- 8) Repeat step 4 and pull the rope through the second ball.
- 9) Tie a knot at the final end of the rope at the very end.
- 10) Work the knot you loosely tied in the middle up to be snug against the final ball and tighten.
- 11) Verify that the distance between the balls is 12" +- 1"

Any questions? Contact Dale Yocum at [dale@yocum.com](mailto:dale@yocum.com).