

Lego Robots Save the World

Watching Hundreds of Junior High Schoolers and Their Robot Friends at the Oregon Lego League Championships

by [Sarah Mirk](#)



It's Sunday morning. I'm in Hillsboro. I'm surrounded by Legos. These are not the Legos you grew up with. At least, they're not the Legos I grew up with. These Legos have brains. And so do the kids who are building them into robots, with grand plans to save the world.

For the past three months, 2,073 Oregon kids have been teaming up to build Lego robots and put together presentations on how to use robots to fix real-world transportation problems. Now it's January 17 at the Oregon First Lego League Championships, and

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the hundreds of nine- to 14-year-olds are swirling around Hillsboro's Li costumes and baggy color-coordinated team T-shirts. The tweens of the equal parts adorable and intimidating.

In the school gymnasium lined with tables covered in robot parts and project posters, I meet five girls from the Mt. Tabor neighborhood who are proposing the city build a tunnel under the Willamette River. The tunnel will be just for bikes. It will be called CYCLOPS. The girls have met with the mayor's office about their tunnel plan. These girls are 10, 10, 12, 13, and 14 years old. Their hand-drawn poster shows how CYCLOPS would be safer than biking over the Hawthorne Bridge because cyclists would not need to compete for space with pedestrians and cars.

"It gets really narrow if there's two people walking and you have to ride on the edge," says Alex, 14.

"And if you drive on the bridge, bikers cut you off on that part where there's the man with the trumpet," adds her friend Rose, referring to a street performer whose regular spot on the west end of the bridge has drawn concern over traffic visibility issues.

"Our first idea was to create, like, a shark tunnel for bikes, you know, an acrylic thing? But then we looked up the water-pressure equations on the internet and found out that would get crushed," continues Alex. "So now we have lights inside that would be powered with wave turbines!"

Another all-girl team, from North Portland's Harriet Tubman Leadership Academy for Young Women, is sulking near the school cafeteria. They just wrapped up a disastrous competition round. Like all teams, they spent months building their little robot from Legos, using a computer program to teach its square, gray, rectangular brain to follow a path of infrared sensors that scale small Lego hills and tell the bot to grab small Lego rings.

"We are freaking out," says one member, Sophie. "Our primary robot we, uh, left. We're running with a second-tier copy."

Indeed, in the rush to the robotics competition, the team left their robot behind.

"It's my fault," says her teammate meekly from the end of the line. Luckily, it's made with Legos.

"We rebuilt it. It's workable," says Sophie. Unlike their robot, though, the Tubman team's



PHOTOS BY WELLS MATTHEWS



Catch the Cleveland High School robotics team and all other local high school robotics competitors at the Lego robotics FIRST Tech Challenge at OMSI (1945 SE Water) on Saturday, February 6, 10 am-5 pm, free.

environmental project proposal is solid. Unbeatable. Awesome.

"We made a biodegradable car that runs off trash!"

"After it was done, you could just take it into the forest and let it sit!"

"And it would grow flowers and trees!"

Perhaps unintentionally, since they began in Oregon in 2001, the local Lego robotics competitions seem to be churning out a generation of solution-minded young environmentalists.

Hanging out near the CYCLOPS-tunnel team is a Portland teenager who, at one point, was the best Lego roboticist in the entire world. When Keegan Livermore was 13, he and four friends (mostly from the Winterhaven math-science magnet school) beat out 90,000 other Lego robotics fanatics from around the world with their little 'bot and a project that suggested designing trash-eating nanotechnology robots to munch up all the plastic in the North Pacific Gyre, a floating pile of trash in the Pacific Ocean that is roughly twice the size of Texas.

"Robotics is all about focusing on what you can fix, rather than what's broken," says Livermore, a sweet 16-year-old who runs cross-country for Cleveland High School and devotes two hours a day, six days a week, to building 190-pound robots for competition.

Another team in competition is dressed like Harry Potter characters. I ask one of the kids in a black cape about his project and, without taking his eyes off the boxy robot he's tweaking, he explains in rapid-fire language, "So basically, our wizard theme is because wizards use dragons and broomsticks to get around, but Muggles use cars and other things which create a lot of pollution. So basically, Hogwarts is inventing solutions to help everyone stop polluting so much." They don't wind up taking home any awards, but I like their style.

The team who takes first place is three girls who go by the name "Fire-Breathing Rubber Duckies." Though they go through multiple costume changes during the day, when I first see them the small girls are wearing fire-red wigs, straw hats, and hula skirts over their jeans. I catch up with them in the middle of the array of a dozen tables that make up the actual competition area. Around us are a dozen other teams, all huddled together about to place their robots at the beginning of an obstacle track. An announcer's voice is booming over the crowd, and parents are hovering with video cameras.

"Are you guys nervous?" I ask.

"A little bit, but I'm excited," replies one of the Duckies, focusing her eyes on her 'bot.

"We had some trouble with the light sensors, but we fixed it," adds another.


"The robot is driven by artificial intelligence that Teska made!" pipes up the first again. "She

spent over 500 hours working on it!" I have trouble keeping them straight. Tayt is 15. Teska is 13. Tylise is 10. They're sisters. They're home-schooled. They're from Beaverton. Yes, this is what the future looks like.

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Very nice article, Sarah. The Portland Mercury captured the spirit, enthusiasm, wonder and awe of our FLL teams. We encourage all Oregon 4th - 9th graders to try FIRST LEGO League. Registration starts in May 2010. For more information go to www.ortop.org for Oregon information or www.usfirst.org for international program information. ORTOP will be at OMSI on February 6th for the high school FIRST Tech Challenge State Qualifying Event - noon - 5pm. Free and open to the public.

Regards,

Cathy Swider

FIRST LEGO League Operational Partner, Oregon

Oregon University System

Posted by [CSwider](#) on February 4, 2010 at 6:21 AM | [Report this comment](#)



I can't wait 'til my kids turn ten. This looks like a lot of fun.

Posted by [howarthe](#) on February 4, 2010 at 9:30 AM | [Report this comment](#)



I've volunteered at these tournaments since they were just starting up, and the enthusiasm and ingenuity of the kids is absolutely incredible. Seeing the inspiration snowball from robots to their projects to other areas of their lives is the most rewarding thing I can imagine. The ORTOP program shows kids how applicable science and engineering can be in everyday life, and I hope it continues to grow - we'll all benefit!

Posted by [karpdx](#) on February 4, 2010 at 1:52 PM | [Report this comment](#)



I have mentored teams for the last three years and I couldn't agree more with howarthe. The enthusiasm and ingenuity of the kids is incredible and sparks the engineer in them

Posted by [barracuda](#) on February 4, 2010 at 6:04 PM | [Report this comment](#)



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