VEX IQ Challenge - Nelson Team Grants

Frequently Asked Questions

1. **How big is a team?**

   The minimum team size is 2 students. There is no maximum team size, but most teams have 2-12 students. The optimum team size for a new coach with a new team is 3-6 students. The coach and students of a small new team can have fun learning how to design, build, document, and drive the robot. A team with 6-12 students can also learn how to program the robot and/or work on a STEM Research Project or Online Challenges. Supervising these extra activities with a new team would make the new coach's job more challenging. The coach's job is less challenging if some of the students are high functioning. Teams that start in the Spring can start small in the Spring and then add more students and more activities in the Fall. After the first year, the optimum team size is 6-12 students. Teams of this size should be able to participate in all aspects of the program.

2. **Should teams do a STEM Research Project?**

   The STEM Research Project and Presentation is an optional video submission to be turned in prior to the final league session or tournament. It is no longer a requirement for the Excellence Award, but judges will consider STEM Research as part of the overall team assessment. The STEM Research Project Award is optional at local events, but it will be offered at State and World Championships.

   I recommend that small teams (2-6 students) skip STEM Research their first year. STEM Research is optional for larger teams and for experienced teams. LAUSD leagues will offer the STEM Research Project Award if at least five teams submit videos.

   LeRoy and Anita Nelson have been STEM Research Project Award Judges for State and World Championships. They will provide judging of STEM Research Project and Presentation videos submitted by LAUSD teams that participate in leagues that do not offer their own STEM Research Project judging. Submissions will be due by the last day of classes in December. Depending on the number of submissions, separate LAUSD STEM Research Project Awards may be offered for individual leagues, for Elementary/Secondary teams, and/or for Rookie/Experienced teams. The LAUSD STEM Research Project Awards will be presented at the final league session in January with the other League awards.

3. **Is there a separate competition team and STEM Research Project team?**

   That will vary based on team size and student preferences. Small teams that want to do the project could spend part of a team meeting working together on the robot and part working on the project. For large teams, it makes sense to divide the students into robot and project sub-teams for each team meeting. Students should be encouraged to work on different sub-teams at different meetings, though. Working on the robot gives students experience doing engineering. Working on the project gives students experience doing science. Ideally, every student should do both by the second year.

4. **Can teams upload STEM Research Project videos to SchoolTube instead of YouTube?**

   Yes. School-based teams are welcome to upload their STEM Research Project videos to SchoolTube.com instead of YouTube.com.

Key advantages of SchoolTube over YouTube:
- **Free** accounts are supported by school and age-appropriate advertisements and sponsors. Ad-free service coming soon.
- SchoolTube is fully moderated. Only videos approved by verified educators are allowed to be uploaded and shared.
- All student-created videos are hosted under SchoolTube and protected by our ASCAP blanket music licensing policy.
- Enjoy knowing that your students' and their videos are protected by a COPPA compliant video sharing **platform.**

To learn **How To Upload Videos to SchoolTube**, view this video.
A SchoolTube video needs to be **Public** to share the link for judging.

5. **Are all members of the competition team competing at the same time together or split up?**

   Two drivers participate in each teamwork or skills match. You can have different drivers in different matches. Each team should have three or four Teamwork Matches at each qualifying session and three or four Robot Skills Matches at the final session. Team members who are not driving can cheer for their team.

6. **What if my team has more students than we can bring to a competition?**

   You could have different students participate in each qualifying session and then have the students who contributed the most and/or who drove the best represent the team in the skills matches and/or teamwork finals matches at the championship session.

7. **What student grade levels can participate on teams?**

   VEX IQ Challenge is recommended for students in grades 4-8 and high functioning students in grade 3 (in the Fall semester). The VEX IQ robot is recommended for students of ages 8 and up.

8. **What determines whether a team is Elementary or Middle School?**

   This is determined by definitions of **Team** and **Student** in the Game Manual. Here is the definition of Team from the June 2019 version of the Game Manual:

   > **Team** - Two or more *Students* make up a *Team*. A *Team* is classified as an **Elementary School Team** if all members are *Elementary School Students*. A *Team* is classified as a **Middle School Team** if any members are *Middle School Students*, or made up of *Elementary School Students* who declare themselves "playing up" as *Middle School Students* by registering their team as a **Middle School Team**. Once declared and playing as a **Middle School Team**, that team may not change back to an **Elementary School Team** for the remainder of the season. *Teams* may be associated with schools, community/youth organizations, or a group of neighborhood *Students*.

   The definitions of Elementary School Student and Middle School Student changed dramatically in the June 2019 version of the Game Manual to be based on age rather than on grade level:

   > **Student** - Anyone born after May 1, 2005 (i.e. who will be 14 or younger at VEX Worlds 2020). Eligibility may also be granted based on a disability that has delayed education by at least one year. *Students* are the individuals who design, build, repair, and program the *Robot* with minimal adult assistance.
   > - **Elementary School Student** - Any *Student* born after May 1, 2007 (i.e. who will be 12 or younger at VEX Worlds 2020). *Elementary School Students* may "play up" and compete as a *Middle School Student*.
   > - **Middle School Student** - Any eligible *Student* that is not an *Elementary School Student*.

This change helps to level the playing field internationally, but it makes some older 8th graders ineligible to compete while some younger 9th graders are eligible to compete as Middle School students, and some older 5th graders are Middle School students while some younger 6th graders are Elementary School Students. Watch for possible changes to these definitions in the August 15, 2019 update of the Game Manual.

9. **How does a League work?**

New leagues will begin with an orientation session for new coaches in September. Teams will typically participate in four league sessions held every 2-4 school weeks between October and January. League sessions are usually held after school at locations reasonably close to participating schools. The first three sessions will be Qualifying Sessions, and the final session will be the Championship Session. For new leagues with mostly rookie teams, the first Qualifying Session will begin with one Teamwork Practice Match for each team followed by two or three Teamwork Qualifying Matches for each team. Other Qualifying Sessions will offer three or four Teamwork Qualifying Matches for each team. The final Championship Session will offer Robot Design judging for teams that submit good Engineering Notebooks and three or four Robot Skills Matches followed by Teamwork Final Matches and Awards. Participating teams must pay a $150 league registration fee, preferably by check, to the league host for all league sessions which covers the cost of equipment and facilities and which may help pay the registration fees of teams that qualify to attend the State Championships in Early March.

10. **What is the schedule for League sessions?**

Typical agenda for the first four league sessions, the Qualifying Sessions:

3:00-4:00 PM Doors open. Set up
3:45-4:00 PM Volunteers check in
4:00-4:30 PM Teams check in
4:00-4:45 PM Robot Inspection
4:45-5:00 PM Opening Ceremony/Announcements
5:00-7:00 PM Teamwork Practice and Qualifying Matches
7:00-7:30 PM Tear down. Teams depart. Doors close

Typical agenda for the last league session, the Championship Session:

3:00-4:00 PM Doors open. Set up
3:45-4:00 PM Volunteers check in
4:00-4:30 PM Teams check in and turn in Engineering Notebooks
4:00-4:45 PM Robot Inspection
4:45-5:00 PM Opening Ceremony/Announcements
5:00-7:00 PM Judging and Skills Matches
7:00-7:45 PM Teamwork Finals Matches and Awards
7:45-8:15 PM Tear down. Teams depart. Doors close

11. **Does my team need to attend every League session?**

No. Teams need to participate in at least 60% of the Teamwork Qualifying Matches to be eligible to participate in the Teamwork Finals Matches—in other words, two of the three Qualifying sessions. If it is not convenient for your team to participate in a league, your team can participate in one or more tournaments instead. Tournaments are typically held on Saturdays between October and mid-February. The event registration fee for each tournament is typically $75-$100.

12. How big is a League?

Leagues need at least 16 teams for the top award winners to qualify for State Championships. Leagues with more than 36 teams could split into two smaller leagues to make match schedules easier to manage, or they could run two matches simultaneously. Leagues should provide two competition fields and two practice fields for up to 24 teams three competition fields and three practice fields for up to 36 teams, and four competition fields and four practice fields for up to 36 teams. That will allow each team to play up to four matches at each league session. LeRoy will provide fields with assembled field elements for all new leagues and all leagues that need to add additional fields.

13. What forms are required to participate in a league or tournament?
   a. **REC Foundation Participant Release Form and Instructions**
   https://www.roboticseducation.org/documents/2018/03/participant-release-form.pdf/
   - Spanish Participant Release Form
   https://www.roboticseducation.org/documents/2015/05/participant-consent-form-spanish.pdf/
   b. **LAUSD Field Trips**
   https://achieve.lausd.net/Page/2794
   - FIELD TRIP HANDBOOK (REF 2111.0)
     - ATTACHMENTS H-K: PARENT'S OR GUARDIAN'S PERMISSION FOR A FIELD TRIP AND AUTHORIZATION FOR MEDICAL CARE – TRIP SLIP
       - English, Spanish, Korean, Armenian
   - REQUEST FOR APPROVAL OF SCHOOL ORGANIZED TRIP FOR STUDENTS
   - GUIDELINES ON USE OF PRIVATELY OWNED VEHICLES
   - FIELD TRIP CHECKLIST
   c. **LAUSD Media Release Forms**
   https://achieve.lausd.net/Page/4875
   - English, Armenian, Chinese, Korean, Russian, Spanish

14. My school received a Team Welcome Kit. How should we use it?

The VEX IQ Challenge Team Welcome Kit ships in a small box that should arrive approximately one week after your team registration is paid. It includes several pages of useful information plus these very important items:
   d. **Two VEX IQ Challenge Blank Team Number Plates**. Put your team number on both plates with a marking pen and attach them to opposite sides of your robot before you attend leagues or tournaments. Your robot needs team number plates to pass inspection. Paper team number plates can be used in an emergency.
   e. **VEX IQ Engineering Notebook** (5 Pack). Have students record their progress designing, building and programming their robot. The notebooks include sample entries and suggestions. See the **Robot Design Rubric** for the criteria that will be used to judge the Engineering Notebook at the final league session or tournament.
   f. **VEX IQ Challenge Game Element Kit** (sample game elements). Your team can use these to practice driving the robot until you receive and open the full game kit.

15. My school received three different VEX IQ robotics kits. How should we use them?

Each school should receive one VEX IQ robot set consisting of:

a. **Super Kit** (big box with robot set and bin with tray for organizing parts). This kit was shipped early to teams in LAUSD Local Districts Central, East and West that submitted applications before May.

b. **Competition Add-On Kit** (small box with extra parts).

c. **Foundation Add-On Kit** (big box with more extra parts and second bin with tray for organizing parts).

d. **Extra Robot Battery**.

Schools that received Two-Team Awards should also receive a second **Super Kit** and **Competition Add-On Kit** for their matching team provided by the Robotics Education & Competition Foundation.

One of the first things your team(s) should do is open all three kits and sort the small parts into the two trays so that they are easy to find when you are building robots. The big parts can go in the bottoms of the two bins.

Charge the robot batteries and the controller battery. Instructions are near the back of the **VEX IQ Super Kit User Guide**. The robot battery should be charged after every team meeting and after every league session or tournament. The controller battery usually lasts several weeks between charges. Keeping an extra robot battery charged is recommended in case you ever forget to recharge the robot battery. A dead robot battery can ruin your day. Batteries need to be recharged every 4-6 months when they are not in use, so **recharge batteries before summer vacation**. Leaving the robot battery in your robot or in the charger when the charger is not plugged can kill your robot battery.

Next, the team can build and drive the **Clawbot**, which could be used to play the teamwork challenge game at your first league qualifying session. Printed step-by-step Clawbot build instructions are included in the **VEX IQ Super Kit User Guide**. An electronic copy of the build instructions (PDF) as well as animated build instructions for Clawbot IQ are available at www.vexrobotics.com/vexiq/resources/robot-builds.

For the **SQUARED AWAY** game, the **Clutch** or **Stretch** robots are better starting robots than Clawbot because they use a four-bar linkage. The **Clutch** or **Stretch** build instructions (PDF) are also available at www.vexrobotics.com/vexiq/resources/robot-builds.

Start recording team progress in the Engineering Notebook. Watch the VEX IQ Challenge game video at www.roboticseducation.org/competition-teams/current-game-information/. Read the Game Manual at www.roboticseducation.org/competition-teams/vex-iq-challenge/. The final update is scheduled for August 15, 2019. Choose a strategy to score as many points as possible in a 60-second match. Choose a team name and robot name and update your team information at www.robotevents.com. Modify the robot or your strategy as needed to improve performance. Practice driving before each competition.

16. My school received three other boxes. How should we use them?

Each school should also receive these VEX IQ Challenge competition supplies:

a. **VEX IQ Challenge Full Field Perimeter & Tiles** (ships in two boxes, each containing one-half field). It takes a few minutes to assemble or disassemble the field. Be careful not to twist the

tiles relative to each other when disassembling the field, because the tabs can break off. Push one tile or wall piece down while pushing the adjacent tiles up to separate them.

b. **VEX IQ Challenge Full Field & Game Element Kit**. This box contains the field elements and game elements for this year's VEX IQ Challenge game. Some assembly is required. The **SQUARED AWAY** field elements are easier to assemble than usual. Expect to spend 1 hour building the field elements. Set up the field elements and game elements on the full field to develop and test your game strategy and to practice driving the robot before competitions. LeRoy has cardboard boxes available for teams and league hosts that need to store their field elements between practices. Fitting all **SQUARED AWAY** field elements in the box is an extra engineering challenge that was solved by LeRoy's son Kevin, who is a mechanical engineer. See if your students can figure it out.

17. **How do I access the programming software?**

For Chromebook, iPad, Mac, Windows, or Ubunto Linux computers, I recommend that new teams use **Blockly** with **Robot Mesh Studio**. The free online version is available at www.robotmesh.com/studio. The Chrome browser works best on Windows. Create an account on RobotMesh.com so that your team can store its programs as projects. You can organize team programs in folders. Your programs will be available on any of the computers listed above after you log in. Skip the API documentation. Start with the **Blockly Activity Guide**, which can be used as an online robot programming curriculum. If you decide to use **Blockly** in the classroom, you will want to purchase a Robot Mesh Studio class or site license at www.robotmesh.com/studio-editions.

Teams with experience using any programming software may want to consider **VEXcode IQ Blocks**, which was introduced in August 2019 and which is available at https://www.vexrobotics.com/vexcode. New versions of VEX software usually have many bugs, which can be frustrating for new programmers. Let the experienced teams find and report the bugs this season. Next season, I may recommend **VEXcode IQ Blocks** for all teams.

18. **How can I view the match scores and rankings for my team?**

During most league sessions, match scores are uploaded to the league event on RobotEvents.com and cumulative rankings are updated after each match. After all league sessions, final results and cumulative rankings are uploaded to the league event on RobotEvents.com. After the final session, skills rankings, teamwork finals results, and awards are also uploaded to the league event on RobotEvents.com. Navigate to a league event on RobotEvents.com by name or by using one of these links:

- [LAUSD Central VEX IQ League at 10th Street Elementary School](#)
- [LAUSD Central VEX IQ League at Barack Obama Global Preparation Academy](#)
- [LAUSD East VEX IQ League at Boyle Heights STEM Magnet High School](#)
- [LAUSD East VEX IQ League at Maywood Center for Enriched Studies](#)
- [LAUSD Northeast VEX IQ League at Chavez LA-ASE](#)
- [LAUSD Northwest VEX IQ Elementary School League at Mulholland Middle School](#)
- [LAUSD Northwest VEX IQ Middle School League at Mulholland Middle School](#)
- [LAUSD South VEX IQ League at Samuel Gompers Middle School](#)
- [LAUSD South VEX IQ League at Stephen M White Middle School](#)
- [LAUSD West VEX IQ League at Augustus Hawkins High School](#)
- [LAUSD West VEX IQ League at Mark Twain Middle School](#)

These links are also available at http://larobotics.org/NTGLeagues.html.

After you find your event, click on **Results** and then **Division 1** to see **Match Results** for the most recent session and cumulative **Teamwork Rankings**.

You can also view the team list, team match schedule, team match results, event match schedule, event match results, cumulative rankings, skills results, skills rankings, and awards by downloading the **VEX Via** app to an Android or Apple smartphone or tablet from:
- VEX Via - Apps on Google Play or
- VEX Via on the App Store - iTunes - Apple

The Apple version allows you to search for events by name or city and for teams by number, team name or city. Or find events by selecting Nearby Events and then scanning the list for your event by the start date (date of first session). After you find your event or team, click on the star at the top of the screen to add it to the Favorites list for quick access later.

19. Are there any other Apps for VEX IQ Challenge teams?

Download the **VIQC Hub** app to view or search the latest version of the Game Manual, a score calculator, and a match timer:
- VIQC Hub - Apps on Google Play or
- VIQC Hub on the App Store - iTunes - Apple

20. What should I do if the robot battery won't charge?

When you place the robot battery in the robot battery charger and plug it in with the power cord to recharge the battery, the charger LED should quickly change to solid red and later change to solid green when the battery is fully charged. If the charger light flashes red, the battery voltage is too low for the charger to recharge it. Try the procedure in the following video to restore the battery:
How to fix VEX IQ Flashing Light or No Charge Battery Issue

If the robot charger LED still flashes red, the robot battery needs to be replaced.

21. What should I do if I need VEX IQ Technical Support?

Email your technical support question to iDESIGN Solutions at support@idesignsol.com or contact support via the iDESIGN Solutions website www.idesignsol.com (at the top of the page Contact Us / Technical Support). A support team member will respond shortly. iDESIGN Solutions will also handle replacement of any defective VEX warrantied parts. There is no cost to you for these support services.

22. Can I change the team name or other team information?

Yes, you can make changes to your registered team information whenever you want:
- Log into RobotEvents.com. If you do not see your team, click on **My Account**.
- Click on the **Edit** button to the right of your team.
- Edit any of the team information fields.
- Scroll to the bottom of the screen and click on the **Save** button.

23. Can I change team contacts?

Yes, you can make changes to team contacts in two ways:
a. You can change the Primary Contact, Secondary Contact, or Financial Contact by using the procedure above to edit team information.
b. You can also add, remove, or change team contacts by using this procedure:
   - Log into RobotEvents.com. If you do not see your team, click on **My Account**.
   - Click on **My Teams** on the left side of your screen.
   - Click on the **Manage Contacts** button to the right of your team.
   - Click on the **+ Add Participant** button at the bottom of the screen to add a new contact.
   - Click on a **Remove** button at the bottom right of the screen to remove a contact.
   - Click on the Primary Contact, Financial Contact or Secondary Contact fields at the top of the screen to select a different contact from the drop-down list.
   - Click on the **Save** button.

If you add a new team contact, the system will send an invitation to the new contact to join your team. The new contact will not receive access to your team information until the invitation is accepted and the new contact creates an account on RobotEvents.com.

24. Can my school add additional robotics teams so more students can participate?

Yes. Schools can have up to 26 teams with the same base team number and different suffix letters. Team registration for the first team costs $150 each year (covered by the grant the first year), and each additional team costs $100 each year (the second team is covered by the grant the first year if the school received a Two-Team Award). Each team also needs to pay for league or tournament event registration each year, which is typically $150 per team. Each additional team should start with its own VEX IQ Super Kit ($330) and VEX IQ Competition Add-on Kit ($100). One field can be shared by 2-3 teams.

25. How can my school purchase additional kits or parts?

Robot kits and parts can be ordered from any of three vendors:
a. [iDESIGN Solutions](#) – Supports our leagues, best support for school and district orders. For personal assistance, contact Steven Gutterman ([steven@idesignsol.com](#)).
b. [Robot Mesh](#) – Fastest delivery for items in stock. Offers **Blockly** with **Robot Mesh Studio.**
c. [VEX Robotics](#) – The manufacturer; higher shipping charges. Offers **VEXcode IQ Blocks**.

26. Are any funds available for additional teams or robot equipment?

If your robotics team needs financial assistance, your coach and/or robotics team could try these websites, which other teams have used to raise funds:
a. If your school received a Nelson Team Grant for a single team in a previous year and participates in a league that has room to grow, your school may be eligible for a Nelson Team Grant **Additional Team Award**. Contact LeRoy Nelson via email at [LeRoy@LARobotics.org](#) to see if your school is eligible.
b. [DonorsChoose](#). Teachers should include "STEM" in the project title, because technology companies have occasionally funded all STEM projects in California.
c. [HEXBUG](#)
d. [EdCo](#)
e. [piggybackr](#)

27. What is the procedure for parts that are broken and/or lost?

Each school is responsible for replacing broken and/or lost parts. LeRoy Nelson and/or Steven Gutterman usually have spare brains, batteries, and motors available at league sessions for new leagues to debug and/or replace parts that are not working.

28. Do the Robot Kits need to be solely used for students that will be competing?

No. During the VEX IQ league season (August-January), the students on the school's VEX IQ Challenge team should have primary use of the robot kits, but parts can be shared with other teams. The kits can be used for other purposes outside of the league season.

29. How much do schools that received Nelson Team Grants need to pay each year?

Schools that received **One-Team Awards** are required to register one VEX IQ Challenge team ($150 registration fee paid by grant the first year) and to register that team for and to attend an official event (typical fee $150) each year. Schools that received One-Team Awards should plan to spend $150 the first year for event registration and $450 each subsequent year for team registration ($150), event registration ($150), field and game element kit ($100), and for additional robot parts ($50).

Schools that received **Two-Team Awards** or **Additional Team Awards** are required to register two VEX IQ Challenge teams ($250 registration fees paid by grant the first year) and to register those teams for and to attend an official event (typical fees $300) each year. Schools that received Two-Team Awards or Additional Team Awards should plan to spend $300 the first year for event registrations and $750 each subsequent year for team registrations ($250), event registrations ($300), field and game element kit ($100), and for additional robot parts ($100).

30. What if I have a question that is not answered here?

Contact LeRoy Nelson via email at LeRoy@LARobotics.org or call him any day between 9 AM and 9 PM at 310-529-4637.

Revised November 17, 2019