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LAUSD VEX IQ Regional Grant Proposal

Tier 2 Region

Project Summary

The primary goal of this project is to establish four additional VEX IQ Challenge Leagues in Los Angeles Unified School District (LAUSD) in 2019 and 2020, with each new league consisting of a league host (high school or middle school) and twelve participating elementary and middle schools with two teams each. Two new leagues will be established in Elementary Networks within LAUSD Local District Northeast (LD NE), and the other two new leagues will be established in Networks within Local District Central and Local District South. Two leagues will start in 2019, and two leagues will start in 2020.

The secondary purpose of this project is to fill the extra capacity of the nine established leagues by adding 40 new participating teams from 20 nearby schools. We plan to add 10 new schools in 2019 and 10 in 2020.

Background Information

LAUSD is the second largest school district in the United States. 4.8 million people live within the 710 square miles of LAUSD. LAUSD has 602K students in grades K-12 attending 1,322 schools and centers. LAUSD has 132K students in Grades 4-6, 86K students in grades 7-8, and 166K students in grades 9-12. LAUSD had 449 Elementary Schools, 79 Middle Schools, 94 Senior High Schools, 51 Magnet Schools, 24 Multi-level Schools, and 216 Independent Charter Schools. Of the 449 Elementary Schools, 380 are Title I Eligible. Of the 79 Middle Schools, 73 are Title I Eligible. 69% of LAUSD students come from families with incomes below the poverty level. LAUSD has 158K students who are learning to speak English and 7K students in foster care.

LAUSD is divided into six Local Districts (LDs). Each LD is led by a LD Superintendent. Each LD also has an Administrator of Instruction and one or two STEAM Coordinators. The six LDs are LD Central, LD East, LD Northeast (LD NE), LD Northwest (LD NW), LD South, and LD West. Each LD is divided into 6-8 Networks with 10-24 schools each. Each Network is led by a Director.

LeRoy Nelson, Treasurer of Los Angeles Robotics (LARobotics), will be the Program Manager and primary funder for this project. His contact information is at the top of this proposal.

In 2010, LeRoy incorporated LARobotics as a California nonprofit public benefit corporation while he was the Operational Partner for Los Angeles Region *FIRST* LEGO League. LARobotics has supported all youth robotics programs in the Greater Los Angeles area to varying degrees, but LARobotics currently focuses primarily on the *FIRST* Robotics Competition (through the Southern California Regional Robotics Forum division) and on the VEX IQ Challenge (through the Nelson Team Grants division).

In 2014-2017, LeRoy was a Regional Support Manager for the Robotics Education & Competition Foundation (REC Foundation). He administered all REC Foundation Team Grants in California. In 2015-17, he developed a new system to administer all REC Foundation Team Grants in the United States. In 2015-2017, he used the compensation that he received from the REC Foundation to offer Nelson Team Grants (modeled after REC Foundation Team Grants) to low income schools in the Los Angeles area (primarily LAUSD). He organized VEX IQ Leagues for grant teams to provide students with an optimal learning experience. He provided training for coaches and for league volunteers. He attended and supported all league sessions.

In 2017, LeRoy and his wife, Anita Nelson MD, began offering Nelson Team Grants through LARobotics. In 2018, Nelson Team Grants became a division of LARobotics. In addition to the robotics equipment typically provided by REC Foundation Team Grants, Nelson Team Grants expanded to include a full Field, Game Kit, and Team Registration for each new participating school and four full Fields and Game Kits for each new league host in 2017 and 2018. LeRoy received the VEX IQ Volunteer of the Year Award at the 2018 VEX IQ World Championship for his work supporting VEX IQ Challenge leagues and teams through Nelson Team Grants.

History of leagues and teams supported by Nelson Team Grants, and goals for 2019 and 2020:

| | New | New | New | New Teams by LAUSD Local District | | | | | |
|----------------|--------------------|----------------|--------------|--|-------------|-----------|-----------|--------------|-------------|
| Year | New Leagues | Schools | Teams | Central | East | NE | NW | South | West |
| 2015 | 1 | 18 | 19 | | | | 19 | | |
| 2016 | 1 | 16 | 16 | 1 | | | 14 | 1 | |
| 2017 | 3 | 68 | 68 | 2 | 32 | 2 | 23 | 5 | 1 |
| 2018 | 6 | 132 | 132 | 26 | 34 | 1 | 1 | 18 | 52 |
| Total | 11* | 234 | 235 | 29 | 66 | 3 | 57 | 24 | 53 |
| Leagues | 9* | | | 2 | 2 | 0 | 2 | 1 | 2 |
| 2019 | 2 | 34 | 68 | 32 | | 24 | | 4 | 8 |
| 2020 | 2 | 34 | 68 | 8 | | 24 | | 24 | 12 |

* Four small leagues in LD East and LD NW in 2017 merged into two large leagues in 2018.

Purpose and Description

The primary purpose of this project is to establish four additional VEX IQ Challenge Robotics Leagues in LAUSD in 2019 and 2020, with each league consisting of a league host (high school or middle school) and twelve participating elementary and middle schools with two teams each. In 2019, we plan to start new leagues in LD Central and LD NE. In 2020, we plan to start new leagues in LD NE and LD South. At the conclusion of this project, each of the six LAUSD Local Districts will have at least two VEX IQ Challenge Leagues and at least 48 schools participating in VEX IQ Challenge.

The secondary purpose of this project is to fill the extra capacity of established leagues that have strong league hosts and large facilities by adding 40 new teams from 20 nearby schools:

| LD | League Host | Schools | Teams | 2019 | 2020 |
|---------|---|-----------|-----------|-----------|-----------|
| Central | Barack Obama Global Preparation Academy | 8 | 16 | 8 | 8 |
| South | Samuel Gompers Middle School | 2 | 4 | 4 | 0 |
| West | Augustus Hawkins High School | 10 | 20 | 8 | 12 |
| | Totals | 20 | 40 | 20 | 20 |

We plan to add 10 new schools in 2019 and 10 new schools in 2020. The two league hosts that are adding more than 12 teams will each be provided with two extra full fields. We plan to expand the LD South league in 2019 and the LD West league in 2020.

This project will be a partnership between LARobotics, REC Foundation, VEX Robotics, iDESIGN Solutions, and selected LAUSD Networks within LD Central, LD NE, and LD South.

So far, one league host and ten Elementary Schools in the Chavez/Panorama/San Fernando/Sylmar/Sun Valley Elementary Network (Elementary Network) in LD NE have committed to participate in the VEX IQ Challenge program in 2019. Twelve Elementary Schools in this Elementary Network and four Middle Schools that feed the league host high school have not yet committed to participate in the program. By May 2019, we plan to recruit two additional schools to join the league, which will bring this league to 12 schools and 24 teams.

Project Timeline:

| Task Description | Completion Date |
|--|-----------------|
| Recruit 2 additional participating schools for first LD NE League | May 2019 |
| Recruit league host and 12 participating schools for LD Central League | May 2019 |
| Team Registrations and Coach Training | August 2019 |
| League Orientations and Registrations | September 2019 |
| Four monthly League Sessions | January 2020 |
| Recruit league host and 12 participating schools for second LD NE League | May 2020 |
| Recruit league host and 12 participating schools for LD South League | May 2020 |
| Team Registrations and Coach Training | August 2020 |
| League Orientations and Registrations | September 2020 |
| Four monthly League Sessions | January 2021 |

So far, this project is directly supported by:

- LeRoy Nelson, Treasurer of LARobotics and Co-Sponsor of Nelson Team Grants
- Stephen Holle, Professional Development Coordinator, Center for Teaching and Learning, Michael D. Eisner College of Education, California State University Northridge
- Veronica Arreguin, Administrator of Instruction, LD NE, LAUSD
- John Rome, Director, Elementary Network, LD NE, LAUSD
- Michelle Barker, Director, San Fernando Secondary Network, LD NE, LAUSD
- Flora Mendoza-Werner, Principal, San Fernando Senior High School (LD NE League Host)
- Heinrich Sartin, STEAM Coordinator, LD NE, LAUSD
- Tim Ahn, STEAM Coordinator, LD Central, LAUSD
- Principals of the ten committed Elementary Network Schools within LD NE:
 - Coughlin
 - Dyer
 - Haddon
 - Harding
 - Morningside
 - O'Melveny
 - Osceola
 - San Fernando
 - Telfair
 - Vista Del Valle

Additional LD, Network, and School administrators will be added by May each year as additional league hosts are recruited. Two potential 2019 league hosts have been identified in LD Central, but administrator commitments have not been confirmed.

This project is indirectly supported by:

- Tarek Shraibati, Director of Regional Operations, REC Foundation and Director, LARobotics
- Steven Gutterman, Territory Representative, Educational Accounts, iDESIGN Solutions
- Claudio Di Nota, Senior Vice President & Chief Operating Officer, iDESIGN Solutions

On behalf of LARobotics, LeRoy Nelson works with Local District Superintendents, Administrators of Instruction, and STEAM Coordinators, and/or with Network Directors, and with school Principals to recruit league hosts and participating schools for each new league. The Principal of each participating school submits a [Nelson Team Grant Application](#), which summarizes what the grant provides, what the school agrees to provide, the team grant process, league logistics, and contact information for LeRoy, the Coach and the Principal. 137 schools submitted Nelson Team Grant applications in 2018. The application form will be revised and expanded for 2019.

LeRoy provides Basic Training and League Orientations for new coaches, and he provides training and support for Event Partners and key volunteers at league host schools. LeRoy attends and provides support for all sessions of new leagues and at least one session of each continuing league.

Scope of project

This project will include four new league hosts (high schools or middle schools), 48 elementary or middle schools participating in new leagues, and 20 additional elementary or middle schools participating in established leagues. Middle schools that serve as league hosts could also be league participants.

We plan to start two teams at each participating school by coordinating with the REC Foundation through this VEX Regional Grant and/or through REC Foundation Team Grants. Nelson Team Grants will supplement the robotics equipment provided by the REC Foundation to provide each of the 68 participating schools with:

| # | Item | Total | LARobotics | REC Foundation |
|---|--|----------------|----------------|----------------|
| 2 | VEX IQ Challenge Team Registrations | \$250 | \$250 | |
| 2 | VEX IQ Super Kits | \$660 | \$330 | \$330 |
| 2 | VEX IQ Competition Add-on Kits | \$200 | \$100 | \$100 |
| 1 | VEX IQ Foundation Add-on Kit | \$80 | \$80 | |
| 1 | Extra VEX IQ Robot Battery | \$20 | \$20 | |
| 1 | VEX IQ Challenge Full Field Perimeter & Tiles | \$200 | \$200 | |
| 1 | VEX IQ Challenge Full Field & Game Elements Kit | \$100 | \$100 | |
| | VEX IQ Challenge Participating School Total | \$1,510 | \$1,070 | \$440 |

LARobotics wants each league host to have a strong robotics program, so it plans to support starting a robust VRC program at each league host middle school or high school. LARobotics plans to supplement the robotics equipment provided by the REC Foundation to provide each of the four league hosts with:

| # | Item | Total | LARobotics | REC Foundation |
|---|--|----------------|----------------|----------------|
| 4 | VEX IQ Challenge Full Field Perimeter & Tiles | \$800 | \$400 | \$400 |
| 4 | VEX IQ Challenge Full Field & Game Elements Kit | \$400 | \$200 | \$200 |
| | VEX IQ Challenge New League Host Subtotal | \$1,200 | \$600 | \$600 |
| 2 | VRC Team Registrations | \$250 | \$250 | |
| 1 | V5 Competition Super Kit | \$1,500 | \$1,500 | |
| 1 | V5 Competition Starter Kit | \$900 | | \$900 |
| 1 | VEX Robotics Voucher | \$200 | | \$200 |
| 1 | Extra V5 Robot Battery | \$50 | \$50 | |
| 1 | VRC Full Field Perimeter, Tiles, & Rubber Feet | \$1,040 | \$1,040 | |
| 1 | VRC Full Field & Game Elements Kit | \$500 | \$500 | |
| 1 | VRC VEXNet Competition Switch | \$20 | \$20 | |
| | VRC Teams for League Host Subtotal | \$4,460 | \$3,360 | \$1,100 |
| | League Host Total | \$5,660 | \$3,960 | \$1,700 |

Two additional fields will be provided for each of the existing leagues that will expand by more than 12 teams:

| # | Item | Total | LARobotics | REC Foundation |
|---|---|--------------|--------------|----------------|
| 2 | VEX IQ Challenge Full Field Perimeter & Tiles | \$400 | \$400 | |
| 2 | VEX IQ Challenge Full Field & Game Elements Kit | \$200 | \$200 | |
| | VEX IQ Challenge League Expansion Subtotal | \$600 | \$600 | |

Annual Budget for 2019 and 2020:

| # | Item | Total | LARobotics | REC Foundation |
|----|---|------------------|-----------------|-----------------|
| 24 | VEX IQ Challenge Schools in New Leagues | \$36,240 | \$25,680 | \$10,560 |
| 10 | VEX IQ Challenge Schools in Established Leagues | \$15,100 | \$10,700 | \$4,400 |
| 2 | VEX IQ Challenge New League Hosts | \$2,400 | \$1,200 | \$1,200 |
| 1 | VEX IQ Challenge Established League Expansion | \$600 | \$600 | |
| 2 | VRC Teams for New League Hosts | \$8,920 | \$6,720 | \$2,200 |
| | Annual Total | \$63,260 | \$44,900 | \$18,360 |
| | | | | |
| | Project Total (Two Years) | \$126,520 | \$89,800 | \$36,720 |

Scope Expansion Opportunities

The scarce resource that limits the scope of this project is the time required to provide adequate support to new and established leagues and participating schools. The Nelsons are willing to provide up to \$100,000 financial support each year if additional support resources can be developed or if sufficiently strong league hosts and participating schools can be recruited and trained by the end of August. The scope of this project could be doubled if financial resources replaced time as the main constraint.

Schools that apply for Nelson Team Grants as league hosts and/or as participating schools, but that are not included within the scope of this VEX Regional Grant, may apply for REC Foundation Team Grants instead. If adequate support resources are available, LARobotics may provide support for additional leagues and participating schools comparable to what it would provide to schools participating in this project.

Policy Issues

LARobotics is an independent charitable organization with a long history of supporting VEX IQ Challenge teams and leagues in LAUSD through Nelson Team Grants. LeRoy Nelson will be managing the project on behalf of LARobotics and will be providing most of the funding for this project. We propose to continue to supply matching equipment to schools through our partner, iDESIGN Solutions, which generously supports LARobotics by exclusively stocking inventory for LARobotics in its warehouse, by providing free shipping directly to schools, and by providing technical support superior to that provided by VEX Robotics, frequently including in-person support at league events. iDESIGN Solutions also added unique product bundles and a special method of placing batch orders to its website exclusively for LARobotics and Nelson Team Grants. In August 2018, LARobotics had inventory available to start 130 new teams while VEX IQ Super Kits were Out of Stock at VEX Robotics.

LARobotics placed orders for 36 VEX IQ Super Kits (3 Classroom Bundles) in December 2018 and January 2019 to support our plan to begin providing Basic Training for new coaches in March 2019. We plan to allow coaches from each new participating school to retain the Super Kit at the end of Basic Training. Although delivery was promised in 8 weeks, it has been 15 weeks since the first order was placed, and there has been no update from VEX Robotics other than changing the expected delivery date for new orders from 8 weeks to June 1.

LeRoy Nelson is willing and able to provide Basic Training and League Orientations for all new LAUSD coaches. We would prefer to use the training resources of the REC Foundation to offer Advanced Training to the roughly 400 coaches who participated in LAUSD VEX IQ Leagues in 2018. We recommend RobotMesh Studio Blockly for programming in LAUSD, because a large percentage of LAUSD coaches only have access to Chromebooks, and Blockly is used with Code.org in many elementary schools.

LARobotics needs to be able to pay the team registrations for participating teams without having access to their accounts on RobotEvents. LARobotics maintains a credit card on file with RobotEvents and authorizes payment of team registrations by email. We assume that this payment method will also work for teams participating in the VEX Regional Grant.

Documents supporting the sustainability of the robotics program

For additional information about Nelson Team Grants, including the schools and leagues supported each year, see <http://larobotics.org/NelsonTeamGrants.html>. The grant process for 2019 will be modified to coordinate with this VEX Regional Grant and with REC Foundation Team Grants. Separate applications will be provided for League Host Schools and for Participating Schools. These items on the Nelson Team Grants webpage are especially relevant:

- [Frequently Asked Questions](#) (PDF)
- The event schedule in the **2018-2019 VEX IQ Challenge: 9 Leagues** section
- The [Never Give Up](#) video provided by a team that received a **2015 Nelson Team Grant**

Financial Reports for LARobotics are available at: <http://larobotics.org/FinancialReports.html>.