

FIRST Impact Award - Team 5985

2025 - Team 5985
Team Number
5985
Team Nickname
Project Bucephalus
Team Location
Wollongong, NSW - Australia
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in <i>FIRST</i> programs.
Barriers overcome, opportunities explored and voices found. For 5985 members, 3 years of statistics show FIRST is a: —Community: 70 students from 22 schools in 3 continents. —Passion: 63% compete in 2+ FIRST programs. —Cycle: 53% mentor FIRST teams. —Future: 100% plan tertiary education and 95% seek STEM careers. —Legacy: 67% of alumni return as 5985 mentors. —Pathway: 100% of alumni enter tertiary education or STEM careers (vs 48% of city). —Lifeline: 60% found safety and belonging in 5985.
Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.
Wollongong is built around a university and recovering steel industry. A diverse link between rural and urban, 1 in 4 of 319k citizens are low-income. Here, PB runs: —An accessible FIRST hub, cutting yearly travel by up to 1,320km for rural teams. —A teaching network in 46% of 85 city schools. —A robust FLLC community of 254 teams (68% PB-mentored). —A system raising \$675k+ in grants and material for 39 schools and FIRST teams. —A multicultural team of 20% homeschool and 27% low-income families.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> Mission in ways that are effective, scalable, sustainable, and creative.
Champions of STEM education, 3 yrs of PB youth programs offer: —Inclusive formats for ANY learning style or disability. —Year-round robotics classes in 38 venues and online, raising funds and 83% of PB recruits. —Financial incentives, seeing 21% of students buy personal robot kits, freeing PB resources for 28 new classes. —128 PB-created lessons to explore STEM concepts and power 2 yrs of global games for Unified Robotics. LEGO robots fight pirates and play the Royal Game of Ur (from 26,000BCE)!
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.
PB has 3 main goals: —Create Opportunities: Any life can be changed by a chance to engage. PB reaches the overlooked, engaging 1,456 students with disabilities since 2022. —Transform Communities:

Building leaders and creators, PB teaches STEM - but also collaboration, critical thinking, resilience and more. Health providers fund access to PB programs for therapy and life skills for 168 students. — Normalise Robotics: PB classes are a visible, exciting connection to STEM for 220+ students a week.

What impact has your team seen from your efforts described in the above question? How does your team measure impact?

Lives transformed by opportunities, 3 years of statistics show PB's impact: —STEM equity created for 1,287 youth with disabilities and 14 special-education units. —PB games immersed Unified Robotics teams, leading to team costumes and excitement - growing global participation by 593% to 563 youth! — 2,751 students gain robotics and life skills in PB classes - taught for up to 9 years by 91% of PB. — Recognised professionally by 3 tertiary institutions via 8 education and research programs.

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

In 3 years, PB has modelled GP by: —Inclusion: teaching teams in 2 continents. Supplying Quiet Rooms and Hidden Disability lanyards at 13 FIRST events. —Coopertition: running Collaborative Scouting, uniting rivals at 19 FRC events. Running annual FLLC days, 30 teams share knowledge. —Support: volunteering at 41 FIRST events globally and running Robot FIRST Aid at 19 events, providing drivers and fixing robots. —Culture: the face of FIRST in 2,689 hrs of STEM classes, inspiring 755 to join teams.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

PB builds FIRST worldwide. In 3 years PB has: —Started 14 FLLE teams in My Maker's Space. — Started 41 and mentored 56 FLLC teams globally in the Teaching Program. —Started and mentored 3 FTC teams for students with disabilities in Unified FTC. —Started 7 FRC/FTC teams in programs created for at-risk and housing-vulnerable youth. —Created 3 programs teaching strategy and GP to 40+ FRC teams from 4 countries. —Assisted teams via 28 published resources, 6 support programs and 4 Kickoff events.

What other initiatives have you created, grown, sustained, or participated in (*FIRST* or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?

In 3 years PB reached beyond typical STEM audiences with: —Programs for 17 disability providers and schools, starting 26 Unified Robotics and FIRST teams. —Weekly STEM classes growing attendance 27% in 27 venues, with 32% female engagement. —Running Australia's only SWENext club, linking 121 girls with 14 global experts. —A Scouts Australia program for 433 youth, and then 2,000+ in hands-on robotics at a state camp. —Science Week programs making STEM attainable for 9,832 rural and city students.

Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.

PB thrives on collaboration. 2025 marks: —10 yrs bringing STEM to rural areas with the University of Wollongong. —9 yrs creating resources with IronCAD International. —8 yrs assisting 7583, donating space and running parallel STEM programs. —6 yrs promoting tertiary education to 3,480 students with

<p>TAFE. —4 yrs running free female STEM programs with Propel Technologies. —3 yrs teaching STEM to at-risk students with Flagstaff. —2 yrs with Special Olympics running Unified Robotics in Australia.</p>	
<p>Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.</p>	
<p>PB builds STEM equity, 3 yrs of efforts include: —Girls: Achieving 63% female leadership, 57% overall membership. A free STEM program for 152 girls, reaching refugee families and starting 5 FLL teams. —Financial: 91% of PB teaches in lieu of fees. Government funding gives 1,074 students access to PB classes. —The Overlooked: Providing therapy, educational and vocational STEM training to 371 youth and adults with disabilities. Ages 3-98 engaged in STEM with visits to preschools and nursing homes.</p>	
<p>Explain how you ensure your team and the initiatives you have created will be sustainable.</p>	
<p>PB and its projects endure because of the Teaching Program: —Financially, it provides 89% of team income. This builds stability and absorbs risk of new projects. Integration with government programs provides reach and security. —Structurally, it provides independence and flexibility. PB can start, stop or move classes with ease. PB expanded to 28 new locations since 2022. —Socially, it provides community visibility, free student access to FRC via volunteering and a pathway for 83% of recruits.</p>	
<p>Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.</p>	
<p>In 2025, PB leadership roles were vacant. With years of ~70% of PB with a disability, most veterans fell in this demographic, unable to be “traditional” leaders. Instead of exclusion, Leadership was redefined on what CAN be done. Results include: —88% of 2025 Leaders have a disability. —Training in working and communicating with neurodiversity. —Leaders with anxiety choosing to lead in the “safe” workshop, not at events. —Teams led by students with Autism thrive on fine detail and focused tasks.</p>	
<p>Briefly describe other matters of interest to the <i>FIRST</i> Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique, particularly noteworthy, or had a large impact.</p>	
<p>Independent and self-sufficient, PB: —Had a student named Wollongong's 2022 Young Citizen of the Year. —Sent 10kg of LEGO to Turkish earthquake relief. —Speaks at the Regional Principals Conference and Special-Ed Vocational Skills Network. —Spoke and participated in California’s “FIRST For All”. —Made FRC robots for theatre, reaching 1,100+ people. —Built a community library in memory of an FRC mentor. —Has 2 members as Special Olympics Youth Ambassadors, bringing new accessibility to FIRST.</p>	
<p>Judge Feedback</p>	
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<p>Essay</p>	<p>We find it very hard to decide which 5985 activities and programs get mentioned for the Impact Award. What would you like us to spend more time on?</p> <p>An area the team has an opportunity to improve.</p> <p>Something that really impressed the judges.</p>
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The door is always open. For a decade 5985 Project Bucephalus (PB) has welcomed the misfits, the isolated and the bullied: building a safe haven where ANY student can be powerful. From a classroom that stretches from rainforest to ocean, PB has transformed Wollongong (WOL) into a stronghold of equitable STEM Education that literally saves lives. Fulfilling the mission "Create Opportunity, Transform the Community", PB started with programs in school basements and now provides official tertiary education. The result is a powerhouse of STEM Education that spans every continent - finding, creating and opening doors that lead to lasting change. If a door won't open? PB breaks it down.

An open door is an invitation. Such is the PB Teaching Program: team-run LEGO robotics classes, accessible to anyone and inspiring love of STEM year-round. The scale astounds - EVERY WEEK: 760+km of travel, 220+ students, 12 locations and 36 hours in 15 classes! 42 global online classes and holiday workshops reach 399+ extra students annually. A PB class has run every school day since 2015.

Reaching 8,684 Australian students, the Teaching Program changes lives - elevating robotics to formal therapy, vocational training, and a lifeline for the lost. It makes STEM accessible in WOL: students with disabilities attending every class. STEM-minded children are engaged early, inspired to explore FIRST, then venture into FRC. Powerful bonds form as students become teammates, then teachers - a path taken by 80% of PB. Their stories define PB:

How does a student with Autism and legal blindness access robotics? Hamza and PB discovered together. He started with the Teaching Program, his ONLY accessible option. 4 years later, it was time for FRC - PB overhauled the workshop so he could safely take part. With the team's support, Hamza found meaningful roles in assembly and software. He now assists students with vision-loss in international robotics teams.

Some doors must be forced. Seeing STEM inequity, PB responded with Unlimited. Just since 2022, this program has provided STEM education in nursing homes, culturally diverse classes, occupational therapy, and as vocational and life skill training for adults with disabilities. Sponsors and a \$125k government grant fund weekly STEM classes for 96 Special Education students in 6 schools - as well as 152 girls from indigenous, refugee, and low-income backgrounds. This work shapes PB: 57% female, 73% with disabilities, wildly diverse academic, cultural and financial backgrounds.

Doors expand horizons. In 2023 PB started Unified Robotics (UR) in Australia, uniting students with and without Intellectual Disabilities or Autism as teammates. As the new game design team, PB revolutionised the global event! For 2 years, PB worked with UR in the USA and Special Olympics: exciting 181 international teams, speaking at the 2024 FIRST Championships and introducing UR to 2 USA states. With Special Olympics Australia, PB lobbied 5 schools and 3 disability support providers to start 20 teams - running and funding 2 full Australian UR seasons.

It starts with a foot in the door. A decade of labour has embedded PB in the community. In 3 years, PB reached 36k+ people by answering the call of 2 City Councils, tertiary educators, Scouts NSW, and FIRST Australia. PB is a fixture at cultural festivals, conventions, state Scout camps and National Science Week. These connections saw PB host the Southern Cross Regional in WOL in 2022/23, successfully lobbying for \$50k in event funding.

PB seeks mutually-beneficial partnerships. The most powerful? TAFE: Australia's largest vocational training provider. Tasked to create youth STEM programs on campus, PB repurposed a function centre

as a robotics hub and workshop for 15 FIRST teams. PB hosts FLL/FTC tournaments, an FRC Kick-Off, STEM workshops and 7 weekly robotics classes.

Inspired, TAFE offers FRC as a formal course, run by PB! “Start Your Future” is a National TAFE program, offering pathways to career or study for Yr 10 school leavers. Here, PB was employed to replicate an 8-week season and event - engaging 68 students in 13 “teams” over 3 semesters since 2023. With the highest retention rate in the state, TAFE promotes the results to other regions. TAFE ambitions grow, consulting PB to enter the global Worldskills adult robotics program.

Holding doors for others, PB stands at the heart of FIRST in Australia, guiding 755 students to a home in FIRST just since 2022. PB empowers students with disabilities: training Judges, equipping Quiet Rooms and pioneering Hidden Disability Lanyards at events. PB’s sustained outreach built a FIRST powerhouse that transcends borders, assisting teams from 26 countries since 2022.

FLLE has power, especially in PB’s season-in-a-day “My Maker’s Space”. Created for the USA, expansion to Australia has enthralled 48 K-1 students from refugee and low-income backgrounds since 2023. PB started 12 FLLE teams and runs Expos at the WOL FLL Regional.

PB’s drive transformed FLLC in Australia. PB covers kickoff to competition with grant assistance, equipment, 8 published resources, and FIRST Australia event support. An annual training webinar engages 65+ teams from every Australian state and 14 countries. Since 2015, PB has mentored 212 FLLC teams (starting 108) globally - including 68% of all South Coast teams! Run by PB since 2015, the iconic WOL FLL regional engages media, industry and government.

PB champions FTC as an accessible STEM opportunity, mentoring 4 teams (starting 6) since 2022 and assisting teams via remote lessons, award mentoring, and standing in as drive teams. PB runs the WOL FTC Qualifier, the only NSW event outside Sydney - run on a weekday to be accessible to rural and Special Education teams.

In 2023, PB recognised Unified Robotics as an untapped gateway to FIRST. Obtaining grants for Special Education Units in 3 low-income schools, PB started the world’s first Unified FTC teams! After 2 seasons, “normal” has been upended: robotics has taken root in unexpected classrooms, mainstream and Special Education students exist as equals, growing talent and compassion together.

Some open doors cross oceans. PB impacts EVERY continent! Ongoing efforts send LEGO Robotics kits to schools in 5 African countries. Since 2022 PB has worked online to train Mauritanian teachers, mentor FLLC teams in Singapore and Germany, and each season assists 20+ teams across the globe. PB mentored 2 FRC teams in Brazil and translated PB published resources into 6 languages. In 2023 PB sent trauma-relief LEGO packs to tent cities in earthquake-torn Türkiye, and engaged 500+ students in polar science by sending a LEGO robot to Antarctica.

Doors can be used by many. With scarce local resources, PB prioritises a sustainable FRC community: sharing expertise and space, running national webinars and practice sessions. Hosting and supporting the Unqualified Quokkas Ri3D team assists 200+ global teams. Work in California saw a mutual-mentorship with 1678 and inclusion training for 50 teams. Further support comes from PB’s South Coast Alliance (SCA) and Collaborative Scouting Project (CSP).

PB co-founded SCA as a 8-team collaboration. GP in action, SCA enables PB to save 3 teams from collapse, run 2 annual scrimmages and coordinate programs to complement instead of compete. In addition, PB provides 48 teams access to a full FRC field. CSP teaches Coopertition and strategy, uniting teams to share scouting, data and analysis - even in opposition! PB annually leads 13 international teams to create a system used by 36+ teams in events worldwide.

PB's approach started 6 FRC teams, 4 from low-income areas: each growing STEM Education to unreached groups. In 2024, PB started Unleashed, partnering with University of Wollongong and charities to start an FRC team for housing-insecure youth. Yet, PB's greatest victory is restoring lost opportunities in Unstoppable.

Some doors must be broken down. In Australia, 81% of convicted youth reoffend. Unstoppable breaks the cycle, using FIRST to divert at-risk youth from criminal behaviour. PB designed and pitched the program to disability service providers, Education and Justice Depts - creating a \$512k STEM project! The 2022 pilot ran at Flametree HS: 52% of pupils in the Justice System, 100% with backgrounds of trauma, abuse and neglect. The impact is profound: 3 years of peer-led mentorship embedded PB and FIRST into Flametree curriculum and community. FRC is an earned reward, pupils including PB in school events and asking for 2 seasons of FLLC mentorship with controlled competition. Unstoppable success in 2 other schools led PB to lobby for statewide expansion.

If doors are locked, PB cuts a key. WOL is transformed. The Teaching Program has revolutionised accessible STEM education. Unlimited, Unified, Unleashed and Unstoppable realise unimagined futures. FIRST is wide open to Special Education. PB members with disabilities don't just attend classes - they lead each one! The results are profound: 51% of students in mainstream PB classes have disabilities (vs 16.8% WOL). 100% of Unstoppable alumni graduate to mainstream school or TAFE! Recognised by all levels of government, PB works with 3 tertiary institutions, 10 disability support providers, 21 schools and countless teachers and families: changing and saving lives across the City. This isn't just a benchmark, this is PB's STEM revolution brought to the world.

Opportunities are created, they don't knock on your door. For a decade, PB has reinvented the STEM classroom - and shattered expectations of who fills it. Exclusion has become accessibility, the overlooked have become visible and stolen potential has been restored. This work shapes the soul of PB: the misfits, the isolated and the bullied stand at the heart of FIRST in Australia, driving empowerment and creating lasting change that resonates worldwide. PB starts with an open door - and we will never let it close.;

