

Foreword

i. Welcome to the CRC Robotics Competition

On behalf of the Educational Alliance for Science and Technology (EAST) and CRC Robotics, welcome and congratulations to all the participants on joining your school's robotics team and embarking on the CRC Robotics Competition journey! Take it from the current leaders of CRC Robotics, who were all former student participants in the CRC Robotics Competition: you will remember this unparalleled experience for many years to come.

We wish to welcome and thank the many teachers, parents, and mentors for embarking on this journey and for all the hard work you will put in to enrich your students' lives throughout this activity. A big thank-you to all the volunteers involved in CRC Robotics, whose dedication has allowed us to hold Flip 2020, our 19th annual competition.

In addition, we wish to acknowledge all our partners, without whom CRC Robotics could not exist.

The 2019-2020 CRC Robotics season will have a lot to offer: a new interactive web platform for teams and a significant enhancement of our live streaming capabilities as well as the gradual introduction of the 9880A Arduino-based robot control platform that was fully developed in-house.

We wish to thank the Director General of Vanier College, Mr. John McMahon, and his team led by Mr. Haritos Kavallos for their warm welcome as the host school and for the time and energy they've put towards the success of this event.

Good luck to all and we will see you at Flip 2020 from February 13th to 15th, 2020 at Vanier College in Montreal.



David Martin
Coordinator

david.martin@sciencetech.ca



Natasha Vitale
Coordinator

natasha.vitale@sciencetech.ca



Jeremy Webb
Coordinator

jeremy.webb@sciencetech.ca



Jeffrey Barbagallo
Coordinator

jeffrey.barbagallo@sciencetech.ca



Liliya Boyadjieva
Coordinator

liliya.boyadjieva@sciencetech.ca

ii. About CRC Robotics

CRC Robotics was founded in 2001 by a group of young professionals and teachers, fueled by their passion for robotics and education. Unsatisfied with the robotics competitions available for high schools and CEGEPs in Canada, they created an annual competition linking science, technology, engineering and mathematics (STEM) with computers, arts and languages.

We've since grown into a non-profit organization run by former participants willing to give other students the chance to participate in the CRC Robotics adventure that has been so much fun for them. The Competition now welcomes teams from coast to coast in a 3-day, action-packed event held annually, in February.

We believe in providing exciting learning opportunities to students with various interests and goals. Under the umbrella of the Educational Alliance for Science and Technology (EAST), we hold events allowing tomorrow's leaders to find their passion and develop key skills that will serve as assets in an ever-changing, global world.

In essence, the CRC Robotics Competition is:

- A coherent body of several competitions, integrating different disciplines and unique challenges, including languages, computers, mathematics, science, art and much more;
- An experience that develops the qualities of a leader and teaches students about organization and teamwork, since everything is directed and performed by the students;
- An event that involves students from high schools, CEGEPs and professional vocational centres from all over Canada;
- A challenge that allows students to apply the theoretical knowledge gained in the classroom to a practical application in order to familiarize the students with technology outside of the classroom;
- A chance to take part in an extra-curricular activity and work with students and mentors from different backgrounds and domains (engineers, technicians, university professors, etc.).

The CRC Robotics Competition has seen an increasing number of female student participants over the years, who have also continued their studies in STEM fields! To further expand the participation of girls in STEM, CRC Robotics also organizes an annual networking event for high school and CEGEP girls and non-binary students, entitled *Aim Together*, with the goal of inspiring girls to consider a career in STEM. Our mission is to brand STEM fields, which are thought of primarily as masculine environments, as welcoming to women, in the hopes that girls will consider STEM as a viable career path. For more information on this event, happening in November, or for questions on how to register, please contact the organizers at conference@sciencetech.ca.

iii. Roles within the CRC Robotics Competition

In the CRC Robotics Competition, there are three different roles: students, teachers, and mentors. We have laid out the following responsibilities for each:

1. **Students are to do all the planning and building.** They should be creating the strategies, designing the critical paths, and controlling all aspects of the team. Any work done on any aspect of the Competition must be done entirely by the students.
2. **Teachers are available to provide the support that students may need, only if they need it.** They should not be directing the students, but instead, acting as an advisor. If a student has a question, the teacher may point the student toward the answer or show the student how to find the solution. If a student is unsure of how to accomplish a specific task, the teacher may demonstrate, but any pieces attached to the robot are to be touched only by the students. However, we do realize that there may be times when an educator must step in for academic reasons. We believe that every teacher is a competent professional that can differentiate between teaching and doing.
3. **Mentors are external professionals who may be consulted throughout the course of this activity.** Their job is to help with questions which exceed both the students' and teachers' knowledge. An engineer would have more practical experience; however, the engineer may not direct the students as he/she is acting only as an advisor.

We value the participation of your school, but always keep in mind that this is the students' project. Let them show you what they are made of and let them develop their own skills! Their own work is what truly matters and that is what makes the CRC Robotics Competition so unique and relevant.

iv. Participating Schools

Once again, teams from coast to coast have decided to take on this year's CRC Robotics challenge:

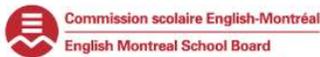
| 2020 Team Number | School Name | Division | Rookie |
|------------------|---|----------|--------|
| 1 | Lower Canada College | 1 | |
| 2 | École secondaire Curé-Antoine-Labelle | 2 | |
| 3 | École secondaire Monseigneur-Richard | 2 | ✓ |
| 4 | John Abbott College | 1 | |
| 5 | St. George's School of Montreal | 1 | |
| 6 | Dawson College | 1 | |
| 7 | West Island College | 2 | |
| 8 | Collège Sainte-Marcelline | 1 | |
| 9 | Marianopolis College | 1 | |
| 10 | Collège Montmorency | 1 | |
| 11 | Centennial Regional High School | 1 | |
| 12 | Rosemount Technology Center | 2 | |
| 13 | Collège Citoyen | 2 | |
| 14 | Lake of Two Mountains High School | 2 | |
| 15 | Collège de Bois-de-Boulogne | 1 | |
| 16 | Macdonald High School | 1 | |
| 17 | École secondaire Jules-Verne | 2 | |
| 18 | Cégep Vanier College | 1 | |
| 19 | Heritage Regional High School | 2 | ✓ |
| 20 | Collège Letendre | 2 | ✓ |
| 21 | Royal West Academy | 2 | |
| 22 | Cégep du Vieux-Montréal | 2 | |
| 23 | La Cité Collégiale | 1 | ✓ |
| 24 | Collège André-Grasset | 2 | |
| 25 | Saint Lambert International High School | 2 | |
| 26 | Kells Academy | 2 | ✓ |
| 27 | Champlain College | 1 | ✓ |

v. Our Partners

One of the most important aspects of the CRC Robotics Competition is that it keeps registration fees for schools at a bare minimum to ensure an easy and equal access for schools from all socio-economic situations. This would not be possible without the help of our generous partners that, year after year, help us prepare this wonderful event for the students.



En collaboration avec



We are always seeking to establish new partnerships to achieve our goal of positively improving as many student lives as possible. If you or someone you know is willing to help us in any way, please contact our Partnerships Team at partnerships.crc@sciencetech.ca. On behalf of the students, a heartfelt thank-you!

vi. Season Calendar

| Item | Date & Location | Description |
|------------------------------|--|--|
| Information Sessions | Year-Round | The CRC Robotics Organizing Committee is always available to meet you and present a detailed explanation of what the Competition is all about and what it entails for students, teachers and their school. Interested parties may contact us via info.crc@sciencetech.ca . |
| Registration Period | September 2, 2019 to October 11, 2019 | Registration is opened to all high schools, CEGEPs and professional vocational centres in Canada. Late registration may be possible. Please contact info.crc@sciencetech.ca for more information. |
| Training Day | October 2019 | The Training Day is a hands-on tutorial and training day for teachers and mentors who wish to familiarize themselves with the technology involved in the CRC Robotics Competition as well as with the Competition structure and dynamics. The Training Day is organized according to the demand. Interested parties may contact us via info.crc@sciencetech.ca . |
| Preliminary Rulebook Release | October 21, 2019 | A partial version of the rulebook is made available to participants on www.robo-crc.ca/participant-portal/ one week prior to Kickoff. This way, participants can familiarize themselves with this year's game and prepare questions to be asked at Kickoff. |
| Kickoff | October 28, 2019 at 7pm <i>Doors open at 6:30pm</i> Vanier College 821 Sainte-Croix Avenue Montreal, QC, H4L 3X9 | The Kickoff officially marks the beginning of the season for the participants. The complete rulebook and the playing field are revealed, and the participant kit (which includes the legal power motors and batteries) are distributed to the teams. For logistical reasons, a maximum of 10 individuals may attend. |
| CRC Workshops | November 4, 2019 December 2, 2019 January 13, 2020 February 3, 2020 (on demand) Vanier College 821 Sainte-Croix Avenue Montreal, QC, H4L 3X9 | The CRC Robotics Workshops are events intended to provide specific training to participants in their field of interest. Multiple topics are covered simultaneously in multiple rooms on the same evening. All subjects covered and details related to the workshop will be made available at www.robo-crc.ca/participant-portal . |

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| <p><i>Aim Together</i> Event</p> | <p>November 7, 2019</p> <p>École de Technologie Supérieure 1220 Notre-Dame St. W. Videotron Room, Pavilion E Montréal, QC, H3C 1K3</p> | <p>A free event where many successful women from diverse cultural backgrounds and different STEM fields are present to speak to the girls and young women about their unique career path. No need to be a participant in the CRC Robotics Competition to attend. Invite all your friends! Interested parties may obtain information and register on www.robo-crc.ca/aim-together.</p> |
| <p>Website, Video, and Tutorial Submission, and Programming Component Opt-In Deadline</p> | <p>January 27, 2020 at 11:59:59pm EST</p> <p>Using the Participant Portal: www.robo-crc.ca/participant-portal</p> | <p>Having the website up and running and uploading the video to YouTube might take several hours. We therefore recommend you not to wait until the very last minute before starting the upload and going through the submission procedure. If you encounter any problems, send a detailed explanation to natasha.vitale@sciencetech.ca before the submission date and time.</p> <p>The Submission Form will be made available as of January 20, 2020.</p> |
| <p>Deadline to make Website, Video, and Tutorial Public</p> | <p>February 13, 2020 at 7:59:59am</p> | <p>Teams must make their website, video and tutorial available to the general public and the other teams prior to the start of the competition. For more information, refer to the specific sections outlining the details of these components.</p> |
| <p>19th Annual CRC Robotics Competition Flip 2020</p> | <p>February 13 to 15, 2020</p> <p>Vanier College 821 Sainte-Croix Avenue Montreal, QC, H4L 3X9</p> | <p>Join us in the pinnacle of the 2019-2020 CRC Robotics season. After over three months of hard work and countless hours of design and construction, close to 30 teams will show off what their robot can do.</p> <p>Also, the students will be showcasing their school and accomplishments in their kiosk, on their website and in their video. An exciting, action-packed, 3-day event not to be missed!</p> |