

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 Online Challenges such as the STEM Research Project. 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 to be submitted as an Online Challenge at challenges.robotevents.com. It is no longer judged at leagues or tournaments.

I recommend that small teams (2-6 students) skip STEM Research and other Online Challenges their first year. STEM Research is a great optional activity for larger teams and for experienced teams. Designing, building, programming, testing, and documenting a robot introduces students to engineering. The STEM Research Project introduces students to scientific research.

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

One or 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 Qualifying Matches at each of three qualifying sessions and up to three Driving Skills Matches, up to three Programming Skills Matches, and a Teamwork Finals Match at the final session. Team members who are not driving can cheer for their team.

4. 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 Robot Skills Matches and/or Teamwork Finals Matches at the Championship Session.

5. What student grade levels can participate on teams?

VEX IQ Challenge is recommended for students in grades 4-8 and for high functioning students in grade 3. Most LAUSD students in grade 9 are also eligible to participate based on age. The VEX IQ robot is recommended for students of ages 8 and up.

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

This is determined by definitions of **Student** and **Team** in the Game Manual. Here are the definitions from the July 2021 Version 1.1 of the Game Manual:

Student – Anyone born after May 1, 2006 (i.e. who will be 15 or younger at VEX Worlds 2022). 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, 2009 (i.e. who will be 12 or younger at VEX Worlds 2022). Elementary School *Teams* may “play up” and compete as a Middle School *Team*.
- **Middle School Student** – Any eligible *Student* that is not an *Elementary School Student*.

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 as “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 a *Elementary School Team* for the remainder of the season. *Teams* may be associated with schools, community / youth organizations, or a group of neighborhood *Students*.

Basing eligibility on age rather than grade level helps to level the playing field internationally. Most LAUSD students in grade 6 are eligible to compete as Elementary School Students, and most LAUSD students in grade 9 are eligible to compete as Middle School students.

7. How does a League work?

Most leagues will begin with an orientation session for new coaches in late September or early October. Teams will typically participate in four league sessions held every three 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. At the discretion of the Event Partner, the first Qualifying Session may begin with one Teamwork Practice Match for each team followed by three Teamwork Qualifying Matches for each team. Other Qualifying Sessions will offer four Teamwork Qualifying Matches for each team. Remote Judging will occur during the week before the final Championship Session (see next question). The Championship Session will offer each team up to six Robot Skills Matches followed by one Teamwork Finals Match and Awards. Participating teams must pay a \$155 league registration fee, preferably by check payable to the league host school, for all league sessions. This fee covers the costs of equipment and facilities for league hosts.

8. What happens if COVID-19 forces us to cancel in-person League events?

If teams are allowed meet in person but league events can't be held in person indoors, we will explore the possibility of holding the remaining league sessions in person outdoors. If league events can't be held in person indoors or outdoors, then we will try to convert the remaining league sessions to Live Remote Tournaments. Skills events must be held in person, but it is possible to schedule one team at a time, to hold events outdoors, and to schedule events on weekends in January for better light and temperatures.

If teams are not allowed to meet in person, then teams will be encouraged to try **VEXcode VR** and to compete with the new **VIQC Virtual Skills in VEXcode IQ**:

<https://www.vexrobotics.com/get-started/vex-vr-skills>.

9. How does Remote Judging work?

Remote Judging was introduced in the 2020-2021 season to avoid in-person contact between teams and judges. This section may need to be updated when the 2021-22 Judge Guide and Rubrics are posted at the end of August 2021. Engineering Notebooks will be stored online in digital format and a link to the Digital Engineering Notebook (DEN) will be submitted with the team's preferred time slots for Remote Judging Interviews one-two weeks prior to the Championship Session. Judges will review DENs using the Engineering Notebook Rubric. Each team will be scheduled for an 8-10 minute Zoom interview with a panel of judges who will use the Team Interview Rubric. Interviews will be scheduled after school or on the weekend during the week prior to the league's Championship Session. Additional details—including requirements for Digital Engineering Notebooks, the Rubrics, and a list of the Questions that the judges will ask during the interview--will be added to the league event posting as they become available, and teams registered for leagues will be notified.

10. What is the schedule for League sessions?

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

3:30-4:00 PM Doors open. Set up
3:30-3:45 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/Event Meeting/Announcements
5:00-7:00 PM Teamwork Practice and Qualifying Matches
7:00-7:30 PM Teams depart. Tear down. Doors close

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

3:30-4:00 PM Doors open. Set up
3:30-3:45 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 Robot Skills Matches
7:00-7:45 PM Teamwork Finals Matches and Awards
7:45-8:15 PM Teams depart. Tear down. 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 48 teams. That will allow each team to play up to four matches at each league session. LeRoy will provide fields for all new leagues and for 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 Instructions

<https://www.roboticseducation.org/documents/2018/03/participant-release-form.pdf/>

- All coaches, mentors, and parents of students must complete the online form. Coaches need to provide parents with the EXACT team number and type of program (e.g. 12345A, VEX IQ).
- Participant Release Form (English)
<https://waiver.smartwaiver.com/w/5ab2c50d92047/web/>
- Participant Release Form (Spanish)
<https://waiver.smartwaiver.com/w/5f99b690d50ac/web/>

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 3"x9"x12" box that should arrive approximately one week after your team registration is paid. It includes these important items:

- d. **Two VEX IQ Challenge License Plates.** Write your team number on each plate with a marking pen and attach them to opposite sides of your robot before you attend leagues or tournaments. Your robot needs license plates to pass inspection. Paper license plates can be used in an emergency.
- e. **VEX IQ Engineering Notebook (5 Pack).** Have students record their progress designing, building, repairing, programming, and testing 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. Paper Engineering Notebooks can be scanned at the end of the season to convert them into Digital Engineering Notebooks.
- 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 several VEX IQ robotics kits. How should we use them?

Each school that receives a **New Team Award** should receive one VEX IQ robot set consisting of:

- a. **Super Kit** (14"x22"x8" box with robot set and bin with tray for organizing parts). This kit often goes on backorder. This kit might be delivered at Basic Coach Training for teams that start late.
- b. **Foundation Add-On Kit** (14"x22"x8" box with more extra parts and second bin with tray for organizing parts).
- c. **Competition Add-On Kit** (small box with extra parts).
- d. Extra **Robot Battery** (small box might be shipped in a box with the **Competition Add-On Kit**).

Schools that receive **Additional-Team Awards** should also receive an additional **Super Kit** and **Competition Add-On Kit**.

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

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 after use. Dead robot batteries can ruin your day. NIMH batteries need to be recharged every 4-6 months when they are not in use, so **recharge batteries before summer vacation**. Leaving a robot battery in your robot or in the charger when the charger is not plugged in can kill your robot battery.

Next, the team can build and drive the **Hero Bot** for the current season. **Fling** is the Hero Bot for the 2021-22 VEX IQ Challenge Game, **PITCHING IN**. If Build Instructions for the Hero Bot are not available, you can use the Printed **Clawbot IQ** build instructions that are included in the **VEX IQ Super Kit User Guide**. This initial robot could be used to play the teamwork challenge game at your first league Qualifying Session. Electronic copies of the Build Instructions (PDF) for Hero Bots and other robots as well as animated build instructions for **Clawbot IQ** are 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 major Game Manual update is scheduled for the end of August. 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 several other boxes. How should we use them?

Each school that receives a **New Team Award** should also receive these VEX IQ Challenge competition supplies:

- a. **VEX IQ Challenge Full Field Perimeter & Tiles** (ships in three large, heavy boxes). 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 **PITCHING IN** 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.

17. How do I access the programming software?

I recommend that teams use **VEXcode IQ Blocks** to program your robot. VEXcode's Block-based interface is the perfect platform for those new to coding. Students use a simple drag and drop interface to create functioning projects. Each block's purpose can easily be identified using the visual cues like its shape, color, and label. Students who have used any other Block-based robot programming software can easily switch to **VEXcode**. **VEXcode** is available for download at: <https://www.vexrobotics.com/vexcode>.

For students new to programming, I recommend starting with **VEXcode VR Blocks**: <https://www.vexrobotics.com/vexcode-vr>. This 100% online, browser-based platform allows students to experience all features of the VEXcode platform with a virtualized robot. No physical robot is needed! Students can learn how to program a robot at home or at school on computers or on tablets. Students can complete activities on different virtual Playgrounds, each of which is specifically designed to highlight key Computer Science skills and concepts. The full **VEX Computer Science Level 1 – Blocks Course** takes about 18 hours to complete. It is available at: <https://education.vex.com/stemlabs/cs>.

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 (when available):

- 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 will also be 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 warranted parts. There is no cost to schools 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 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, and each additional team costs \$100 each year. **New Team Awards** and **Additional Team Awards** include team registration the first year only. Each team also needs to pay for league or tournament event registration each year. League registration is \$155 per team. Each additional team should start with its own VEX IQ Super Kit (\$330) and VEX IQ Competition Add-on Kit (\$100). One Foundation Add-on Kit and one field and 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. All VEX parts ship from Texas.

- a. [iDESIGN Solutions](#) – Supports our leagues. Offers best support for school and district orders. All orders ship from VEX Robotics. Shipping is free for orders of \$100 or more. Higher shipping charges for orders less than \$100. For personal assistance, contact Steven Gutterman (steven@idesignsol.com).
- b. [Robot Mesh](#) – All orders ship from VEX Robotics. Shipping is free for orders of \$100 or more.
- c. [VEX Robotics](#) – The manufacturer in Greenville (near Dallas), Texas. Sometimes ships one day earlier. Most up-to-date product availability status.

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:

- If your school received a **Nelson Team Grant** in a previous year, your school may be eligible for one or two **Additional Team Awards** each year. See the **Nelson Team Grants** website: <http://larobotics.org/NelsonTeamGrants.html>.
- [DonorsChoose](#). Teachers should include “STEM” in the project title, because technology companies have occasionally funded all STEM projects in California.
- [HEXBUG](#)
- [EdCo](#)
- [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 attend league sessions, they usually have spare brains, batteries, and motors available 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 **New-Team Awards** or **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 \$155) each year. These schools should plan to spend \$155 the first year for event registration and \$480 each subsequent year for team registration (\$150), event registration (\$155), field and game element kit (\$120), and for additional robot parts (\$55) for the first sponsored team.

Schools that received **Two-Team Awards** or **Additional Team Awards** are also required to register additional VEX IQ Challenge teams (\$100 registration fees per team paid by grant the first year) and to register those teams for and to attend an official event (league fees \$155) each year. These schools should plan to spend \$155 the first year for event registrations and \$310 each subsequent year for team registrations (\$100), event registrations (\$155), and additional robot parts (\$55) for each additional sponsored team.

30. What should coaches of VEX IQ teams do at the start of each season?

- Check to see if your school is eligible for a **Nelson Team Grant**:
<http://larobotics.org/NelsonTeamGrants.html>
- Review NTG **Frequently Asked Questions**:
http://larobotics.org/resources/NTG_FAQ.pdf
- Review REC Foundation **Team Guide**:
<https://www.roboticseducation.org/documents/2020/07/recf-team-guide.pdf/>
- Renew team registrations in RobotEvents.com
- Pay team registration fees (\$150 for the first team, \$100 for each additional team)*
- Order Game Kit with free shipping from iDESIGN Solutions (\$120+tax)*:
<https://www.idesignsol.com/VIQC-2021-Pitching-In-2022-Full-Field-and-Game-Element-Kit-228-7053>.
- Students review the current VEX IQ Challenge **Game Video**:
https://www.youtube.com/watch?v=je_LJcpxtik
- Students review the current VEX IQ Challenge **Game Description**:
<https://online.flippingbook.com/view/333680774/>
- Students read current VEX IQ Challenge **Game Manual** and develop game strategies:
<https://content.vexrobotics.com/docs/21-22/pitching-in/GameManual-2.0.pdf> (8/31/21)
- Students can learn introductory coding with a virtual robot playing the current game using **VEXcode IQ** and compete in **VIQC Virtual Skills**:
<https://www.vexrobotics.com/get-started/vex-vr-skills>
- Advanced students can learn more about coding with a virtual robot using **VEXcode VR**:
<https://www.vexrobotics.com/support/get-started/vexcode-vr>

- Register your teams for a league in September.
 - a. For info on available leagues, see <http://larobotics.org/NTGLEagues.html>.
 - b. Sign up for leagues at <https://www.robotevents.com/>. Select **VEX IQ Challenge**. Type “LAUSD” into the **Event Name** field to see the available leagues.
 - c. Select **Pay Later** as the **Payment Method** at **Checkout**.
- Attend **Coach Training** and/or **League Coach Orientation** workshops in September (to be announced).
 - a. For info on workshops, see <http://larobotics.org/NTGLEagues.html>
 - b. Sign up for workshops at <https://www.robotevents.com/>. Select **Workshops & Camps**. Type “LAUSD” into the **Event Name** field to see the available workshops.
- Students build the Hero Bot as a starting robot for the current game. <https://www.vexrobotics.com/iq/downloads/build-instructions>
- Complete required forms discussed in a Q&A above
- Bring event registration check payable to the league host in the amount of \$155/team to the first league session.

* Paid by Nelson Team Grants the first year

31. How can I get an invoice for a team registration or event registration?

To access an invoice on RobotEvents.com, any Team Contact can

- Login to <https://www.robotevents.com/>
- Click on **My Account** (top of screen)
- Click on **My Orders** (left side)
- Click on **View** (right side) for the Order for which you want an Invoice
- Click on **Invoice** (top right)
- Print or save the Invoice PDF.

32. 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 10 AM and 9 PM at 310-529-4637.

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