

Curriculum

Scheduled Month of Implementation	First Year				
	#	Unit	Rank	No	Content
① [April]	1	Basic Operation	Apprentice	1	A Forward→Stop B Forward→Stop just before the wall (less than 3cm)
	2			2	A Forward→Reverse B Forward→Reverse①→Stop→Reverse②→Stop
	3			3	A Forward→90° Clockwise Spin→Forward→Stop B Forward→90° Clockwise Spin→Forward→90° Counter-Clockwise Spin→Forward→Stop
	4			4	A Right Curve Forward→Stop B Right Curve Forward→Stop 1 sec.→Reverse→Stop
② [May]	5			5	A While Moving Forward turn on LEDs every second Red1→Red2→Red3 →Stop(OFF) B Forward/Green ON→Reverse Red1, 2, 3 ON→Stop(OFF)
	6			6	A Forward→Right Curve→Stop (「つ」の文字) B Forward→175° Clockwise Spin→Forward→175° Counter-Clockwise Spin→Right Curve Forward→Stop (「ろ」の文字)
	7			7	A Left Curve Reverse B Left Curve Reverse→Right Curve Reverse→Stop (Inverse S-Curve)
	8			8	A Figure-8 B Reverse Figure-8
			Exam		
③ [June]	9	Operation Application	6th Grade	1	A Forward→60° Counter-Clockwise Spin→Forward→Stop (∠-shape) B Forward→60° Clockwise Spin→Forward→60° Clockwise Spin→Forward→Stop (△-shape)
	10			2	A Reverse→Left Curve Reverse→Reverse→Stop (Back-in Parking) B Reverse→Left Curve Reverse→Right Curve Reverse→Reverse→Stop (Parallel Parking)
	11			3	A Spin : 1st time/10:10 →2nd time/50:50 → 3rd time/100:100 →Stop B Spin : 1st time/10:10+Green→2nd time/50:50+all Red→Stop • LED OFF
	12			4	A Accelerate and stop just in front of a wall. 10:10 50:50 100:100→Stop (…wall) B Decelerate and stop just in front of a wall. 100:100 50:50 10:10→Stop (…wall)
④ [July]	13			5	A Reverseクランク B Reverse question mark (make a ? in reverse, turn on all red LEDs at the end)
	14			6	A Narrow S-curve→Clockwise Spin→Forward→Stop B Wide S-curve→Stop
	15			7	A Irregular Spin (ℓ-shape) B Irregular Spin • Reverse (ℓ-shape)
	16			8	A Forward→Pause→Right Curve→Forward (T-intersection) B Forward→Pause→Left Curve→Forward→180° Spin→Forward (T-intersection→Reverse direction correction)
⑤ [Aug.]	17			9	A Obstacle Clear① B Obstacle Clear②
	18			10	A Obstacle Clear③ B Obstacle Clear④
	19			11	A Obstacle Clear⑤ B Obstacle Clear⑥
	20			12	A Obstacle Clear⑦ B Obstacle Clear⑧
			Exam		
⑥ [Sept.]	21	"while" Basic	5th Grade	1	A Loop«Forward+Reverse» B Loop«Forward+180° spin» (Go, then spin 180° then come back)
	22			2	A Loop«Clockwise Spin→Counter-Clockwise Spin (Reverse) » B Loop«S-curve+Reverse S-curve (Reverse) »
	23			3	A Loop«Forward→90° Spin» (□-shape) B Loop«Forward→60° Spin» (△-shape)
	24			4	A Loop«Figure-8» B Loop«Figure-8+Circle (OOO-pattern) »
			Exam		
⑦ [Oct.]	25	"for" Basic	4th Grade	1	A «Forward+Reverse»x3→Stop B «Forward+180° spin»x3→Stop
	26			2	A «Forward+Reverse»x2→90° Clockwise Spin→Forward→Stop B «S-curve Forward+S-curve Reverse»x2→Stop
	27			3	A «Forward+Stop»x2→«Reverse+Stop»x2→Stop B «Forward+Reverse»x2→«90° Clockwise Spin+90° Counter-Clockwise Spin»→Stop
	28			4	A «Forward→60° Spin»x3→Stop (△-shape) B «Forward→90° Spin»x4→Stop (□-shape)
			Exam		
⑧ [Nov.]	29	"if" Basic	3rd Grade	1	A While moving Forward, stop with left touch sensor. B While moving in Reverse, stop with left touch sensor.
	30			2	A While moving in a right circle, stop with the right touch sensor. B While moving in a left circle, stop with the left touch sensor.
	31			3	A While moving Forward, accelerate 3 secs with the center touch sensor. B Move forward 3 secs on center touch sensor, else stop.
	32			4	A On right touch sensor, Reverse→90° Counter-Clockwise Spin, else move forward (Direction change by touch①) B On left touch sensor, Reverse→90° Clockwise Spin, else move forward. (Direction change by touch②)
⑨ [Dec.]	33			5	A Stop upon discovering a black line, else move forward. B While moving forward, turn on all LEDs for 1 sec upon discovering a black line.
	34			6	A While moving forward, accelerate for 3 secs upon discovering a black line. B While moving forward, decelerate for 3 secs upon discovering a black line.
	35			7	A While moving forward, reverse and change directions upon discovering a black line. B Loop«Left Curve Forward, discover Black Line→Reverse a bit» (Follow a Black Line)
	36			8	A Escape from a maze (Find a line→Reverse→90° Clockwise Spin repeating until escaped./Right Angle Spiral) B Move without falling from the desk.
⑩ [Jan.]	37			9	A Stop upon discovering an infrared ball, else move forward. B While not moving, turn on all Red LEDs upon discovering an infrared ball.
	38			10	A Accelerate upon discovering an infrared ball, else move forward. B Reverse upon discovering an infrared ball, else move forward.
	39			11	A Move forward upon discovering an infrared ball, else spin clockwise. (Follow an Infrared Ball) B Reverse upon discovering an infrared Ball, else spin counter-clockwise. (Move away from an Infrared Ball)
	40			12	A Upon discovering an infrared ball, move forward and stop just in front of it, else spin clockwise. B Upon discovering an infrared ball, move forward and turn on Red1, else spin counter-clockwise.
			Exam		
⑪ [Feb.]	41	break	2nd Grade	1	A Stop on Left Touch sensor, else move forward. B Move forward on Right Touch sensor, else stop.
	42			2	A While moving forward, accelerate on the first left touch sensor, and stop the 2nd time. B While moving forward, decelerate on the first right touch sensor, accelerate on the 2nd and stop on the 3rd.
	43			3	A Loop«Forward+180° spin»x3→Stop (180° spin, go and come back) B Upon discovering a black line for the third time, stop, else move forward.
	44			4	A Upon discovering infrared light 3 times, stop, else move forward. B While moving forward, change to reverse on odd left touches and then return to forward again on even left touches.
			Exam		
⑫ [Mar.]	45	"while" "for" Application	1st Grade	1	A Stop while left touch sensor is activated, else move forward. B Spin clockwise while right touch sensor is activated, else move forward.
	46			2	A While the left and right touch sensors are activated, reverse; if just the left touch is activated, move forward, else stop. B While moving forward, while the left and right touch sensors are activated, turn on Red1,2,3.
	47			3	A While sensing an Infrared Ball, turn on Red1 over a black line. B While sensing an Infrared Ball, stop on a black line.
	48			4	A While sensing a black line, turn on Red1 when discovering an infrared ball. B While not sensing a black line, turn on Red1,2,3 upon discovering an infrared ball.
			Exam		