Week	Lesson	Assignment	SD Technology Standards
1	Lesson 1: Intro to Robotics class • Discuss goals of class & definition of a robot • Define engineering, programming and system. • Define managing a project. • Discuss Grading rubrics, lab procedures and keeping an Engineering journal. • Review safety standards. • Build the Taskbot personal assistant robot. • Set up the NXT Programming software • Intro to NXT Hardware (controller, sensors, parts) • Download firmware & first program. • Setup NXT software	SPA Handout Video & handout Video & handout Handouts Handouts/quiz Video/handout Handout NXT Videos Video, handout, quiz Video, handout	CCP 3.1 CCP 3.1 CPP3.1 CPP1.3 CCP .3 CCP 3.3 CCP 3.3 CCP 3.2 CPP3.2 CCP 3.2
2,3,4, 5	Lesson 2: Running the robot • Discover the relationship between distance and wheel size. • Write a program to move forward	Worksheet Full speed ahead program	CCP 3.1 CCP 5.2

Week	Lesson	Assignments	SD Technology Standards
	• Investigate the relationship between robot geometry, motor degrees and robot turns.	Worksheet	CCP 3.1
	• Write a program to make the robot do left & right turns.	Right Face Program	CCP 5.2
	• Write a program to use the swing method and in-place method.	Right Face Program 1	CCP 5.2
	• Investigate the properties of a sound wave and properties the sound sensor can distinguish.	Worksheet	CCP3.2
	• Write a program using the Sound sensor	Clap on clap off program	CCP 5.2
	• Investigate the properties of line tracking behavior	Worksheet	CCP 3.1
	• Understand programming with switch blocks & loops	Worksheet	CCP 5.2
	• Write a program to use the line sensor to track a line	Follow the guidelines program	CCP 5.2
	• Use two different types of sensory stimuli	Obstacle Detection Activity	CCP 4.2
	• Explore the abilities of the Ultrasonic Sensor	Field of View investigation	CPP3.1
	• Write a program to respond to the touch sensor and the ultrasonic sensor	Obstacle detection program	CCP 5.2
	• Demonstrate the process of changing the gears.	Get in gear activity	CPP3.1
	• Demonstrate the relationship between gear ratio and robot speed	Gear & speed investigation	CPP3.1

Week	Lesson	Assignments	SD Technology Standards
6,7,8	Lesson 3: Intro to RobotC programming • Build new robot • Understand Robot 2.0 software • Describe the role of a programmer • Demonstrate knowledge of behaviors & pseudopodia • Identify whitespace, comments and reserved words • Understand ROBOTC syntax	Rem robot video Video Video + handout handout handouts video, handout	CCP 4.1 CCP 3.1 CCP4.2 CCP 5.1 CCP 5.1
9,10	Lesson 4: Movement • Understand the Labyrinth challenge • Describe moving forward • Define speed & direction • Describe motor power & turning • Explore PID • Define synchronized motors • Explore synchronized motors • Use NXT decoders • Program & run Labyrinth challenge	Video Video & handout Video & handout Engineering Lab Video & handout Video & handout Engineering lab Video & handouts Labyrinth Program	CPP5.1 CPP3.2 CPP3.2 CPP3.2 CPP3.2 CPP3.2 CPP2.2 CPP5.3

Week	Lesson	Assignment	SD Technology Standards
11,12	Lesson 5: Sensors • Understand the Obstacle Course programming challenge • Describe the while loop • Understand SPA capabilities • Describe Boolean logic • Demonstrate use of while loop/Boolean logic in a program • Demonstrate use of while loop/Boolean logic in a program • Demonstrate use of while loop/Boolean logic in a program • Describe ultrasonic sensors • Calculate thresholds & use random numbers • Demonstrate use of thresholds & random numbers • Write program for obstacle course	Video Video & handout Handout Cat Bot challenge Robo 500 challenge RoboMower Video Handout Tablebot challenge Obstacle program	CPP2.1 CPP2.1 CPP2.1 CPP3.3 CPP3.3 CPP3.3 CPP2.1 CPP2.1 CPP2.1 CPP3.3 CPP5.2
13,14	Lesson 6: Encoders, Light & Sound Sensors • Describe encoders • Use reserve words for encoders • Use Boolean operators in conditional statements • Demonstrate use of encoders • Understand line tracking • Accumulate totals • Understand switch case statement • Demonstrate line tracking	Video & handout Engineering Lab Video 1 &2 Encoder program Video Video Handout Robocci challenge	CCP 3.1 CCP 3.1 CCP 3.1 CPP5.1 CCP 5.3 CPP5.1 CCP 5.1 CCP 5.1 CPP3.1

Week	Lesson	Assignment	SD Technology Standards
	• Demonstrate use of sound sensor	Video & handout	CPP3.1
15,16, 17	Lesson 8: Using Variables and Functions		
	• Understand warehouse programming challenge	Video	CCP 5.1
	• Demonstrate automatic threshold	Videos	CCP 5.2
	• Use values & variables	Videos & handout	CCP 3.1
	• Use the debugger	Video & handout	CCP 5.3
	• Demonstrate text to display	Lab	CCP 5.3
	• Use line counting method	Video	CPP3.1
	• Write program using line counting	Tap program	CPP3.3
	• Describe variables & functions	Video & handout	CPP3.1
	• Describe functions reference	Handout	CPP3.1
	• Write a program using variables & functions	Functions Program	CPP3.3
	• Understand debugging	Video & handout	CPP3.1
	• Develop program	Warehouse program	CPP3.3
18	Finals Week	Final Program	CPP 5.3

Grading Scale: Brookings High School **Classroom %: In-class work 20%**

A+: 98-100 **B+: 91-89** **C+: 80-82** **D+:71-73** **Programs – 40%**

A: 95-97 **B: 86-88** **C: 77-79** **D: 68-70** **Tests – 40%**

A-: 92-94 **B-: 83-85** **C-: 74-76** **D-: 65-67**