



Dear Parents and Guardians,

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.

Contact

Miss Manal Albetar manal@albasmaschool.ae

Curriculum Content for January:

Grade 4:

Session Name	Description	Science, Technology, Engineering And Mathematics Relevance	Key Words
Let's start building	Construction of ramps of varying height to explore relationship between the height of inclined plane and the distance travelled by the ball.	Science- Identification of inclined plane as simple machine. Mathematics- Understand measurable attributes of object and process of measurement, Apply appropriate techniques to determine measurements.	Simple machine Lever Design Build Problem solving Energy
Catapult challenge	Construction of a catapult and identify the effective position of fulcrum to increase the distance an object moves.	Science- Identification of lever as simple machine. Mathematics- Build new knowledge through problem solving.	
My first toy car	Construction of a car to observe how stored energy gets converted into movement energy.	Science- Conservation of energy.	

Grade 5:

Session Name	Description	Science, Technology, Engineering And Mathematics Relevance	Key Words
Let's start THINKing.	Introduction to THINK, Programming the i-Pitara brick to display message on LCD screen, play sounds. Use of forever block.	Science -Understanding science and technology. Technology -Algorithm development, Introduction to sequential programming.	Design Motors Build problem solving Simple machine Programming Buzzer Algorithm
Blinking lights Glowing lights	Programming the LED to glow for a specified time.	Technology -Algorithm development, sequential programming.	
Create your own music.	Program the i-Pitara brick to blow the buzzer, play various tunes. Using multiple	Technology - Algorithm development, sequential programming.	

Grade 6:

Session Name	Description	Science, Technology, Engineering And 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 (Geometry).	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 (Geometry). Apply and adapt a variety of appropriate strategies to solve problems (Problem solving).	

Touch activated fan	Construction of an automatic fan and programming it to switch on when the touch sensor is pressed.	Science- Conservation of energy	
----------------------------	--	---------------------------------	--

Grades 7 & 8:

Session Name	Description	Science, Technology, Engineering And Mathematics Relevance	Key Words
Turns. (90 degree, 30 degree, 120 degree)	Construction of an autonomous car and programming it to take angular turns (90, 30 and 120) using different methods.	Technology -Algorithm development, Sequential programming. Mathematics -Tracing angles (Geometry).	Design Build Problem solving Programming Algorithm
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 (Algebra).	Sensor Conductors Insulators Algebra Degree

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