

FIRST Robotics British Columbia Society Annual Report 2018-2019

HISTORY: Formed in 2016, The *FIRST* Robotics BC Society works closely with all *FIRST*® partners (St. Margaret's School, the Society for the Advancement of Young Scientists and *FIRST* Canada) with the goal to bring robotics to every youth in BC. Built on a successful model developed by founder Dean Kamen, the 1992 inaugural *FIRST* event included 28 teams meeting in a high school gym for the purpose "to compete for the hearts and minds of kids with the excitement of the Super Bowl". Today, over 400,000 young people annually participate in the *FIRST* programs to solve the world's greatest challenges, be strong citizens, and build brighter futures. This past year, over 3,000 British Columbia youth were involved in *FIRST* through *FIRST* LEGO® League Junior (K– Gr 3), *FIRST* LEGO League (Gr 4-8), *FIRST* Tech Challenge (Gr 7-12), and *FIRST* Robotics Competition (Gr 9-12).

Our Mission: To inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.



How Are We Doing?

FLL JR.
34 teams

FLL
58 teams

FTC
24 teams

FRC
20 teams

Our Partners: \$750,000 invested in BC youth



Designed to build tomorrow's workforce, launch the next generation of entrepreneurs, innovators, engineers, science and advanced technology leaders, *FIRST*'s unique progression of programs stand out from like minded organizations. We deliver programs any time, anywhere, authentic curricular applications aligned with industry standards and celebrated by academia. We have the scale and capacity to reach all youth throughout BC, rural and urban, curriculum imbedded or extra curricular, designed to accelerate any learning environment while preparing an innovative labour force.



FIRST LEGO League and FIRST LEGO League Jr.

FIRST LEGO League Jr. introduces STEM concepts to kids ages 5 to 10 years of age. All skill levels are welcomed and needed, technical or non-technical. Guided by two or more adult coaches, teams explore a real-world scientific problem – this season: Living on the Moon! They create a Show Me poster that illustrates their journey of discovery and introduces their team. They also construct a LEGO model of what they learned. Part of the model is motorized and programmed with LEGO WeDo. In the process, kids learn about teamwork, respect, sharing, and critical thinking. The *FIRST LEGO League Jr.* season culminates with an Expo where teams show their work, and where they meet, share ideas, and have fun.

FIRST LEGO League Jr. has 34 teams in BC (trend: growing!). Our teams are currently in Lantzville, Surrey, Richmond, Sooke, Fort Saint John, Nelson, Nanaimo, Parksville, Duncan, Victoria and Vancouver.

2018-2019 season *FIRST LEGO League Jr.* BC Events:

BC LOWER MAINLAND EXPO held at North Surrey Secondary, December 2, 2018

VICTORIA EXPO November held at Lansdowne Middle School, November 24, 2018

VICTORIA EXPO February held at St Margaret's School, February 2, 2019

VICTORIA EXPO June held at Cedar Hill Recreation Centre June 15, 2019

FIRST LEGO League (FLL) teams research a real-world problem in areas such as food safety, waste treatment, energy conservation, etc. - this season: problems during long-term space flight - and are challenged to develop an innovative solution. Tomorrow's innovators practice imaginative thinking and teamwork. Guided by adult coaches they also design, build and program a robot using LEGO MINDSTORMS®.

Each *FIRST LEGO League* season culminates with regional tournaments and championships where teams show off what they learned and invented, and compete with their robots. Some teams earn an invitation to international events such as the *FIRST LEGO League World Festival* in Houston, Tx.



FIRST LEGO League BC had 58 teams compete during the 2018-2019 season - from Burnaby, Victoria, Delta, Gibsons, Vancouver, Vanderhoof, Fraser Lake, Surrey, Nanaimo, Parksville, North Vancouver, Maple Ridge, Port Coquitlam, Richmond, Fernie, Abbotsford, Smithers, Duncan, and Kelowna.

2018-2019 season *FIRST LEGO League BC* Events:

ENDORSED FLL LOWER MAINLAND REGIONAL TOURNAMENT, North Surrey Secondary School, December 2, 2018

VICTORIA SCRIMMAGES, Lansdowne Middle School November 24, 2018, and January 12, 2019

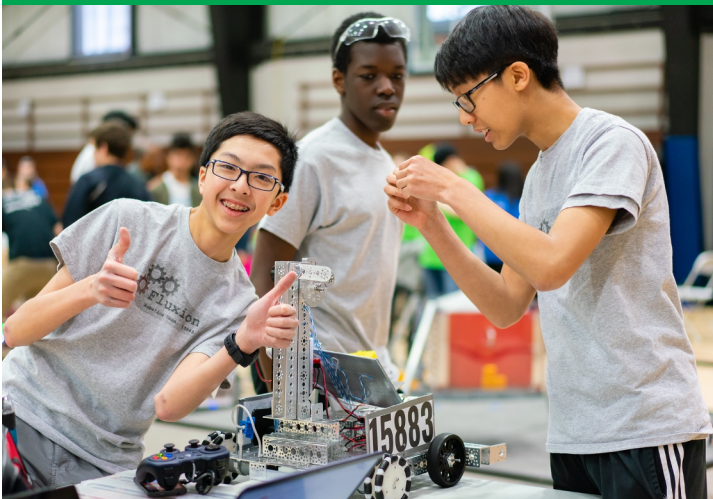
BC FLL CHAMPIONSHIPS, St Margaret's School, February 2, 2019

Registration is open for the 2019-2020: Boomtown Build FLL Season, with kickoff events being announced soon.



FIRST Tech Challenge

FIRST Tech Challenge is in its third year of hosting events in British Columbia attracting both local and International teams. Teams participate in a new game each year that requires them to design, build, test, and program autonomous and driver-operated robots to compete in a head-to-head challenge in an alliance format. *FIRST* Tech Challenge teams can have up to 15 students, but are usually between six and ten team members in grades 7-12. This year's game was Rover Ruckus where teams build robotic rovers to explore for minerals on a new planet.



FIRST Tech Challenge BC consists of 24 teams and growing. Our teams are currently in Victoria, Richmond, Nanaimo, Vancouver, Surrey, Coquitlam, Maple Ridge, and Burnaby.

FIRST Tech Challenge BC Events:

LEAGUE ONE VICTORIA, Oak Bay High School, November 17, 2018

LEAGUE ONE VANCOUVER, Kwantlen Polytechnic University, December 8, 2018

LEAGUE TWO VICTORIA, Oak Bay High School, January 19, 2019

LEAGUE TWO VANCOUVER, Kwantlen Polytechnic University, January 26, 2019

BRITISH COLUMBIA FTC CHAMPIONSHIPS, St. Michaels University School, February 23, 2019



CONGRATULATIONS:

At the British Columbia Championships, Team 15013 Friction (St. Michaels University School) were the highest ranked team after the qualifying rounds. Their alliance lost out to an alliance captained by a Washington State team in the exciting final matches.

Team 3491 FIX IT (Victoria Makerspace) won the Rockwell Collins Innovate Award at the British Columbia Championships and then went on to win the Connect Award at an international event held in Washington State.

FIRST Robotics Competition



FIRST Robotics Competition BC is represented by 20 teams represent West Vancouver, Surrey, Port Moody, Vancouver, Langley, Victoria, Comox, Maple Ridge, Richmond and Burnaby.

Under strict rules, limited resources, and limited time, *FIRST* Robotics Competition teams of 10-60 high school students are challenged to raise funds, design a team “brand,” hone teamwork skills, and complete a competitive robot for each years game challenge. Working alongside professional mentors, students learn programming, design, engineering and other skills that will serve them well in their future careers.

FIRST Robotics Competition BC Events

CANADIAN PACIFIC REGIONAL COMPETITION
Save On Foods Memorial Centre, Victoria March 6-9, 2019, this event saw 35 teams from around the world gather in Victoria to compete in Destination: Deep Space Presented by The Boeing Company



CONGRATULATIONS TO TEAMS ATTENDING THE WORLD CHAMPIONSHIP IN HOUSTON TEXAS:
70,000 IN ATTENDANCE, 30,000 STUDENTS, 1,400 TEAMS, 70 COUNTRIES & 2,400 VOLUNTEERS

Team 6364 West Vancouver Secondary School

Team 6390 North Surrey Secondary School

Team 6485 L.A. Matheson Secondary School

Team 7787 Reynolds Secondary School, Victoria

Team 7796 J.N. Burnett Secondary School, Richmond

FLL Team 33968 Forces of the Galaxy, Richmond

A Celebration of Space, Innovation & STEM

Our Teachers, students and mentors agree, the learning curve is steep but the payoff priceless. Participation in the championships result in robot modifications leading to overall improvements. Teams are excited and ready to return for another year of robots, high level strategy, collaboration and problem solving.

What Do Teachers Say?

-*FIRST* is a spectacular organization, providing maximum impact for students interested in STEM or business

-As Math and Science teachers, we are always geared towards encouraging students with aptitude and ability towards STEM postsecondary, and student involvement in *FIRST* is almost guaranteed to improve participation and interest in STEM careers -Involvement in *FIRST* is certainly helping solidify students' interest in Engineering, Math, Computer Science, Science, and Business

-Our 6 non-graduating students are excited and ready to start up the next season of FRC as soon as possible -In hopes of fostering STEM and giving back to the *FIRST* community, we plan on attending workshops and trade shows to showcase our robot and FRC, and we plan on working with LEGO MINDSTORMS with our local feeder schools.

IDLX *FIRST* Tech Challenge Team 15479 are a rookie all girls team, at Kwantlen Park Secondary School in Surrey, BC. Their club started last October 2018 and consider themselves beginner mechanics and programmers. Their team is made up of grade 9-11s. From humble beginnings and the help of people like FIX IT, the team created their very first robot by following a manual and creating simple codes in programs.



STEM MAJOR CITED BY *FIRST* PARTICIPANTS

2x
as likely to major in
science or engineering



Major in engineering

41%

33% ♀
of women major in engineering

Source: Brandeis University, 2005 Evaluation of *FIRST*® Robotics Competition Alumni

21ST CENTURY WORK-LIFE SKILLS GAINED BY *FIRST* PARTICIPANTS

Improved problem
solving skills

98%

Increased time
management skills

95%

Increased conflict
resolution skills

93%

Strengthened
communication skills

OVER 76%

FIRST ALUMNI IN STEM CAREERS

OVER 75%
of Alumni are in a STEM field
as a student or professional

Honourable Mentions



BC GOVERNMENT ANNOUNCE \$250,000 FUNDING TO EXPAND *FIRST* ROBOTICS THROUGHOUT PROVINCE. “This funding is part of our government’s work to invest in services that help give kids around the province the skills they need to succeed,” said Premier John Horgan. “The STEM fields are growing exponentially in B.C., and I’m proud that students like the Reynolds Reybots will be prepared to meet these exciting new opportunities and help build a sustainable, low-carbon economy.”



FROM ROOKIES TO ROCK STARS: Team 6485 L.A. Matheson’s Mecha Mustangs experienced an amazing performance at the World Championships, Houston, becoming Subdivision Champions and going on to compete with their alliance for the world championship on the Einstein Field, a first for BC

2019 Regional Finalists Canadian Rockies Regional
2019 Team Spirit Award, Canadian Rockies Regional
2019 Safety Award, Canadian Pacific Regional
2019 Judges Award, Canadian Pacific Regional
2019 Championship, Subdivision Winner, Houston

DEAN’S LIST

Congratulations to all three of British Columbia’s Dean’s List Finalists, Ines Khouider FTC 3491 FIX IT, Christian Turpin FTC 13464 Fission, and Ashna Thapar FRC 6390 Hephaestus.



Michael FRC Student (Grade 12) The most interesting part about going to World Championships in Houston was being able to see professional level robots up close, and gaining insight into how they were made. Through talking to various teams, I learned about their design process and the aspects of their robots that set them apart. Learning in a classroom, though necessary, does not give you any real life experience. The robotics club, and our trip to Texas, gave me actual experience that will help me in university and beyond.