

FIRST Team 461, Westside Boiler Invasion (WBI), believes that FIRST goes beyond competition; established to alter the face of science and technology into something that people of all ages can enjoy. WBI was created with the same vision in 1999, and we have worked relentlessly ever since, creating a lasting presence in our communities. Our influence has remained constant but not static, as we continually expand our impact.

Over the past 15 years, our team has been growing and changing. Since our first season, WBI has hosted demonstrations at our local library and elementary school. We teach the children that attend basic technical principles present in all levels of robotics and allow them to drive and operate different types of FIRST robots. This year, WBI expanded our presentations, adapting the general framework to fit new settings. In the fall, WBI expanded our horizons by visiting a local retirement home called University Place. We introduced our team and FIRST leading to an in-depth discussion with the residents, many of whom are retired STEM educators. They were excited to give our team advice based on their many years of teaching experience; we were thrilled to have new input on how to improve and diversify our efforts in spreading STEM ideologies.

WBI is involved with STEM education at our high school as well. In 2003, WBI orchestrated a complete overhaul of the technology curriculum at West Lafayette High School, and since then we have been avid supporters of our school's STEM department. We continue to work in tandem, promoting improvement of the STEM curriculum. In the last year, WBI has successfully added new courses and continues to advocate for new STEM based classes. We encouraged participation in the Project Lead the Way (PLTW) program whose courses focus on critical thinking and application of skills in a hands-on environment. Through the efforts of WBI, there are now three PLTW classes and plans to add another in the coming school year. Our school has benefited from this expansion of STEM opportunities, and students have welcomed the chance to learn and apply real-world technical skills.

WBI not only connects with students through Technology Education but through frequent outreach events. We host an annual dodge-ball tournament open to all students. The proceeds from this event are matched by the team and donated to the Purdue Center for Cancer Research; last year we gave \$400. In addition, we hold a yearly event with the local chapter of Best Buddies, an organization dedicated to helping people with learning and developmental disabilities. The club visits our shop for an afternoon of robotics games and friendly competition. These are just two of many examples of how FIRST Team 461 has become an integral part of our school's community.

In the same way we that became an important aspect of our school community, WBI tries to give back to our city, working alongside the city government. This past year, we have maintained a small public space for the Adopt-a-Spot program, planting new flowers in our city color and designing robot statues that will be added after Build Season. Over the summer, our team purchased a rain barrel, participating in a county-wide movement to reduce water usage. This rain barrel was auctioned off for charity after being painted by Chris, a team senior. These diverse activities have encouraged team members to excel with past WBI team members attending establishments including Harvard University, Massachusetts Institute of Technology, and Purdue University. Our current seniors have applied to many prestigious institutions including Princeton University, Stanford University, and Columbia University. Our students also entertain a wide variety of interests; 16 of our 46 students participate in a varsity sport, 26 play a musical instrument, and 27 are conversational in a foreign language. WBI members continue to live up to the standards set by seniors and alumni, having an average cumulative GPA of 3.8, with 72% taking advance science or mathematics classes.

As popularity of the robotics team has grown, our impact has spread to younger grades. This year, 13% of eighth graders were part of the FIRST Tech Challenge (FTC) teams WBI sponsors. Mentored by older team members, these students are able to learn in an environment that encourages a strong foundation in FIRST's core values. After their experience in this level of competition, students are well prepared to join the FRC team as they have previous knowledge of the robot design process, gracious professionalism, and team dynamics.

Each summer we hold two week camps as another way to introduce area children to the wonders of FIRST. There are two different levels that use FIRST Lego League (FLL) robots and FTC robots respectively. FLL introduces younger students to fundamental ideas such as robot design and programming while FTC allows older students to build on previous knowledge.

After this introduction to the world of FIRST, many students choose to join one of the numerous FLL teams WBI sponsors. In the fall, our team provided supplies and student mentors for ten elementary and middle school FLL teams in our town. Along with the support for FLL we provide in our local area, WBI has worked to start and maintain an FLL team in El Salvador. They recently completed their third season, and we are looking forward to helping them expand their program in the future.

This year, WBI is expanding our collaboration with the Boy Scouts of America to promote proficiency in STEM fields. As of 2013, Boy Scouts can earn the new

Programming Merit Badge after demonstrating competence in computer coding. We are currently creating a workshop that meets the badge requirements so that Boy Scouts in our community can earn their Merit Badge. This is a wonderful addition to our original workshop for the Robotics Merit Badge that was introduced in 2011. Since the debut of our program, over 1,000 Boy Scouts have earned their Robotics Merit Badge through our numerous demonstrations across the Midwest. They build, program, and customize Lego robots, meeting previously established goals during this process. The scout's robots battle in a sumo competition to conclude before they have earned their Merit Badges. The success of our presentations inspired our team to create a set of documents for other teams that explain how to host their own workshops. We keep these instructions on our website for download and distribute the packets at every competition we attend.

In the past year, our partnership with Boy Scouts has spurred WBI to increase our involvement with various statewide STEM events. We attended a Boy Scout Camporee hosted by Subaru of Indiana Association to introduce Boy Scouts to STEM ideas. Along with eight other Indiana FIRST teams, WBI attended a similar event at the Indianapolis Motor Speedway entitled Celebrate Science. Our presentations at both of these new events stemmed directly from our experiences at the Indiana State Fair. This year, we had the wonderful chance to meet the governor of Indiana, Mike Pence, when he visited our presentation at Purdue Day and drove our robot. It was a fabulous conclusion to our 15th appearance at the State Fair alongside Purdue University.

This is reminiscent of our unique partnership with Purdue University. Purdue has worked with WBI since our inception, providing mentors and financial support; their student organization, Purdue FIRST Programs (PFP) is one of our main sponsors. College students from PFP volunteer their time to provide guidance to our team. As PFP members, these students take a class that focuses on leadership and communication and they attend at least 15 hours of our meetings each week. Because of the smaller age gap and the amount of time spent with them, WBI team members have formed meaningful bonds with our college mentors who help us learn and grow under their tutelage.

As WBI has grown over our 15 years, PFP has as well. Our team started as a collaboration between all of the area schools, and our collective team split three times as interest and participation grew in the individual school districts. Although we are now individual teams, WBI works alongside FIRST Teams 1646, 1747, and the newly formed 4272. We join forces throughout the year to better our respective teams. We brainstorm together after Kickoff and reconvene later to share and analyze robot strategies at our annual design review. At the end of Build Season, we all unveil our robots to the public

at an open house we hold with help from PFP. As the oldest of the PFP teams, WBI strives to act as a leader, providing outreach opportunities for the other teams in a collaborative environment and promoting inter-team friendships.

This year, WBI has the opportunity to recognize the partnership we have with Purdue. PFP will be celebrating the 10<sup>th</sup> anniversary of their regional competition. Together we will celebrate our respective anniversaries by hosting a reunion for all the students, mentors, professionals, and volunteers that have aided our organizations throughout the years. Planning the gala we are hosting after the Boilermaker Regional has proved to be a wonderful way to reconnect with all of our alumni. While preparing these festivities, FIRST Team 461 put together a database of all of our 200+ alumni invitees. This will allow us to keep in contact with these people and provide them with updates about our team, as well as encourage them to continue their support of FIRST.

For the past 15 years, WBI's influence has spread as our team has grown. Through continuous diligence, we have maintained a constantly expanding presence in our community. By using prior knowledge and experience to continually improve our outreach events, FIRST Team 461 avoids stagnancy and effectively implements the ideals of FIRST. We continue to thrive, aspiring to expand the the view of science and technology as well as inspiring people of all ages.