

Programming Curriculum

Month / Year	1st year	2nd year	3rd year	4th year	5th year
	Targeted class: CLASS 1	Targeted class: CLASS 2	Targeted class: CLASS 3	Targeted class: CLASS 4	Targeted class: CLASS 5
April	What is programming?	Get away from the maze	Creating the robot	Recreation of the robot/ build up	Recreation of the robot/direction sensor
	•How to use software • Basic concept of programming	•Get away from the maze in the shortest time •Combination of basic movements	•Creating the robot •How to use tools	• recreation of the robot • upgrade the motor and the robot	•add on direction sensor •concept of direction sensor
May	Score a goal within the time allocated.	Run through the mountain road	How to use software / basic movements (basics)	While & for (advanced)	direction sensor
	•Score a goal in the given distance in the given time. •speed adjustment	•Run through a course with sharp curves •Combination of basic movements	•basics of programming / save / download •Move forward and backward, rotation	•repetitive specification of movements •apply infinite loop to use	•Creating program using direction sensor
June	Can you return to the original position?	Back the robot	Basic movements (advanced)	Waiting Time and Timer 01	Variable number 01
	•Move forward while drawing a circle and stop in the original position. •Basic Concept of the movement of circles	•While backing, try running the robot in crank •Combination of basic movements	•Basic movements (moving forward, backward and rotation), LED •Advanced movements (crank, S-shaped path)	•Distinguish between specifying the time for a certain performance and conducting multiple •Use of multiple sensors	•concept of variable numbers •Creating program using variables
July	Try Crank (Run the robot in very narrow section of road)	While blinking LED, move forward!	While & for (basics)	Waiting Time and Timer 02	Variable number 02
	•Run in a very narrow section of road •How to turn in a right angle	•While blinking LED, move forward! •Break up of the program	•repetitive specification of performance, infinite loop	certain performance and conducting multiple •Use of multiple sensors	•concept of variable numbers •Creating program using variables
August	Let's try moving the robot in an eight-shaped path	Practicing repeated travel!?	if • else/touch sensor (basics)	Waiting Time and Timer 03	Variable number 03
	•Move the robot in an eight-shaped path •Combination of right curve and left curve	•program using 'while' •The concept of infinite loop	•If a condition is met, do _____. If not, do _____. •touch sensor	certain performance and conducting multiple •Use of multiple sensors	•concept of variable numbers •Creating program using variables
September	Make a rotation	Infinite running in an eight-shaped path	if • else/infrared sensor (basics)	SubProgram	recreation of the robot/ add on infrared sensor
	• Move forward and then after a 360 degree rotation, the robot returns. •How to make a 180 degrees rotation / 360 degrees rotation	•program using 'while' •The concept of infinite loop	•If a condition is met, do _____. If not, do _____. •infrared sensor	•Layering multiple programs Use of multiple sensors	•add on single purple ball sensor •Creating soccer program
October	Move forward while dancing	Blink rapidly	● Soccer game!	● Hyper soccer game!	● Super soccer game!
	•Crank / rotation / curve •Combination of basic movements	•After goal, blink in a rapid speed. •The concept of infinite loop			
November	Can you back the robot into the garage?	Escape from 'infinite' !	if • else/line sensor (basics)	recreation of the robot/add on line sensor	Mission Complete Program 01
	• Back the robot into the garage • How to back the robot	•program using 'break' •The concept of 'break'	•If a condition is met, do _____. If not, do _____. • line sensor	•add on line sensor •trace lines smoothly	
December	•When moving forward, put the green LED. When stopping, put the red light. •When moving forward, put the green LED. When stopping, put the red light. •The purpose of using LED	Draw a quadrilateral!	if • else/touch sensor (advanced)	Double line sensor	Mission Complete Program 02
		•program using 'for' •The concept of 'for'	•advanced program using touch sensor •break & continue	•multiple use of line sensor	
January	Blink LED!	High level? Obstacle course!	if • else/infrared sensor (advanced)	recreation of the robot/add on ultrasonic wave sensor	Mission Complete Program 03
	•After goal, stop and blink LED. •Build out of multiple programs	•program using 'for' •Build a program to complete a mission with the minimum number of lines in code	•advanced program using infrared sensor •break & continue	•add on ultrasonic wave sensor •concept of ultrasonic wave sensor and apply it	
February	Accelerate rapidly!	Think about the movement if a condition is met ①	if • else/line sensor (advanced)	Ultrasonic wave sensor	Mission Complete Program 04
	•While accelerating, blink LED •Build up of multiple programs	•Program using 'if/else ' •line sensor	•advanced program using line sensor •break & continue	•Use ultrasonic wave sensor	
March	Run in zig zag!	Think about the movement if a condition is met ②	● Rescue game!	● Hyper rescue game!	● Super rescue game!
	•Run a course in zig zag •Combination of basic movements	•Program using 'if/else ' • Obstacle detection sensor			

Please note that the content and the order are subject to change.

The rescue game which is scheduled to be conducted in March may be changed to soccer game.