VEX IQ
FOR TEACHERS AND PARENTS

2056 WAYS TO INSPIRE CONFERENCE

TODAY'S GOALS

- Learn about VEX IQ
- Apply VEX IQ knowledge to other robotics competitions (FIRST and VEX)
- Using VEX IQ to promote STEM (in classroom and at home)

WHY SHOULD I CARE TO UNDERSTAND ROBOTICS?

- Your child or student is probably involved in robotics
- You'll be less confused at competitions/meetings
- Robotics is a new form of live entertainment, like sports and concerts

WHO ARE WE?

- Neil Balaskandarajah
  - 1285 Tool Operator, 2016
  - 1285 Driver, present
- Max Guan
  - 1285/1241 Mentor, 2014-present
  - Founder of Max Robotics

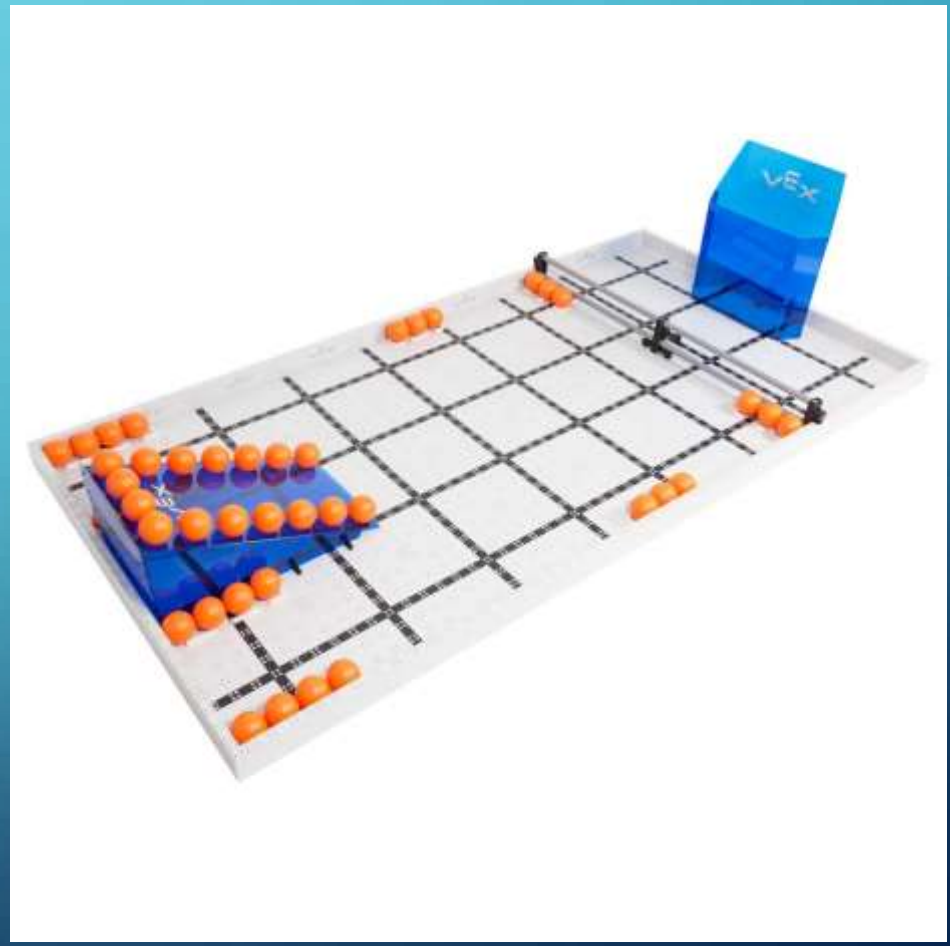
VEX IQ

Elementary School	Middle School	Secondary School	University
VEX IQ		VEX	VEX U
FLL JR	FLL	FRC	
	FTC		

- VEX IQ vs. FLL & FLL JR
  - VEX IQ has drivers that control the robot
  - Different programming and mechanical aspects
  - Different challenges and themes

HOW COMPETITIONS WORK

- New challenge every year
- Build season
- Competition season
- Off-season



HOW COMPETITIONS WORK

- Qualifications
- Playoffs / Eliminations

- Robot Skills Challenge
- Programming Skills Challenge

VEX IQ: SUBTEAMS

- Mechanical
  - Physical robot with both moving and stationary parts
- Programming
  - Using sensors and programming the controller + autonomous control
- Excellence
  - Team appearance, talking to judges, Engineering Notebook, STEM project

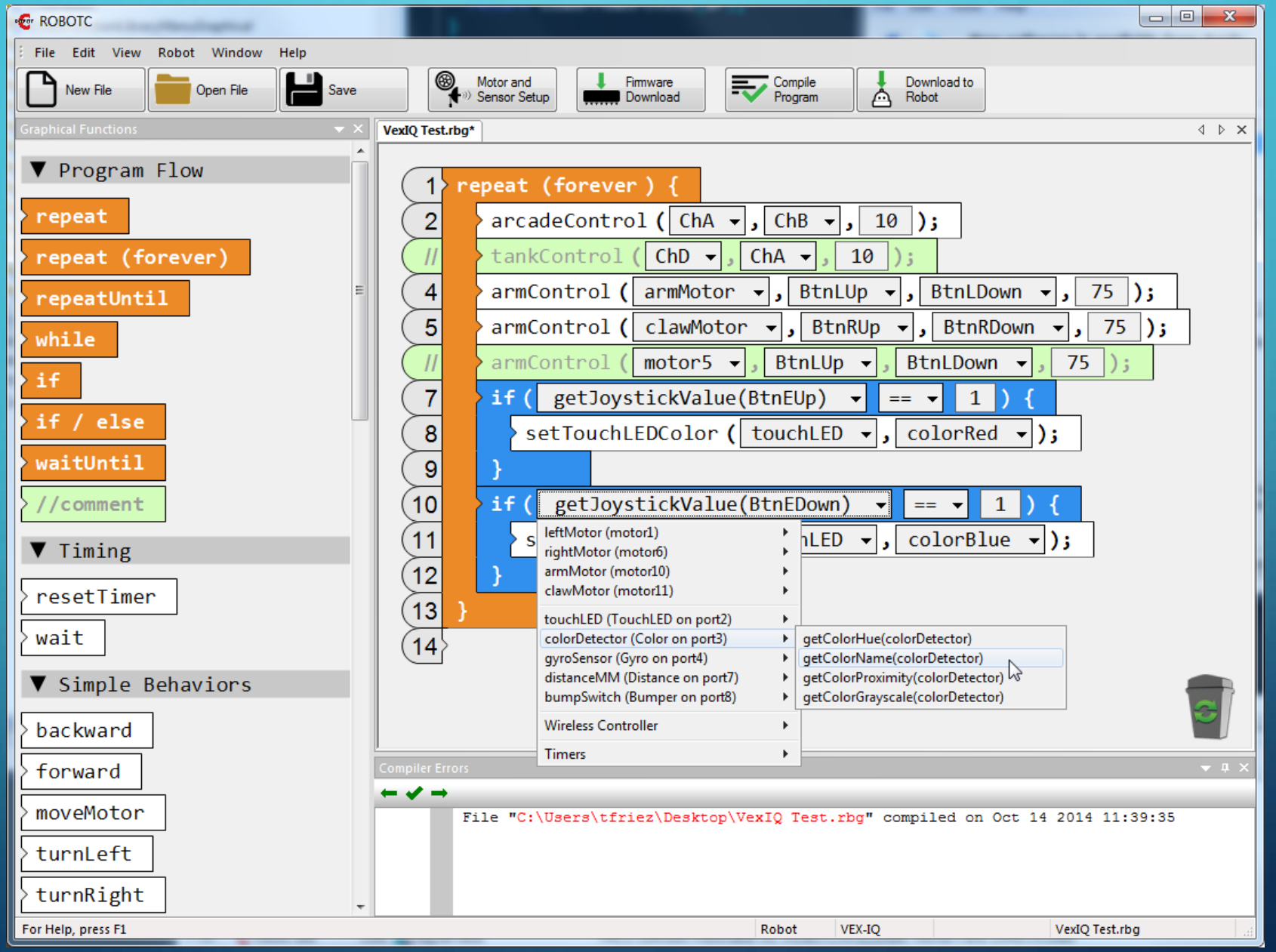
VEX IQ: MECHANICAL

- Similar to LEGO
- Parts available online:

http://www.vexrobotics.com/vexiq/products

VEX IQ: PROGRAMMING

- Uses RobotC
- Can choose to use the graphical version for younger students


ROBOTC
File Edit View Robot Window Help
New File
Open File
Save
Motor and Sensor Setup
Firmware Download
Compile Program
Download to Robot
Graphical Functions
Program Flow
repeat
repeat (forever)
repeatUntil
while
if
if / else
waitUntil
//comment
Timing
resetTimer
wait
Simple Behaviors
backward
forward
moveMotor
turnLeft
turnRight
VexIQ Test.rbg*
1 repeat (forever) {
2 arcadeControl (ChA , ChB , 10);
// tankControl (ChD , ChA , 10);
4 armControl (armMotor , BtnLUp , BtnLDown , 75);
5 armControl (clawMotor , BtnRUp , BtnRDown , 75);
// armControl (motor5 , BtnLUp , BtnLDown , 75);
7 if (getJoystickValue(BtnEUp) == 1) {
8 setTouchLEDColor (touchLED , colorRed);
9 }
10 if (getJoystickValue(BtnEDown) == 1) {
11 s
12 }
13 }
14
leftMotor (motor1)
rightMotor (motor6)
armMotor (motor10)
clawMotor (motor11)
touchLED (TouchLED on port2)
colorDetector (Color on port3)
gyroSensor (Gyro on port4)
distanceMM (Distance on port7)
bumpSwitch (Bumper on port8)
Wireless Controller
Timers
getColorHue(colorDetector)
getColorName(colorDetector)
getColorProximity(colorDetector)
getColorGrayscale(colorDetector)
nLED , colorBlue);
Compiler Errors
File "C:\Users\tfriez\Desktop\VexIQ Test.rbg" compiled on Oct 14 2014 11:39:35
For Help, press F1
Robot
VEX-IQ
VexIQ Test.rbg

VEX IQ: EXCELLENCE

- Excellence Award
- STEM Project
- Engineering Notebook

STARTING A TEAM

- Parents play a large role, they support the team

- Financial: Budget, fundraising, expenses
- Administration: Registration, team communication
- Mentorship: Advice and assistance on robot performance

STARTING A TEAM

- Recommended team size: 3-8 students
- Build season: 2-4 hours per week
- Competition season: 5-15 hours per week

STARTING A TEAM

- Parents and teachers from all backgrounds can contribute as mentors
- Areas of most involvement:
  - Design process
  - Strategy development
  - Programming advice

DESIGN PROCESS

- Define – What is your success criteria?
- Brainstorm – How many ways can you achieve your goal?
- Prototype – Build mock-ups of the ideas to test for feasibility
- Iterate – Continue changing the design to fit the goals
- Optimize – Tinker with the design until efficient

FOLLOWUP

- If you have any more questions, feel free to talk to us after the workshop!
- Contact info:
  - Facebook: 1241 Theory 6 Robotics, Max Robotics
  - www.theory6.ca
  - www.max-robotics.com
  - info@max-robotics.com