Funda Fun Projects

Introduction

This is a program which is based on Science Engineering Maths and computation with a view to making the student learn and make out of the box. The emphasis will be on out of the box and doing. The program seeks to prove that given the exposure, children of your school can come out with amazing ideas and solutions. Through projects, ideas and concepts are shaped in Maths, Science Engineering Computation and Technology. Rather than dwell on what is learn the child is motivated through his innate curiosity in areas like Number Theory, Graph Theory, Spider Webs Genetics, Surface Chemistry, Automata and many more. The final session is one where all the STEM areas are combined to find a solution or idea for a problem observed and identified by the student group. We hope to not only promote a sense of wonder in science maths engineering and computation but also prepare for international level competitions where the child is exposed to even wider areas. We hope this will build the researchers and thinkers of tomorrow.

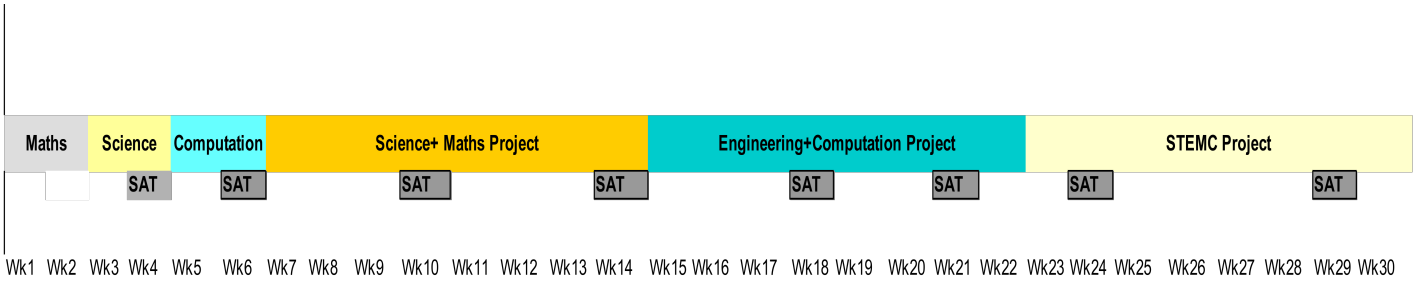
Program Structure

This program is structured around 30 weeks with 1 class per week for each batch and 1 Saturday session of 4 hours for each batch. The class size will be 20 and will work in 5 groups of 4 students each. During each week one batch will be class 6 & 7 and the other batch class 8 & 9

The program will start with 6 weeks of introductory activities which will be structured as 2 weeks of Maths, 2 weeks Science and 2 weeks Computation. The aim is to expose the students to our brand of Fun Fundas and enable them open up.

For the remaining period there would be three projects: one on Science and Maths, One on Engineering and Computation and finally one on STEM.

The structure is shown below



Program Details

The program outline and details are given below. Based on response and feedback these may be modified but the general spirit will remain the same

Introduction Course: 6 weeks

Srl No	Subject	Duration	Topics 6th 7th	Topics 8th 9th
1	Maths	2 weeks	Martian games with different base counting and numbers vs quantity vs even odd etc in other number systems	Coloring of a cube consisting of n cubed unit cubes : Binomial expansion based on Cube coloring problem
2	Science	2 weeks+Sat	Scientific Fallacy, How the seasons and revolution of the earth around the sun is proved : observations and conclusions	Patterns in Nature : looking at a sunflower and Pine cone in detail: the golden ration in Nature
3	Computation	2 weeks +Sat	Learning scratch and the art of programming for a purpose; doing this to animate a nursery rhyme	Learning scratch and the art of programming for a purpose; doing this to animate a story of the students choice

Maths and Science Project: Duration 8 weeks

Srl No	Project	Class 6, 7	Class 8, 9
1	Maths only	Small modules on Numbers, Mathematical games, Networks(Graph Theory) and geometry: Develop a suitable game in Mathematics	Small modules on Numbers, Mathematical games, Networks(Graph Theory) and calculus: Develop a suitable game in Mathematics

Srl No	Project	Class 6, 7	Class 8, 9
2	Science only	Small modules on Scientific method, experimentation, Optics, Chromatography : Make a Science Project based on knowledge which will further add to your understanding. The topics could be suggested by us Like Forensics projects, Soaps and detergents, Hair growth dynamics, Dynamics of Bowling in Cricket, the water Molecule and explaining properties of water etc	Small modules on Scientific method, experimentation, Optics, mechanics : Make a Science Project based on knowledge which will further add to your understanding. The topics could be suggested by us Like : Optical illusions creation, Genetics experimentation with fruit flies, Chemistry of Glues and making glues for different materials, how Fungal destruction of foodstuffs and increasing longevity of foods. etc
3	Maths and Science Combined	Some examples :Golden ratio in Nature,Probability, chance and the science of DNA matching etc	Some Examples : Crystalline structure and Geometry, Predicting earthquakes etc

Engineering and Computation Project: Duration 8 weeks

Srl No	Project	Class 6, 7	Class 8, 9
1	Engineering only	Short modules on Levers pulleys, cams and gears . Examples of projects :Automata simple, Hydraulic models with some function eg earthmover	Short modules on Levers pulleys and gears cams and electronic controls. Some examples : Robotic Arm, Complex automata, Fun electronic circuits
2	Computation only	Scratch based projects to design games	Scratch based games designed in Scratch and made mobile available in App Inventor
3	Engineering and Computation Combined	Intro Arduino Boards: Computer controlled Arm, Computer controlled hand	Using Arduino Boards, Computer controlled device like car or crane or toy train with signals

STEM Project: Duration 8 weeks

Srl No	Project	Class 6, 7	Class 8, 9
1	Design thinking workshop	A 4 hour workshop to be done on a Saturday to rapidly prototype	A 4 hour workshop to be done on a Saturday to rapidly prototype
2	Choose a socially impact full project from the environment like Blind school, Slums, Gardens, etc	To be self selected	To be self selected