



SKILLS BC (REGIONAL) COMPETITION

VEX IQ Robotics Challenge
Grades 4-6, 7&8, 9&10

TECHNICAL CHAIR

Brian Yu – Eric Hamber Secondary School – byu@vsb.bc.ca

SKILLS BC (REGIONAL) COMPETITION:

8:30am – 9:00am	Sign-in at the challenge site
9:00am – 9:30am	Orientation / Robot Inspections
9:30am – 11 :30am	Robot Skill Challenge
9:30am – 10:30am	Practice Matches
10:30am – 12:00pm	Qualifying Matches
12:00pm – 12:30pm	Lunch
12:30pm – 2:00pm	Qualifying Matches
2:30pm – 3 :00 pm	Final Matches
3:00pm – 3:30pm	Disassembly and Clean Up
3:30pm*	Awards Ceremony at the challenge site
*Time is approximate and will be dependent on the number of teams participating.	
Competitors must be on time for their challenge and may be disqualified if they do not sign-in at their challenge site prior to the start of orientation. At the discretion of the technical committee chair, the competitor may be permitted to compete but would not receive any additional time.	

CONTEST STATUS

- This challenge is offered as an official challenge.

PURPOSE OF THE CONTEST:

To provide competitors with the opportunity to demonstrate their science, technology, engineering, and mathematics (STEM) skills through practical and theoretical application and enhance through hands-on, student-centered learning.

The Challenge

The object of the game is to attain the highest score by Scoring Hubs in Building Zones, by Removing Hubs from the Hanging Structure, and by Hanging Robots at the end of the Match.

Each VEX IQ Challenge Next Level Match includes the following:

- Seventeen (17) Hubs
- Fifteen (15) Standard Hubs that start on the Floor
- Two (2) Bonus Hubs that start atop the Hanging Structure
- Two (2) Building Zones
- One (1) Hanging Bar
- One (1) Parking Zone

In the **Teamwork Challenge**, an Alliance of two (2) Robots operating under driver control, work together in each Match.

In the **Robot Skills Challenge**, one (1) Robot takes the field to score as many points as possible. These matches consist of **Driver Skills Matches**, which will be entirely driver controlled, and **Programming Skills Matches**, which will be autonomous with limited human interaction.

The Robot Skills Challenge and the Teamwork Challenge use the exact same field and set up.

For the complete game manual: <https://link.vex.com/docs/VIQC-next-level/GameManual>

Game Overview Video: https://youtu.be/IJML1_JNCLI

SKILLS AND KNOWLEDGE TO BE TESTED:

- Teamwork
- Critical Thinking
- Project Management
- Communication Skills
- Discussion of Ideas
- Problem Solving

EQUIPMENT AND MATERIALS:

Supplied by Skills BC Technical Committee:

- Game Field and Game Elements

Please Note: Tools and materials may change based on availability.

Supplied by Team:

Computer or laptop with Robotc, Modkit, EasyC, FLOWOL, or RoboMesh Studio software installed

*software is needed for the programming/Robotic skills portion only (Teamwork challenge does not involve software) If a team cannot supply their own computer device, Skills BC will provide one for the team. Please note: not all software is available by Skills BC. Requests for computers and software must be made at least three weeks before the event.

SAFETY: Safety is a priority at the Skills BC Competition. At the discretion of the judges and technical chairs, any competitor can be removed from the competition site for not having the proper safety equipment and/or not acting in a safe manner.

Competitors must show competence in the use of tools and/or equipment outlined in this scope and can be removed at the discretion of the judges and technical chairs if the competitor does not display tool and/or equipment competency.

JUDGING CRITERIA:

Scoring

- A Hub that is Low Scored in a Building Zone is worth one (1) point.
- A Hub that is High Scored in a Building Zone is worth two (2) points.
- A Bonus Hub that is Removed from its Bonus Peg is worth one (1) point.
- A Bonus Hub that is Low Scored in a Building Zone is worth two (2) points.

- A Bonus Hub that is High Scored in a Building Zone is worth four (4) points.
- A Parked Robot is worth one (1) point.
- A Low Hanging Robot is worth two (2) points.
- A High Hanging Robot is worth four (4) points.

Teamwork Challenge

Each Teamwork Challenge Match consists of two teams, operating as an alliance, to score points. The Teamwork Challenge includes Practice, Qualifying, and Finals Matches. After the Qualifying Matches, teams will be ranked based on performance. The top teams will then participate in the Finals Matches to determine the Teamwork Challenge champions. The number of teams participating in the Finals Matches will be determined based on the number of teams participating.

Teamwork Challenge Finals Matches

- At the conclusion of the Qualification Matches, the top teams will advance to the Finals Matches.
- The number of Finals Matches will be determined based on the number of teams participating.
- The first and second ranked teams form an alliance, third and fourth ranked teams form another alliance (and so on) for the Finals Matches.
- Starting with the lowest ranked alliance, each alliance participates in ONE Finals Match. After all the Finals matches are run, the highest score of those matches is the winning alliance. Second highest score finishes in second place, and so on. (If there is a tie, the higher ranked alliance, prior to the Finals Matches, shall be declared to finish higher placed team)

Robot Skills Challenge

In this challenge teams will compete in sixty (60) second long matches in an effort to score as many points as possible. These matches consist of Driver Skills Matches, which will be entirely driver controlled, and Programming Skills Matches, which will be autonomous (no VEX IQ controller) with limited human interaction. Each match will consist of only one Robot.

Robot Skills Challenge Rankings

For each Skills Match teams are awarded a score based on the above scoring rules.

- Teams will be ranked based on the sum of their highest Programming Skills Match score and Driving Skills Match score, with the team with the highest sum being declared the Robot Skills Challenge Winner.
- In the case where two teams are tied for the highest score, the tie will be broken by looking at both teams' next highest Programming Skills Match score. If the teams remain tied, the tie will be broken by looking at both teams' next highest Driver Skills Match score. This process will repeat until the tie is broken.
- If the tie still isn't broken, the technical chair/event host may choose to allow teams to have one more deciding match or both teams may be declared the winner.

FOR COMPLETE RULES AND GAME INFO SEE OFFICIAL GAME MANUAL:

<https://content.vexrobotics.com/docs/viqc-ringmaster/VIQC-Ringmaster-GameManual-20170817.pdf>

Game Overview Video: <https://youtu.be/L7suUU57fsU>

AWARDS

A robot team with the most categorical top finalist standings will be the overall winner. A second-place team will follow as well as the third-place team. The categories are: Team Work Challenge (Qualifications), Team Work Challenge (Finals), Robot Skills – Programming Challenge, and Robot Skills – Driver Challenge.

If a tie exists between two teams, the following process will be used to break the tie:

- Looking at both team's team work finalist results.
- Looking at both team's programming results.
- Looking at both team's teamwork qualification results.
- Looking at both team's driving skills results.
- If the tie still isn't broken, the technical chair/event host may choose to allow teams to have one more deciding match – Robot Skills Driver Challenge or Robot Skills Programming Challenge.

RULES, REGULATIONS AND ELIGIBILITY

Please be sure to review all eligibility criteria in the complete Competitor Information Package, available online at <http://skillscanada.bc.ca/>.

Eligibility Criteria:

Elementary/Secondary Students is allowed to:

- Compete in only one challenge at the Skills BC (Regional) Competition.

Other Rules and Regulations all competitors need to be aware of prior to attending the Skills BC Competition:

- Translators or other assistants (e.g. hearing impaired) are permitted in the contest site **only if this request was made during the registration process and approved in advance by the Skills BC office.**
- During the contest, no one will have access to the contest site except the Technical Committee Members, Judges, Skills BC staff and Competitors. Spectators, including teacher/advisors, will be provided a viewing area if possible.

Immediate disqualification may occur at the discretion of the technical chair if a competitor displays any one of the following:

- Acts inappropriately
- Shows disregard for the safety of themselves or those around them
- Breaks the established rules and regulations including:
 - o Uses equipment or material that is not permitted
 - o Dishonest conduct (cheating, plagiarism)
 - o Speaks with those outside the contest area
 - o Arrives to the contest site late

Sign-in for all contests will happen on the contest site the morning of the competition. Registration must take place prior to the deadline as posted at the Skills BC website.

CLOTHING REQUIREMENTS

Competitors are to be dressed in a clean and appropriate manner. Competitors are not permitted to wear clothing with logos or printing. The exception to this rule is the logo of the school, or school board that the competitor is representing. ONLY the logo of the organization under which the competitor is registered can be visible. Corporate logos or names are not permitted on a competitor's clothing.

MEALS

No meals will be provided. All competitors are recommended to bring the necessary food and additional snacks with them.

ANY FOOD BROUGHT TO THE VENUE MUST BE NUT FREE. ANY NUT PRODUCTS FOUND ON SITE WILL BE REMOVED.

ADDITIONAL INFORMATION

If you have any questions regarding the Skills BC (Regional) Competition or this contest, please contact Skills BC or the technical chair two weeks before the event, as all staff will be onsite setting up the following week.

SPECTATORS

Competitors are encouraged to invite spectators to attend. It is free of charge to attend the Skills BC (Regional) Competition.