Intro to Robotics **6th Grade** **Activity Overview**	
UNITS	**LEARNING ACTIVITIES**

Unit 1 - Computing & the Physical World	1. **Discuss: How would you define a robot? What is a robot?**
	   a. Exercise #1: Discussion - General opening questions about robots
	2. **Build a basic robot (Teams of 2-3)**
	   a. Exercise #1: First LEGO Robot
	3. **Learn basics of the EV3 software**
	   a. Exercise #1: Connect programming blocks
	   b. Exercise #2: Find Your Program on the EV3 Brick
	4. **Learn how to program the robot to move**
	   a. Challenge #1: Create Directions for Your Robot
	   b. Challenge #2: Play with Numbers
	   c. Challenge #3: Math Solutions
	5. **Learn how to use the EV3 Brick Display, Lights and Sounds**
	   a. Exercise #1: Play with Sounds and Displays
	6. **Use the Port View on the EV3 brick to collect data from the ports on the EV3 brick**
	   a. Challenge #1: Get Accurate Measurements - 1
	   b. Challenge #2: Get Accurate Measurements - 2
	7. **Design robot's actions to solve challenges**
	   a. Challenge #1 : Go through a Maze!
	   b. Challenge #2 : Hit all spots!
	   c. Challenge #3 : Draw a shape or a letter
	   d. Challenge #4 : Design challenges for other teams!

Unit 2 - Creating a System that Interacts with the Physical World	1. **Learn different types of sensors and how they help the robot to sense its surroundings**
	   a. Exercise #1: The Port View and the EV3 Sensors
	2. **Flow blocks Part 1: Overview the "Flow" blocks and learn how to control the flow of a program by using the "Wait" block with the sensors**
	   a. Challenge #1: Wait Block with the Touch Sensor
	   b. Challenge #2: Wait Block with the Ultrasonic Sensor
	   c. Challenge #3: Wait Block with the Color Sensor
	3. **Flow blocks Part 2: Loop and Switch blocks**
	   a. Challenge #1: Repeating Your Code
	   b. Challenge #2: Loop Block with the Sensors
	   c. Challenge #3: Switch block with the Touch Sensor
	   d. Challenge #4: Switch block with the Ultrasonic Sensor
	   e. Challenge #5: Switch block with the Color Sensor
	4. **Intermediate Final Project Challenge** (Teams of 2-3)

	a. Sample Project #1: Relay Race b. Sample Project #2: Mini Golf 5. **Advanced Final Project Challenge** (Teams of 2-3) a. Design challenges for each other, exchange them and solve the challenge