



RoboLAB is a yearlong robotics program aimed at implementing technology enhanced learning in classrooms. It aims to promote robotics as a tool for application of concepts learnt by students in classroom using STEM (Science, technology, Engineering and Mathematics) integration by creating multiple intelligence based learning environment. RoboLAB provides an opportunity to rediscover and redesign learning by engaging students in an inquiry based approach to collaborate and be creative in solving open ended robotic challenges.

Curriculum Content for February

Grade 4:

Grade 5

Session Name	Activity Description	Science,Technology,Engineering & Mathematics Relevance	Key Words
Play with tricycle.	Construction of a remote controlled tricycle and observe the use of gears in ropeway and	Science - Identification of gears as simple machine.	Design motors build problem solving Simple machine Programming Algorithm Gears
How things move?	Construction of a remote controlled car and exploring the steering mechanism. and make it easier to	Science - Identification of pulley as a simple machine. Technology - Relating to real world examples through technology. Mathematics - Build new knowledge through problem solving.	
My robotic fan	Construction & programming a fan to rotate for a specified time.	Technology -Algorithm development, sequential programming.	
	car using two motors.	examples through technology.	
From here to there	Construction of a folding bridge.	Moderate, remote control	Control Motor
Challenge Day I	Students will apply their learning to design and construct a cart.	Science - Use of simple machines to construct a complex machine. Mathematics -Apply and adapt a variety of appropriate strategies to solve problems.	

The Core Competency Focus: Problem solving-creative-cooperative-project based learning-critical thinking

How Can You Help? Please could you make sure your children bring; robotics book, pen (black or blue) and pencil for all Robotics lessons and help your children to learn the meanings of the key words.

Homework: Students will carry out an independent research task to enable them to come up with a design solution.

Useful Website: Here is a useful website to help the student in robotics: www.thinklabs.in

Grade 6 :

Session Name	Activity Description	Science, Technology, Engineering & Mathematics Relevance	Key Words
How are cars steered?	Construction of an autonomous car and programming it to take turns to follow a specified path.	Technology -Algorithm development, Sequential programming. Mathematics -Develop and demonstrate spatial sense, Specify location and describe spatial relationships using programming.	Design Algorithm Programming Geometry Problem solving Touch sensor
Challenge Day 1	Construction of an autonomous car and programming it to trace a square.	Engineering - Exposure to Engineering Design Process. Mathematics -Develop and demonstrate spatial sense. Apply and adapt a variety of appropriate strategies to solve problems.	
Touch activated fan	Construction of an automatic fan and programming it to switch on when the touch sensor is pressed.	Science - Conservation of energy	

Grade 7

Session Name	Activity Description	Science, Technology, Engineering & Mathematics Relevance	Key Words
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Keeping our surroundings clean II	Construction of a remote controlled complex machine that helps in transporting garbage from one place to another	Technology- Understanding of the role of society in the development and use of technology. Science- Identifying simple machines present in a complex machine.	Design Build Simple machine Complex machine Problem solving Programming Algorithm Sensor Conductors Insulators Algebra Degree
Create your own music.	Program the i-Pitara brick to blow the buzzer, play various tunes. Using multiple THINK blocks together.	Technology- Algorithm development, sequential programming.	
Conductivity fan	Construction of a fan and programming it to rotate with different speeds depending on the conductivity of the material.	Science- Differentiation of conductors and insulators. Technology- Algorithm development, Use of conditional construct IF. Mathematics- Represent and analyze mathematical situations using algebraic symbols, Analyze change in various contexts.	
Turns.(90 degree,30 degree, 120 degree)	Construction of an autonomous car and programming it to take angular turns (90, 30and 120) using different methods.	Technology- Algorithm development, Sequential programming. Mathematics- Tracing angles.	
I respond to only sound.	Constructing an autonomous car and programming it to take left turn on the sound of a clap.	Science- Measurement of sound. Technology- Algorithm development, Use of IF Else decision construct. Mathematics- Represent and Analyze mathematical situations using algebraic symbols, Analyse change in various contexts. Understand measurable attributes of object.	

Grade 8

Session Name	Activity Description	Science, Technology, Engineering & Mathematics Relevance	Key Words
Making dangerous tasks easy	Construction of a remote controlled forklift.	Science- Identifying simple machines in a complex machine. Technology- Relating to real life technologies.	Design Build Problem solving

I respond to only sound.	Constructing an autonomous car and programming it to take left turn on the sound of a clap.	Science -Measurement of sound. Technology -Algorithm development, Use of IF Else decision construct. Mathematics - Represent and Analyze mathematical situations using algebraic symbols, Analyze change in various contexts (Algebra). Understand measurable attributes of object (Measurement).	Simple machine Complex machine Programming Algorithm Algebra Measurement Analog Sensor
Edge detector	Construction of an autonomous car that does not fall off the table.	Science - Reflection of light. Technology - Use of analog sensor (IR sensor). Mathematics - Represent and Analyse mathematical situations using algebraic symbols, Apply appropriate techniques to determine measurements, make reasonable estimates.	
Challenge Day I	Tracing a predefined path (triangle) Engineering- Exposure of Engineering design process.	Technology - Algorithm development, Reinforcement of sequential programming, understanding motor synchronisation. Mathematics - Develop and demonstrate spatial sense using programming. Make reasonable estimates.	

Kind regards

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Robotics Teacher