



Citrus Circuits  
Fall Workshop Series

# VEX IQ and the STEM Pipeline

by Mike Corsetto

# Who Am I?

- Lead Technical Mentor of Team 1678
- Mechanical Engineer in Robotics
- Began building robots in 2001
  - Going into 18th year in robotics!
- Started mentoring 1678 in 2008



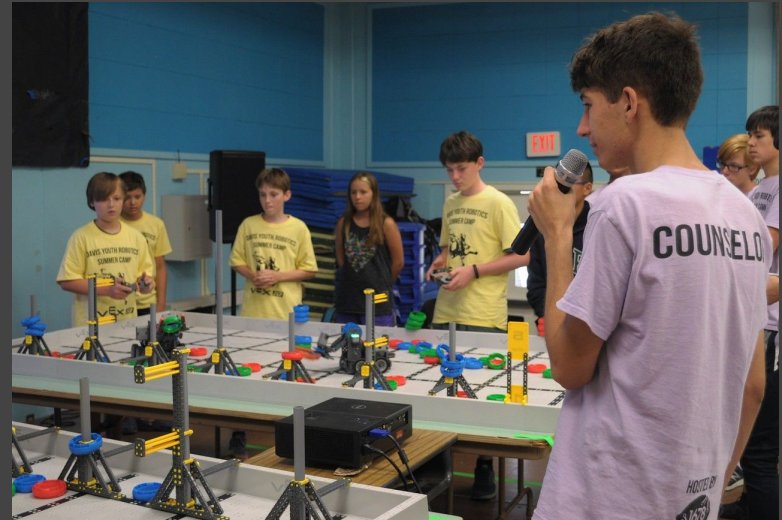
# Why Am I Here?

- I love the FIRST Robotics Competition
- I want all FIRST teams to be sustainable
- I believe we have found a recipe for success on 1678
- I believe every FRC team can follow this simple plan



# Contents

- Goal for the STEM Pipeline
- Strategy for meeting our Goal
- Our primary Tool: VEX IQ
- Methods for using our Tool and Strategy
- Case Study: 1678
- A few other notes and Q&A



# Goal

- “Ensure each FRC Team has a Consistent High school graduating class of Self-Motivate, Technically-Competent Students”
  - Consistent class size is important for stability
  - Self-motivated students take on leadership roles
  - Technically-competent students = inspired!!



# Starting Point

- What do FRC teams generally have?
  - Teachers/Mentors, Parents, Students, some meeting space, experience in robotics
  - Students are #1 resource!
- What do FRC teams generally **NOT** have?
  - Money, Time during Winter and Spring



# Strategy

- **Engage**
  - “Hook” K-8 kids early (important for minorities)
  - Develop further commitment with FRC students
- **Grow**
  - Both in breadth (students) and depth (skills)
- **Sustain**
  - Make approach feasible year after year
  - Distribute workload among many individuals



# Tool: VEX IQ

- Developed by VEX Robotics, Inc.
- Released around 2012
- Recommended “kit” includes 4 motors, many sensors, and a remote control!
- Buy the “Classroom Bundle” to get best price per kit
  - Comes with 12 kits, perfect for summer camps!





# Methods

- Summer Camps
- Fall VEX IQ League
- K-8 Classroom Programs



# Summer Camps

- 24, 4th - 8th grade students per week
- Runs from 9am-3pm, Monday - Friday
- Cost is \$250 per student, per week
- Requires 1 adult and 4 to 10 HS students
- Can host in a classroom or MPR at local school
- ~\$5000 investment into Vex IQ and equipment
- Capital costs can be offset with one week of camp
- Summer camp curriculum is free on [vexrobotics.com](http://vexrobotics.com)



# Fall VEX IQ League

- VEX IQ releases new game every April
- VEX IQ teams are 2-10 Students, 3-8th grade
- Ask parents to be team coaches and handle team \$\$\$
- Train and provides Student Mentors from FRC Team
- Host VEX IQ Tournaments in Oct-Dec
  - \$50 event registration fee = ~\$1200 per event
  - RECF will provide trophies for free



# K-8 Classrooms

- Get VEX IQ into every K-8 school
- Classes are accessible for minorities/underserved
- Run “Teacher Training Days”
- Integrate into Common Core STEM requirements
- Can run during class and/or after school





How do these methods  
fulfill our strategy?

# Engage

- K-8 Students
  - We NEED to catch them early
  - Vex IQ can start as early as 3rd grade in Leagues
  - Kits and controllers make it easy to learn
- FRC Students
  - You WANT to get your students more invested
  - Students as Camp Counselors/Student Mentors have on average more program “buy in”



# Grow

- K-8 Students
  - Students learn design, programming, communication and leadership skills before FRC
- FRC Students
  - Learn how to mentor/teach
  - Learn how to run events



# Sustain

- Financially Independent
  - Summer Camp and VEX IQ Events can profit
- “Snowball” effect
  - VEX IQ -> FRC -> Vex IQ
- Distributed Leadership
  - Lead Mentor isn't doing everything
  - Students contribute in meaningful ways







# Case Study: 1678

# History

- 2013 - 1 FLL Team
- 2014 - 8 FLL Teams
- 2015 - 23 FLL Teams, Scrimmage and Tournament
- 2016
  - 2 Weeks of VEX IQ Summer Camp
  - 24 VEX IQ Teams, 3 Tournaments
- 2017
  - 4 Weeks of VEX IQ Summer Camp
  - 26 VEX IQ Teams, 3 Tournaments
  - 2 Junior Highs, 2 Elementary Schools



# Results

- Students coming into FRC from VEX IQ/FLL
- FRC Students heavily engaged in community
  - Over 30 Student Mentors
  - Over 35 Camp Counselors
  - Over 120 VEX IQ Event Volunteers



# But... Why Not FLL?

- VEX IQ is more cost-effective
- VEX IQ has a better robotics platform
  - Controller/Game is significantly better
  - Instructions make it simple to jump in
- VEX IQ has built-in summer camps
- VEX IQ Events are easy to run
  - Coaches Feedback from 2015
- VEX IQ puts YOU first!



# How Do I Get Started?

- Contact Us!  
davisyouthrobotics@gmail.com
- Come to our next VEX IQ Events
  - Nov. 18th and Dec. 17th
- Host a VEX IQ Summer Camp
- Start one (or ten!) VEX IQ Teams





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Thank You!