



Oregon Robotics Tournament and Outreach Program

"Opening Doors to the Worlds of Science and Technology for Oregon's Youth"

www.ortop.org

EXECUTIVE SUMMARY

The mission of the Oregon Robotics Tournament and Outreach Program (ORTOP) is to encourage Oregon's youth of every gender, socio-economic status, ethnicity and race to consider careers in technical or scientific fields.

To accomplish this, ORTOP uses three programs developed and distributed by *FIRST* (For Inspiration and Recognition of Science and Technology). The flagship program, *FIRST* LEGO® League (FLL), is for youngsters from 9 to 14 years old. Working in small teams, they use inexpensive LEGO® kits to design real working robots that can solve problems in an annual Challenge. ORTOP FLL teams bring their robots and Challenge solutions to qualifying tournaments held in communities around Oregon with the top teams from qualifying tournaments then competing again in an exciting Championship tournament.

The Junior *FIRST* LEGO® League (Jr.FLL) is for children from 6 to 9 years old. Teams solve a mini challenge using LEGO building sets. To ensure continuity of interest after FLL, the *FIRST* Tech Challenge (FTC) is for high school ages. FTC teams design and build real working "21st century erector set" style Tetrix robots to solve more complex problems presented annually by the FTC.

At a time when high costs and limited resources are creating challenges for Oregon's public schools, ORTOP provides a much-needed hands-on learning experience that helps keep kids engaged and their eyes open to new career paths and educational options. We expect to have about 4,000 youngsters participate in ORTOP programs in 2011, up from 3,400 children last year.

The estimated value of the budget to deliver the ORTOP program is approximately \$500,000. Two-thirds of the value is covered through in kind gifts primarily in the form of extensive volunteer hours. The cash portion of the ORTOP budget is \$230,000 (less than \$60 per child) for our fiscal year that begins April 1, 2011. About 56% of that will provide for outreach, training, and scholarships to teams that would otherwise be unable to participate. Another 37% is budgeted to deliver the 26+ qualifying and 3 championship FLL and FTC events and 2 Jr.FLL showcase events. ORTOP relies on charitable contributions to fund about 85% of the cash budget. The balance of the funding comes from registration fees. ORTOP is taking measures to operate as effectively and leanly as possible. We have built strong community partnerships to reduce venue costs and our scholarship program is structured with a high degree of accountability.

The bulk of our budget comes from corporations and foundations. In addition to Intel, our primary sponsors in 2010 were RadiSys, TechAmerica Oregon, and Rockwell Collins. Other sponsors included Bonneville Power Administration, Garmin, PH Tech, ONAMI, IBM, ESI, Timbercon, and Vernier Software and Technology.

We can't do this without you. Please help us open the doors to the worlds of science and technology for Oregon's youth.

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

ORTOP BACKGROUND

The mission of the Oregon Robotics Tournament and Outreach Program is to encourage Oregon's youth of every gender, socio-economic status, and ethnicity to consider careers in technical and scientific fields. To accomplish this, ORTOP uses three programs: *FIRST*® LEGO® League, *FIRST* Tech Challenge and Junior *FIRST* LEGO League. Developed by *FIRST* (For Inspiration and Recognition of Science and Technology) an internationally recognized educational foundation, these programs provide a hands-on science and technology experience for students 6 – 18 years old at age-appropriate levels.

Our flagship program is *FIRST* LEGO League, in which 9- to 14-year-old youngsters learn to design and build autonomous robots using special LEGO kits. The program includes a 10- to 12-week period in which youngsters form teams, develop robots that can respond to individual tasks as part of an overall challenge, prepare a scientific presentation on the challenge theme, and then compete against other teams in tournaments around the state. Through this process, youngsters experience the fun and excitement of solving complex problems in a positive and supportive team environment.

***FIRST* LEGO League (FLL)** brings theory and practice together in a revolutionary program. FLL empowers kids to combine what they've learned in the classroom with the latest technologies to solve the yearly challenge.



Working in an environment that encourages inquiry and hands-on experimentation, team members fulfill project responsibilities modeled after actual professions. The roles they assume grant them the thrill of discovery as they witness firsthand how abstract concepts become concrete solutions.

FLL Teams are comprised of:

- Three to ten children, ages 9-14
- One or more adults who serve as coaches and mentors

Anybody can form a team; schools, home schools, churches, neighborhood groups, civic groups, etc!

The kids on the FLL teams, with the help of the adult coach and mentors:

- Research the real-world issue presented in the Challenge; in 2011 it will be Food Factor: Keeping Food Safe.
- Design, build, and program an autonomous robot using LEGO MINDSTORMS technologies
- Research and solve a problem faced by real-world scientists and present their solutions.
- Compete in friendly, sports-like tournaments with the knowledge that what is discovered is more important than what is won.
- Proudly celebrate their team's accomplishments.

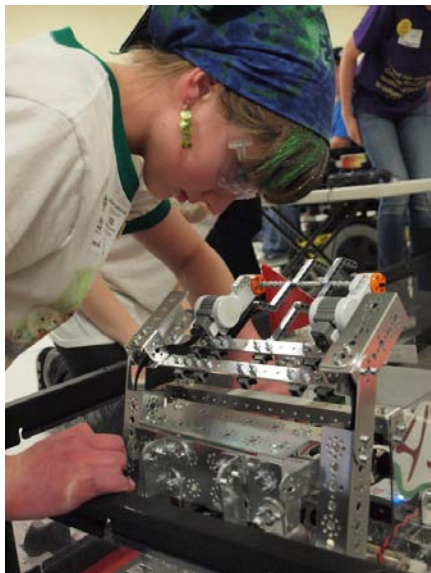
Team members learn life skills such as respect for others, appreciation of different perspectives, cooperation, perseverance, and time management. As a result of the FLL experiences, participants gain confidence, discover new skills and interests, and shape their futures.

It's fun and exciting. The skills they learn will last a lifetime.



Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

The Oregon Robotics Tournament and Outreach Program also uses a second program called the **FIRST Tech Challenge (FTC)** to maintain the interest and excitement generated by the *FIRST* LEGO League program until these children are college age.



The 8th – 12th grade students on the FTC teams, with the help of the adult coach and mentors:

- Participate as a team of about 10 students with 2-3 mentors
 - Develop problem-solving, organizational and team building skills including creating an engineering notebook.
 - Solve much more complex problems using “21st century erector set” to navigate autonomously with sensors, manipulate small objects and travel over uneven surfaces.
 - Use a sustainable reusable kit of parts with servo motors, multiple controllers, some team manufactured parts and a variety of programming platforms including Robot C and Labview.
 - Fabricate their own parts from a list of allowed materials.
 - Emulate design elements of robots used in civic and commercial applications.
- Qualify for college scholarship funds

The *FIRST* Tech Challenge program will expand to hold 8 qualifying events and a state championship tournament in 2011/2012 season. Teams meet 2 – 3 times a week from September through February. The affordable cost and exciting challenges have resulted quadrupling participation since the pilot season.

The third program, **Junior FIRST LEGO League**, for ages 6 – 9 years old, introduces children to the basics of engineering models and scientific inquiry. The participants use the same thematic challenge as *FIRST* LEGO League. An informal, non-competitive showcase is held for teams to showcase their projects and learn about *FIRST* LEGO League opportunities.



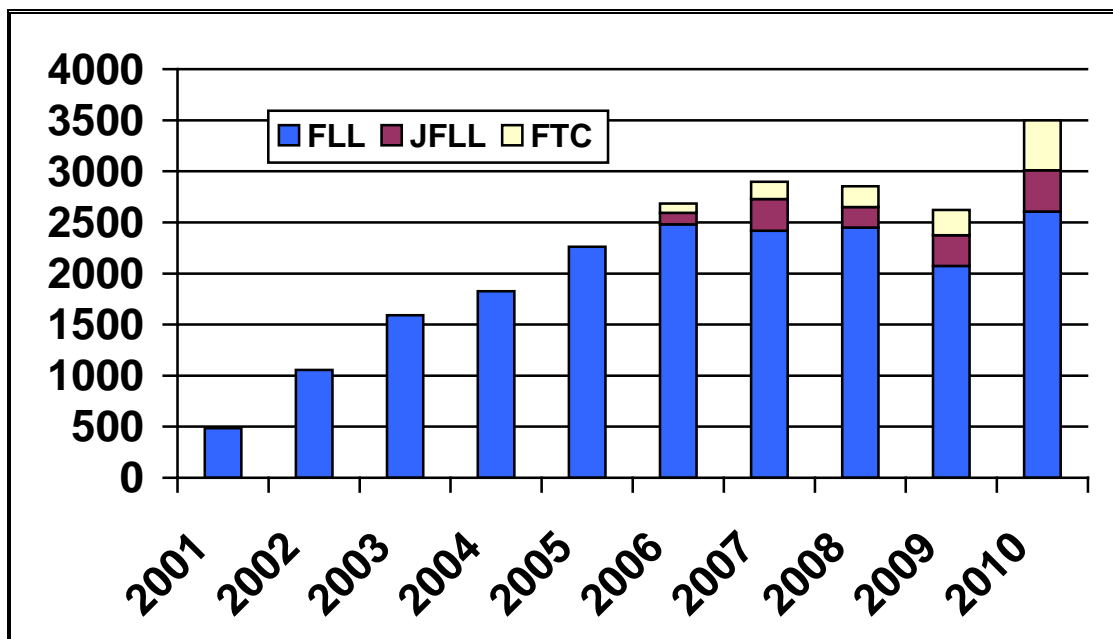
Oregon Robotics Tournament and Outreach Program was started in 2001 as a program of the Oregon University System. However, it is almost entirely staffed by volunteers. The ORTOP Executive Planning Committee is made up of volunteers from the programs sponsors and partners as well as private individuals. During the 2011 season over 1200 adult volunteers will organize and coach teams, while about 1400 additional volunteers will plan and stage 30+ tournaments events and 40+ training workshops during September 2011 through February 2012 around Oregon and SW Washington.

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

These volunteers come from many sources, including partner groups such as OMSI, the Girls Scouts, Boys and Girls Clubs, and 4-H, SUN Community Schools, Police Activity Leagues, Portland Area Robotics Society as well as corporations, such as Intel, RadiSys, Rockwell Collins, The Standard, Bonneville Power Administration, Mentor Graphics and other companies and organizations. Volunteer roles range from mentoring and coaching teams to performing roles at tournaments such as judging, security, and registration. Volunteers also serve on committees such as the one that administers scholarships to teams that would not otherwise participate and one that designs, coordinates, and delivers training workshops for coaches and mentors. These volunteers are supported by a part-time, paid staff member.

ORTOP serves the entire state of Oregon plus SW Washington around the Vancouver area. In 2011, qualifying tournaments are scheduled to be held in Vancouver, LaGrande, Bend, Medford, Salem, Albany, Hood River, Wilsonville, and throughout the Portland Metro area.

ORTOP Participation 2001- 2010



THE NEED

The ORTOP programs address three key needs: the shortage of science and technology graduates from Oregon universities, the lack of workplace diversity in many technical fields, and the growing number of economically disadvantaged Oregon families.

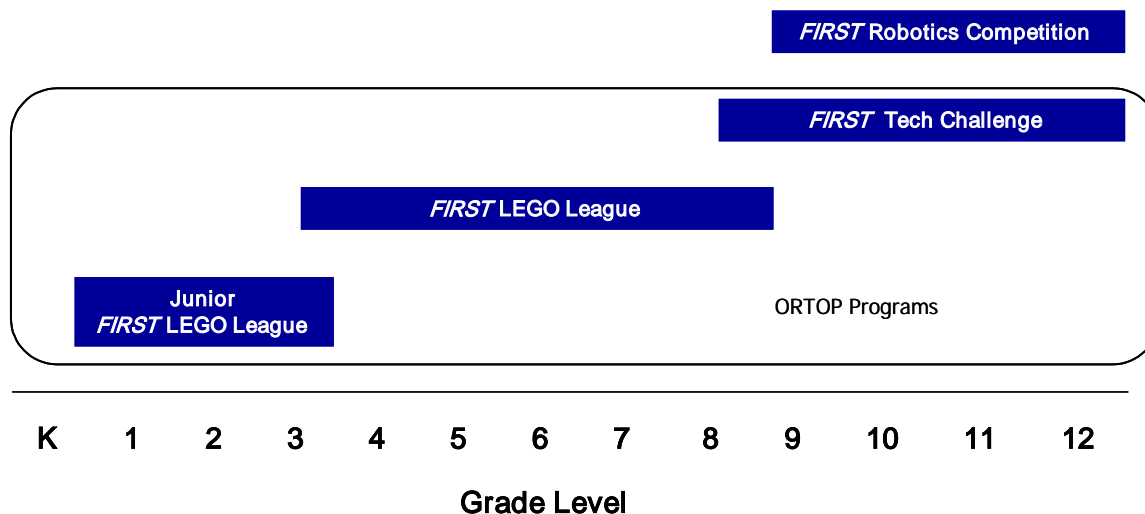
The health of Oregon's economy depends in large part on our ability to generate jobs in technical fields and to find qualified Oregonians to fill those jobs. Unless we work to interest Oregon's youngsters in science and technology early in their school careers, we will be faced with chronic shortages on both sides of this equation: too few jobs in technical and scientific fields and too few qualified Oregonians to fill the jobs that do exist.

In addition, we have historically failed to attract women and certain minorities to technical careers in proportion to their numbers in the population. To ensure greater diversity and to avoid future shortages of technology professionals in Oregon, we need to place a special focus on attracting youngsters from these groups to technical and scientific fields.

Finally, as Oregon has been shifting from its traditional natural resource economy to one with a substantial technology base, many families have seen their socio-economic status decline. We need to encourage the youth in these families to become *FIRST* generation college graduates with well paying careers.

Over the last several decades Oregon's economy has created thousands of technical career opportunities in nearly all industries from banking to infrastructure and from forestry to electronics. In addition, there will be many opportunities in new areas including biosciences, nano-technology, alternative energy, molecular computing and sciences yet to be invented. Exposure to challenges that enable Oregon's youth to develop research skills, creative thinking, and problem-solving strategies will help them be successful in building the future economy. Furthermore, those that choose non-technical professions will still greatly benefit from early exposure to technology and teamwork.

OTHER PROGRAMS AND PARTNERS



Over the last twenty years, *FIRST* has introduced the four programs shown in the chart above. *FIRST* Robotics Competition (FRC) is the oldest and *FIRST* Tech Challenge (FTC) is the newest. At about \$2,500 per new team and \$1,200 per returning team, FTC program was created as a less expensive alternative to FRC that costs about \$20,000 per team annually. Because ORTOP’s strategy is to serve as many children as possible by keeping the cost per student low and because we want to ensure that our programs are affordable to children and their families regardless of financial means, we have decided to focus on the three most affordable programs available from *FIRST*: Jr.FLL, FLL, and FTC. We work closely with the *FIRST* Northwest Region so those children who are able to participate in the FRC program can easily transition into that program.

Although there are other youth programs available in Oregon that include some coverage of science and technology, the scope of these programs differs from ORTOP. Programs like SMILE (Science and Math Investigative Learning Experiences), and TWIST (Teen Women in Science and Technology) introduce experimenting with science and technology but lack the depth of teamwork or culminating competitions. ORTOP has partnered with all three of these programs and many more to introduce building a robot and learning to program it. We encourage and provide scholarships to students from these programs to form teams and participate in *FIRST* LEGO League. There are several summer camps offered by Oregon universities, private colleges, and community organizations that provide an introduction to science and technology. We work with many of these programs to help them include technical teamwork through robotics, while encouraging the participants to join a robotics team in the fall.

The Odyssey of the Mind and Destination Imagination programs include critical thinking, problem solving and teamwork opportunities. In comparison, ORTOP/FLL places a much stronger emphasis on technical teamwork, focusing on technical skills like gear ratios and computer programming. In addition, ORTOP/FLL teams are required to develop and present a technical proposal that addresses a real-world issue.

THE ORTOP PROGRAM

How does ORTOP address Need?

The program's fall season gives children an extended period to develop teamwork and technical skills under the guidance of one or more adult coaches and mentors. The season culminates in tournaments in December - February, providing an exciting way for youngsters to showcase their new skills, knowledge, and enthusiasm for technical endeavors. In team meetings throughout the fall and at tournaments at the end of the season, we encourage these youth to continue to be involved in science and technology through high school and to consider pursuing science and technology as a career.

We address the needs outlined above in two ways: training and outreach.

Training: We provide free workshops and training sessions for coaches, mentors, judges and referees. Coaches and mentors organize teams and develop important skills at the same time explain the relationship of technical teamwork to a wide variety of possible careers. Twelve hours of free workshops are offered for FLL and FTC coaches and mentors.

Judges interview the teams to determine what they have learned and accomplished at the same time they encourage the team members to accomplish even more during the next season. Referees assure that the competition rules are enforced and determine the scores received by the team's robot. The training of adults helps ensure the youngsters have a fantastic time as they develop and demonstrate new skills and develop an understanding of how these skills relate to possible careers.

Outreach: We involve as many Oregon and SW Washington youth as possible, with a particular emphasis on the underrepresented youth. We do this through proactive recruiting of both volunteer adult leaders as well as the participants themselves. We provide a scholarship program to ensure all children have the opportunity to participate, regardless of their financial means.

Although ORTOP works to appeal to all Oregon youngsters, the program focuses its scholarship and outreach efforts on those students who historically have been under-represented in technical and scientific fields. In Oregon, those students primarily include girls, Native Americans, African-Americans, Latinos, economically disadvantaged youth, and youth living in non-high-tech-center communities.

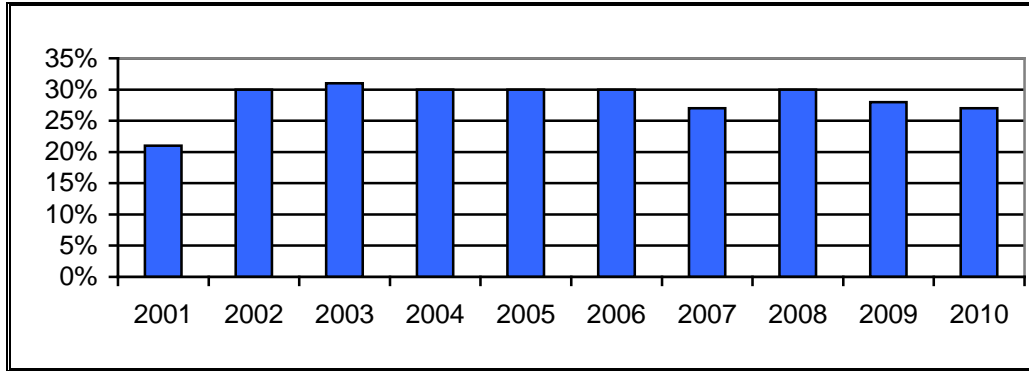
Schools: Schools offer the strongest, most universal opportunity to reach students throughout the state. Math, science, and technology teachers are natural ambassadors to help tell students and their parents about the ORTOP opportunity and encourage their participation. Some of these teachers are also so motivated that they personally choose to become coaches and help form teams, either in their classes or as part of school programs.

Channels for school contact data have been well developed by ORTOP's parent, the Chancellor's Office of the Oregon University System, with a strong working relationship with the state Department of Education. This data source allows ORTOP to make appeals to every math and science teacher of every middle school grade and all elementary school principals in all Oregon public schools and some private schools. In addition, this data source facilitates highly targeted, systematic appeals to recruit students and team leaders for ORTOP's diversity goals.

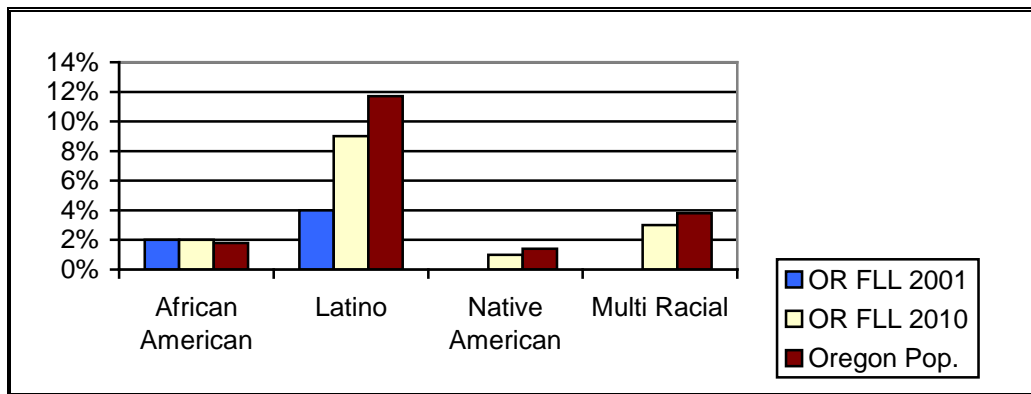
Youth Organizations: Youth organizations have been important ORTOP partners since the beginning. Girl Scouts, Boys and Girls Clubs, 4-H, Police Activity Leagues, and Schools Uniting Communities (SUN) have been key to ORTOP success, particularly in reaching diversity goals. We are expanding our

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

relationships with these groups and creating new partnerships in other regions, 4-H groups around the state, the outreach programs of Oregon Technical Institute in Klamath Falls, and Girls Scout Council of Oregon and Southwest Washington to expand the participation statewide. ORTOP volunteers often travel to targeted communities to establish these relationships.



Percentage of Girls participating in ORTOP programs.
102 girls participated in ORTOP's first year (2001) and 950 girls participated last year (2010).



Percentage of Under-represented minority youth participating in ORTOP programs in 2010 compared to 2001 and Oregon's population (2010) . 37 UREM students participated in ORTOP's first year (2001) and 417 UREM students participated last year (2010).

Under-Represented Ethnic Minorities (UREM): Our ongoing goal is to increase significantly the number of under-represented ethnic minorities students and adults participating in the program. Our strategy is to work closely with established community organizations to introduce the program and train adult volunteers to start teams. We also continue to partner with existing youth organizations, such as 4-H, who have Latino members interested including robotics as part of their program. We continue to reach out to African-American and Native American students using established community organizations such as the SUN Community School program. We've continued our partnership with Bethel AME Economic Development Corporation established in 2008 to increase the number of African American students participating in all three of the programs. We strive to establish a sense of community with coaches and

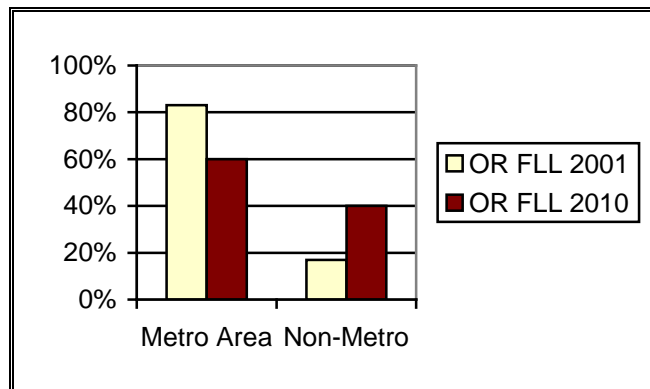
Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

mentors serving the UREM community by providing a sustained training and continued support throughout the tournament season and encourage the establishment of teams earlier than September.

Rural Students: Our goal is to continue to increase the number of students from outside the Portland Metro Area and specifically students from small, rural towns to participant in ORTOP. We hope to build on our success in Eastern Oregon, Central Oregon, and Southern Oregon.

The Outreach Committee coordinates with our Qualifying Tournament Committees and our Workshop Committee to reach and serve our target audiences outside the Portland metro area.

The Scholarship Committee encourages applications from teams who would otherwise be unable to participate. Roughly 30% of teams receive scholarships. Most of those scholarships go to teams from schools with 65% or greater participation in the “free and reduced lunch” program. Scholarship coaches are required to attend the workshops, commit to regular meetings and participating in a qualifying tournament.



Metropolitan Portland Area and Non-Portland Metropolitan Area participation

B. What are ORTOP's plans and goals for 2011?

As outlined below, our goals for 2011 are 1) to grow the total number of youngsters participating, and 2) to increase the gender and ethnic diversity of participants to more closely align with Oregon population statistics. 3) to retain team members in the program and transition them to the next level of involvement. Long-term the goal is to interest more students in science and technology and to increase the number of science and technology degrees from Oregon Colleges and Universities.

In 2010, approximately 3,500 Oregon and SW Washington youth participated in the ORTOP programs. For 2011, the goal is to have about 4,000 participants across all three programs. Through our recruiting efforts, we expect the growth to mostly come from outside the Portland Metro area. To allow a greater chance for teams to participate in a championship tournament, we will continue to host two for FLL in 2011. Our largest growth is expected in the high school FTC program. In 2010, 86% of the FLL team members responded that they intended on participating FTC or FRC when they entered high school. The 74% growth we experienced in the FTC program in 2010 is evidence of sustained future growth. We will be expanding student and coach workshops, qualifying tournaments and a larger state tournament to accommodate growth of FTC participation.

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

The goals of the ORTOP Outreach program for 2011 is to maintain participation rates of girls and under-represented minorities as we continue to expand the program. Our strategy is to work within existing organizations with sufficient infrastructure serving these populations and helping them integrate the *FIRST* LEGO League and *FIRST* Tech Challenge programs into their program. We plan to expand our presence in North and Northeast Portland by continuing to engage inner city under-represented ethnic minorities by collaborating with existing community partners. Second is a continued partnership with 4H statewide and especially to grow existing programs to serve Oregon's growing Latino community in the mid-Willamette valley. ORTOP is establishing a FLL tournament in Medford to serve the southern Oregon community. Investment we've previously made in the Columbia gorge is showing significant growth after establishing a qualifying event in the community in 2010. We are building on that success.

Being aware of difficult national economic times, our goal is to award about 25 new team (\$750) and 100 continuing team (\$330) scholarships to FLL teams this fall. The scholarship program is configured to ask our community partner programs to contribute a sliding scale portion of the costs. One-third of the new and returning scholarships are dedicated as fully funded scholarships to be awarded to organizations unable to contribute. Our priority remains to assist the most fragile populations with financial and training support. Finally, we plan to provide partial travel subsidy for up to 2 teams to attend the FLL World Championship or the FLL North American Championship.

All of these short-term efforts are designed to encourage participation in 2011 and beyond. Our extensive training for coaches and mentors coupled with meticulous planning and staging of tournaments are designed to ensure all participants have a very positive experience that will culminate more of Oregon's youth to choose a science or technical path as they enter college.



C. What is the expected role of volunteers?

Volunteers are the lifeblood of ORTOP. Every team has at least one volunteer coach. As in the picture, many have more than one "co-coach". Most teams also have a volunteer technical mentor. We expect to have about 1200 volunteer coaches and mentors working with teams in 2010.

Starting in spring, volunteers do introductory briefing sessions (1-2 hours) for students and adults. Individuals from a team of about 6 volunteers to deliver the sessions held at schools, children's groups, corporations, sponsors, etc. The goal is to recruit both student participants and adult volunteers. Adults can be intimidated by technology and robotics so we have developed extensive training to allow them to be more comfortable with being a coach or mentor. Adults who are *FIRST* year coaches or mentors require this training. A team of about 4 volunteers deliver the 9 hour training module multiple times from late Spring through early Fall each year at Portland locations and in communities where we have established local qualifying tournaments.



Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

To stage a qualifying tournament (8-20 teams), many volunteers are needed. The following is an incomplete sampling of volunteers:

- Qualifying tournament director (QTD) – Leads a core team of volunteers on everything from venue coordination, logistics, etc. to recruiting and training a complete volunteer staff.
- Referees (minimum of 5) – Officiate at the competition tables where teams demonstrate their robot performing “missions”
- Technical Judges (minimum of 4) – Discuss the technical solutions and challenges encountered during development. (shown above)
- Presentation Judges (minimum of 4) – Teams present on their research into the technical theme of the year. These judges evaluate that research. (shown below)
- Core Values Judges (minimum of 2) – Evaluate how well the members of team work together.
- Scoring (minimum of 2) – Input and summarize the results from table competition and judging.
- Administration (minimum of 15) – Security, registration, logistics, hospitality for volunteers (pizza)
- Setup and teardown – Many of the volunteers above participate in this in addition to a large number of “strong bodies”

To stage the State championship tournaments (60 teams per tournament), the roles are much the same as for a qualifying event except 2-4 times as many volunteers are required:

- Championship tournament director (2 required)
- Referees (minimum of 18)
- Technical Judges (minimum of 16)
- Presentation Judges (minimum of 16)
- Core Values Judges (minimum of 4)
- Scoring (minimum of 4)
- Administration (minimum of 120)
- VIP services (minimum of 6) – Host representatives from our sponsors and give behind the scenes tours of the tournament.



As a testament to the value of the ORTOP programs and the energy this gives our adult volunteers, most participate year after year.

D. Who benefits from ORTOP programs?

Clearly, the primary beneficiaries of the ORTOP programs are the children served by it. In 2010, we served over 3,500 and in 2011 our goal is grow to over 4,000 across all three programs.

The demographic of the population of youngsters in the ORTOP programs is far more diverse than that in the science and technology workplace as a result of our outreach efforts. Many of the children in the program come from financially disadvantaged families. Through a challenging and exciting experience in ORTOP, we hope many of these youngsters will become future technicians, engineers and scientists so their families move up the socio-economic ladder.

The long-term health of Oregon’s economy will also benefit from the ORTOP program. As more of Oregon’s youth attend our universities and fill our growing science and technology jobs, the economy

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

will benefit. A population of families with comfortable lifestyles will help stimulate the economy whereas a large population of economically disadvantaged families stifles growth.

E. What is the geographic area that will be served?

The ORTOP program is active throughout Oregon and SW Washington. In 2010, there were qualifying tournaments in Vancouver, LaGrande, Bend, Roseburg, McMinnville, Corvallis, Wilsonville, and around the Portland Metro area. Teams came from 23 of 36 Oregon counties.

F. How does ORTOP monitor and measure the project's effectiveness?

For the last several years we have evaluated our effectiveness using demographic data, impact surveys, coach surveys, and team-member surveys. This assessment plan has been evolving since 2001 and aims to provide consistent data for comparison. Our questions are designed to align with the national assessment tools developed by AWE (Assessment of Women (and Men) in Engineering).

<http://www.engr.psu.edu/awe/>

Demographic Data:

Coaches will be asked to provide team profile information in the October tournament registration:

- Gender
- Ethnicity
- Grade
- Experience level
- Geographic location
- Team formation strategy

Post Scholarship Analysis:

Annually, we plan to conduct surveys of scholarship teams to determine how well they performed versus the goals set out in the scholarship agreements

- Benchmarks met by the team
- Review challenges scholarship teams met
- Identify what additional support could enhance their participation

Coach Surveys:

At the conclusion of the Qualifying Tournaments coaches will be asked to complete an online survey designed to help us make the program more effective in the future. It includes the following topic areas:

- All aspects of their participation in a qualifying tournament
- Assessment of their FLL coaching experience
- Incorporation of technical education and career path discussion in team meetings
- Level of experience and role description.
- Team affiliations and team formation strategies
- Resources used
- Effectiveness of ORTOP workshops

Team Member Surveys:

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

Coaches are sent a link to an online team member survey. Team members are asked to complete it just prior to the qualifying tournament. This survey focuses on how their participation in FLL may have influenced their attitudes toward pursuing a technical education or career.

Reporting:

Report from 2010 Oregon FIRST LEGO League Team Member Survey:

- 2/3 strongly agreed or agreed that they wanted to take challenging high school math and science classes upon reaching high school.
- 3/4 wanted to take computer programming classes in high school and to continue perusing programming in college.
- 95% felt a college degree was important for their future.

Below are a few anecdotal comments from scholarship coaches indicating the impact ORTOP scholarships have had for their teams:

"I cannot begin to tell you how much participating in FLL has impacted my students, families, and schools. I have had the incredible opportunity to coach LEGO Robotics through FLL for six amazing years. Many of my students were children who did not have a healthy home life, and who were out getting in trouble after school joined the group because they didn't have anything else to do. They found themselves accomplishing great things, building robots, programming, doing research, making friends, and having experiences that they would have never had. I far too often to count have heard kids tell their parents about how to program, how to build, how to change behaviors that will improve their world. Many of my students want to take technology classes, want to invent, create, and learn things in the fields of technology and sciences. I have taught Robotics long enough that my FIRST group of students have now graduated from high school and are beginning on their post high school years. Each time I run into one of these kids, they talk about robotics, how fun it was, how hard it was, and how much they learned.

I also see parents so thankful for the opportunity for their children to be able to be in a group that is so relevant, academic, future building, challenging, and fun. I could have never been able to purchase the supplies that have been provided through the scholarship on my own. Because of the generosity of ORTOP and its sponsors, many, many, many students in Mt. Angel and Silverton schools have been impacted!" - Stacy Boost, Silverton Elementary

"Participation in FLL with the help of ORTOP at Union School District has impacted our entire student body at Union. We have slightly over 200 students grades 7-12 and over 95% of them have been involved with FLL. This fact alone is amazing. It is even more amazing when you realize what being part of FLL has meant to some of these kids. 18 students at Union have received full tuition scholarships from EOU because of their participation in FLL. 6 have received \$2000 scholarships from EOU because of FLL, and several others have received scholarships from various institutions around the nation because of their participation in FLL. The financial impact on these student's lives has been amazing and a blessing to many of them who might not of otherwise thought about attending college because of a lack of resources. The impact doesn't stop there though. Money is great, but our students get inspired, excited, educated, and learn the science and

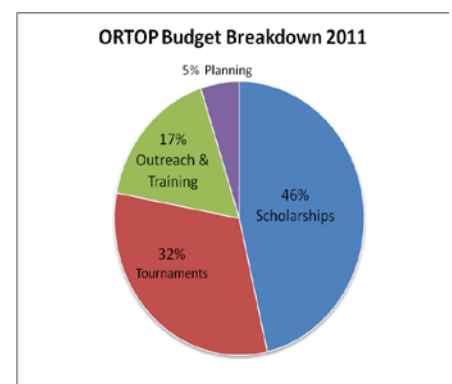
engineering can be fun. There are countless nights after school where I have to force kids to leave because they are so excited about working on their FLL stuff. It is the only time as an educator that I continually have to make kids stop. FLL is a big part of our science and technology curriculum, but a part that would be difficult, if not impossible, to fund without the help of an organization like ORTOP. FLL is part of our curriculum and it would be irreplaceable." - **Greg Poor, Union High School**

As our program continues throughout the school year, I'm happy to report 18 students currently participating, which is way too many, but we've found successful work-arounds for that. Along with student fervor, our mentor Dan has extended his original three year commitment, set to expire after the RT, to continue through this and next year as well! Our status as high-tech early retirees is not lost on the kids, as they consider the benefits of a science/technology career. Closing this update, we've added another mentor to our team--a young electronics professional who immediately fit right in. He'll be attending training over the summer, and right now it's fun watching the experienced kids training him! – **Tom Shanley – volunteer coach for Kelly Elementary SUN School, SE Portland.**

FINANACIAL SUPPORT

ORTOP is possible through the generous sponsorships of numerous organizations. As the program has grown over the last few years, some sponsors have increased their participation. However, most of the growth has come from attracting additional sponsors. ORTOP's FLL and Jr.FLL programs grew by 25% last year and the high school FTC program grew by 74% jumping from 43 to 74 teams, 2 qualifying events to 6 qualifying events. As we approach our new fiscal year, we are hoping to retain the majority of our 2010 sponsors and add new sponsors to help us. Now more than ever, your support is critical to our success.

The estimated value of the budget to deliver the ORTOP program is approximately \$500,000. Two-thirds of the value is covered through in-kind gifts primarily in the form of extensive volunteer support. The cash portion of the ORTOP budget is \$250,000 (less than \$60 per child) for our fiscal year that begins April 1, 2011. About 63% of the cash budget will provide for training, outreach, and scholarships to teams that would otherwise be unable to participate. Another 32% is budgeted to deliver the 26+ qualifying events, 2 FLL and 1 FTC championships, and Jr.FLL Expos.



Over 85% of our operating cash comes from corporation and foundation sponsorships. In addition to Intel, our title FLL sponsor, our primary sponsors in 2010 were RadiSys, Rockwell Collins, TechAmerica Oregon. Other sponsors included Bonneville Power Administration, PHTech, ONAMI, IBM, ESI, Timbercon, Garmin and Vernier Software and Technology. The balance of the cash budget comes from registration fees. ORTOP has community partner relationships with the Hillsboro School District, Mentor Graphics, Eastern Oregon University, the Gorge Technology Alliance, OMSI and Oregon State University to provide venues for our events.

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

Our fiscal year begins April 1, 2011. Annually, we report out the results from the previous year to our existing sponsors and give them the opportunity to participate with us again.

ORTOP operates under the Oregon University System, for which audited financials are available on request. ORTOP funds are kept in a separate account so all donations are only used for the ORTOP programs.

Instructions for donations to ORTOP are as follows:

- Pay to the order of Oregon University System
- Your cover letter with donation check can indicate that the donation is for the Oregon Robotics Tournament and Outreach Program.
- OUS Federal Employer ID Number (FEIN): 936001786. Because we are a state institution, grants and bequests are not taxed and such gifts are treated as "charitable contributions" under IRS Code 170(c)(1).
- Donations are kept in a separate OUS account, specific to ORTOP.
- **Mailing address:**
Bruce Schafer
OUS Industry Affairs
PO Box 751, IAFF
Portland, OR 97207-0751

Oregon Robotics Tournament and Outreach Program (ORTOP) 2011

DIRECTORS

Although the State Board of Higher Education is the grant administrator, a volunteer Executive Planning Committee (EPC) leads the Oregon Robotics Tournament and Outreach Program. The EPC includes employees of sponsors, retired high tech executives and representatives from community partner organizations. The ORTOP Advisory Committee members are:

- **Bruce Schafer – Industry Affairs, Director, Oregon University System** - ORTOP Founder and Director (member since 2001)
- **Cathy Swider - ORTOP Program Administrator** - Outreach and Scholarship Chair (member since 2001)
- **Roger Swanson – retired executive, Sequent and IBM – FIRST LEGO League program Representative** (member since 2001)
- **Stephanie Bryan – Elementary Educator – Jr. FIRST LEGO League program Representative** (member since 2006)
- **Janet Rash – Community Relations Manager, Intel Oregon** - Corporate Community Relations Manger (member since 2001)
- **David Perry – Lead Educator, Vernier Labs at OMSI** - Community Partner Representative (member since 2004)

