

JUNIOR ROBOTICS – STUDIO ONE

The lessons have been developed to engage and motivate elementary school students, piquing their interest in learning design, engineering, and coding using motorized models and simple programming. Each lesson provides an initial brief as a starting point.

The open-ended prompts allow for unlimited answers and enable students to express a wide range of creative solutions as they sketch, build, and test prototypes of the designs they create.

Date & Focus	Activity	Description
18 th Sep – Introduction/ Guided lesson	<i>Milo and his motion sensor -Pulley Mechanism</i>	Introduction to different elements of WeDo 2.0 – motor, motion sensor, tilt sensor and programming blocks. Learn how motion is transferred from the motor to the moving part of a robot by building a pulley mechanism and learn the working of motion sensors.
25 th Sep- Guided lesson	<i>Drop and Rescue - Gear Mechanism</i>	Build a helicopter that can be used in a weather-damaged area. Explore the gear mechanism.
2 nd Oct – Guided Lesson	<i>Race Car - Motion Sensor</i>	Create and program a race car to investigate what factors would make it go faster. Explore the working and programming of motion sensor
9 th Oct - Computational Thinking	<i>Measuring Device – Motion Sensor</i>	Learn more advanced programming by building a robot that moves dynamically upon sensing motion. Children will design a device that can measure the length of any object using the motion sensor
16 th Oct – Computational Thinking	<i>Sending Messages - Tilt Sensor</i>	Create a joystick to send messages in morse code. Explore the working of the tilt sensor. Build a robot and program it to sense a change in the angle of the robot.
23 rd Oct – Computational Thinking	<i>Flood gate - Tilt Sensor</i>	Build a floodgate that can control the level of water in a river. Learn more advanced programming by building a robot that is autonomous and upon reading different angles of tilt sensor, executes different commands

30 th Oct – Design Engineering & Computational Thinking	<i>Caterpillar</i>	Design, build and code a caterpillar that uses rack and pinion gear mechanism. Code the caterpillar to simulate the rectilinear locomotion of the caterpillars
6 th Nov – Design Engineering & Computational Thinking	<i>Sea Cleaner</i>	Design, build and code a LEGO prototype of a device that could help remove plastic from the seas and oceans. Explore how the change in position of a rubber band can change the direction of rotation.
13 th Nov – Design Engineering & Computational Thinking	<i>Firefly</i>	Design, build and code a firefly that socially interacts with others of its species Explore coding of tilt sensor by changing colors when firefly is tilted in different directions
20 th Nov – Design Engineering & Computational Thinking	<i>Predator and Prey</i>	Design, create and code a predator or prey in order to explore the relationship between them Explore different strategies animals use to catch their prey or to escape from their predators