VIDYA VIKAS VIDYA SAMSTHE (R)

CHITRADURGA

ATL CODE-824812978

ATAL TINKERING LAB

FOR THE YEAR 2022-23

BASAVESHWARA TALKIES ROAD, CHITRADURGA.

Introduction

With a vision to 'Cultivate one Million children in India as Neoteric Innovators', Atal Innovation Mission is

establishing Atal Tinkering Laboratories (ATLs) in schools across India. The objective of this scheme is to foster curiosity, creativity, and imagination in young minds; and inculcate skills such as design mindset, computational thinking, adaptive learning, physical computing etc.

ATL is a workspace where young minds can give shape to their ideas through hands on do-it-yourself mode; and learn innovation skills. Young children will get a chance to work with tools and equipment to understand the concepts of STEM (Science, Technology, Engineering and Math). ATL would contain educational and learning 'do it yourself' kits and equipment on – science, electronics, robotics, open-source microcontroller boards, sensors and 3D printers and computers. Other desirable facilities include meeting rooms and video conferencing facility.

In order to foster inventiveness among students, ATL can conduct different activities ranging from regional and national level competitions, exhibitions, workshops on problem solving, designing and fabrication of products, lecture series etc. at periodic intervals.

ATL Objectives

To create workspaces where young minds can learn innovation skills, sculpt ideas through hands-on activities, work and learn in a flexible environment.

1.To empower our youth with the 21 century skills of creativity, innovation, critical thinking, design thinking, social and cross-cultural collaboration, ethical leadership and so on

2. To help build innovative solutions for India's unique problems and thereby support India's efforts to grow as a knowledge economy.

ATL IN OUR SCHOOL

Our VIDYA VIKAS VIDYA SAMSTHE School is located at Chitradurga District. In the year 2018 our school has been selected for establishment of ATL lab from NITI Aayog central government of India. They had given economic support and direction to set up this lab. Hence we are beautifully set up our ATL lab and established in the year 2018.

In our school nearly 732 students are studying and they are from different places of Chitradurga. ATL has so many electronic and mechanical equipment, these may build our students knowledge and support to think towards new technology to solve so many basic problems facing in their daily life.

In the 2022-23 Academic year we have made the frame work to train students effectively and allow them for hands on working by conducting the 2 sessions in every month. Through this lab students may capable to do some activities, projects, making science models, allowing them to accessing learning materials, conducting workshop, interactive classes, and demonstration classes also.

The structured Action Plan 2022-23 helps to reach every milestones of ATL curriculum in the given period of time.

With this we also identify 5 Government/Aided Schools comes in the radius of 5 km of geographical area from our school as a Community schools. We are allocating the time to learn ATL basic concepts and hands

on working for those school students once in a month to one among them.

THE IMPACT OF ATL ON ITS LEGATEE

SCHOOL –

*Construct research platforms wherein the students, the scientists, the Industry and the community interact and contribute substantially to each other.

*Generate opportunities for inquisitive, scientific and innovative temperament.

STUDENTS –

*Augment academic outcome by providing space for investigatory endeavours.

*Develop a disciplined approach towards utilizing the STEM concept in an integrated manner

TEACHERS –

*Contribute towards continuous professional development

* Provide opportunity to become STEM curriculum experts

*Disseminate knowledge and resources from STEM education

OPERATIONAL PROCEDURE OF ATL

* The Lab should be introduced to the local schools by organising special events.

* All experimentation to be conducted under the guidance of the ATL Advisory Board.

*During the working hours, specific time periods to be allocated in grades VI to X (from the host school) to

introduce the concept of tinkering laboratories and allow students to experiment on projects approved by the advisory board.

*ATL activities for selected projects to be conducted during Assembly/ Science/Library, assembly periods and on Saturdays.

*Students from other local schools as well as the host school can experiment and tinker after the working hours of the school.

*On Saturdays the lab is made available for all during the approved working hours.

REPORTING SCHEDULE

*The advisory body shall meet twice in a year to plan the agenda for the session and to compile its report for submission to the AIM Directorate.

* Meetings to be held on the Saturday of August,December and March.

*The advisory body of the ATL shall upload the following in the prescribed proforma, to Atal Innovation Mission, NITI Aayog at the end of each financial year as well as at the time of seeking further instalments of the grant,

1) Annual implementation report providing information on the activities conducted and

2) Utilization Certificate of the GOI Grant,

ACTIVITIES TO BE CONDUCTED UNDER THE ATL

In order to foster ingenuity among students, the following activities are to be conducted

In the ATL:

1.Monthly programs to teach and explain students about different concepts –ranging from ideation, design, proto-typing, networking to physical computing.

2.Display of work done by student groups selected for working on a pertinent theme at the end of the session, amalgamating the STEM CONCEPT during activity periods in the month of February.

3.Science club to prepare models / presentations on an identified theme in the planned month.

4.Popular STEM and entrepreneurship talk by reputed speakers / eminent faculty from diverse fields to be organised according to the need.

5.Periodic screening of STEM films

6.Host a regional / interschool level competition.

7. Summer Workshops on problem solving, designing and fabrication of product.

METHODOLOGY OF STUDENT ENROLMENT STEPS

1. Taking classes regarding Introduction to ATL and STEEM Education, build the pre-ideation and idea generating knowledge and allow the students to visit ATL.

2. Selecting the students depends on their creativity, interest, idea submission, innovative knowledge, pre-knowledge skills, problem handling skills.

3. Observing the students involvement in LAB.

4. Through conducting written tests to evaluate their knowledge.

5. Observing the students involvement in academic class

LIST OF SELECTED STUDENTS

SL.NO	NAME	CLASS
01	Sushruth	10
02	Kushal	10
03	Hemanth	10
04	Sanath P R	10
05	Varsha Reddy	10
06	Samana	8
07	SaiTejas	8
08	KalyanBabu	8
09	Parineeta	8
10	SyedaAfeefa	8
11	Namya	8
12	Md. Ayman	8
13	SanihaSinchana	8
14	Kavyashree	8
15	Maseera Khan	8
16	Rahul	8
17	Vardesh	8
18	SyedaSafa	7
19	Shreesha	7

20	Arunesh P B	6
21	Bhaveen M Y	6

Year plan of 6th to 10th standard

SL NO	MONTH	6TH to 10th	Objectives
01	**AUGUST**	INTRODUCTION- •What is STEM Education? •What is Robotics?	To understand how technology will impact the workforce.

		• What can robots do? • What can't robots do? • How are robots useful? • How robots are different from machine?	
02	**SEPTEMBER**	• Digital Multimeter Measuring Tool- How to use Digital Multimeter. Application of digital multimeter. • Digital VernierCaliper Measuring Tool- How to use VernierCaliper. Application of VernierCaliper • Spirit Level Measuring Tool- How to use Spirit	• Student will get to know how to measure voltage, current, resistance using digital multimeter. • Student will get to know how to measure internal and external distances extremely accurately using Digital VernierCaliper. • Student will get to know whether a surface is horizontal or vertical using spirit level. • Student will get to know how to use

		Level Application of Spirit Level • Screw Driver Set Mechanical Tool- How to use Screw Driver. Application of Screw Driver	screw driver and application of screw driver.
03	**OCTOBER**	•Introduction to Breadboard and basics of electronic components- •How to use Breadboard? •Introduction to Linear Voltage Regulator 7805IC.	•How to build a simple circuit on breadboard? •Why a breadboard is a construction base for prototyping of electronics? •Why Voltage regulator IC's are used to regulate voltage? •What happened when LED is directly connected with 9V battery without 7805 IC? •How to read

		•Breadboard: How to Connect the 7805 Voltage Regulator •Resister Color Coding •LED glowing simple circuit on breadboard. •Introduction to Switches. •LED glowing circuit using switch. •Introduction to RGB LED and its circuit on breadboard.	resistor color code •What is a LED & how its work? • Application of LED's •Working principle of switches •Application of switches •What is RGB LED and its working principle? •Application Of RGB LED •What is the principle of operation of a potentiometer? •How the brightness of the LED will be changed according to the changing resistance across the LED.

		•How RGB LED is different from simple LED? • Introduction to Potentiometer. • Brightness Control of LED using potentiometer and its circuit on breadboard. •Introduction to Seven Segment Display and its circuit on breadboard. •What are the	•Seven Segment Display working principle and its uses . •Concept of Common Leg in LED's • How a LED will glow using IR Sensor . • What are the different types of Sensors. • Importance of LED in our Social Life. • Real life Applications

		real time applications of seven segment display? • Difference between Common Cathode and Common Anode • IR Sensor controlled LED on breadboard. •How we can controlled electronic devices using IR sensor.	

04	**NOVEMBER**	•Introduction to 3D printing and 3D printer •What was the first 3D printing technology? •How to move the objects,How to resize objects, How to create holes and how to merge shapes •How to design 3D Model in Tinkercad . •Print the school name.	•What is the process of 3Dprinting? •What is the use of 3D printing? •Student will get to know about how to print on 3D Printer. •Student will learn about Tinker cad and how to design in it? •Student will learn about how to design and print Alphabetical Model On 3D Printer.
05	**DECEMBER**	• Introduction of Mechanics and its mechanical parts. •How mechanics is	•How electrical energy covert into mechanical energy. •How to do

		different from electronics and also important for robotics building process. • Robotic Sweeper Mechanical assembling. • Robotics Sweeper to help us in Swachh Bharat Mission. • Robotic Fan Boat assembling. • What is the purpose of mechanical assembly and why its important ? • Mechanical Speedster assembling • Different types of gear and its application, terminology related to gears.	assembling part. •Clockwise and Anti Clockwise Movement of Motor. •It is similar to sweeping a floor, the operator has a broom and dust pan to flick material into pan. •Similar model you can make for cleaning. • Engineering Terminology like Gear, Motor, Clockwise/Anti -clock wise rotation, friction come to know. How motor work • How to use gear to Increase speed. •What is the working principle of Gear.

06	**JANUARY**	• Introduction of "SCRATCH" A Graphical programming Language. •What is Programming language and why it is important in Robotics? •How to paint Your own Sprite. •Introduction about Paint tool in Scratch. •How to make copy of structures or Shapes. • How to use costume Feature. • How to Change expressions using programming your Sprite. •How to Move Your own Sprite with Keyboard Buttons. •How to use angular Movement with Sprites. •How to Make Aquarium. •Do the Activity	•By learning to code in Scratch, you will learn important strategies for solving problems, designing projects, and communicating ideas. • Student will get to know how to fill colors in Your Sprite. • Activity to Show Facial Expressions using Sprite. • Draw simple Shapes and animate. •Student will get to know how to do Basic Movement of Sprites using Keys up, down, left ,right arrow key. •Student will get to know how to use Background in

		of Aquarium using Multiple Fishes •How to Synchronize Backdrop and Sprite. • How to Make Car Race Game. • How to Synchronize Backdrop and Car • How to set Conditions Based upon Color	Scratch and how to do Change Costume of Background. • Student will get to know how to Create Your Own Car and how to create Track for the Game.
07	**FEBRUARY**	•Introduction to Aeromodeling Kit. •Importance of AeroModeling. •What is Balsa Wood. •How to make Seagal. •How we give shape to objects.	•Importance of Aeromodeling in Daily life. They can learn -How center of Mass Work. Importance of center of Mass

		•Hands on Activity •Fly your Model in Ground	•Importance of Aeromodeling in Daily life. They can learn -How center of Mass Work. Importance of center of Mass •Importance of Aeromodeling in Daily life. They can learn How center of Mass Work. Importance of center of Mass •How to Fly Seagal.

LIST OF NEARBY COMMUNITY AND NON-ATAL TINKERING LAB SCHOOLS

SL. NO	NAME OF SCHOOL	DISTANCE FROM OUR SCHOOL	HEADMASTER DETAILS	REMARKS
1	GOVT.GIRLS HIGH SCHOOL	1 km	M. KARIYAPPA	
2	GOVT.BOYS HIGH SCHOOL	3 km	RUDRAMUNI	
3	ST.JOSEPHS CONVENT	0.5 km	SISTER REGI	
4	MADAKARI SCHOOL	0.5 km	GC THIPPESWAMY	
5	KOTE SCHOOL	1 km	SOWMYA	

SCHEDULED PLAN TO COMMUNITY AND NON ATL SCHOOLS

SL. NO	DATE	TIME	SCHOOL NAME	INCHARGE/MENTOR
01	16 JULY	10 am	GOVT.GIRLS HIGH SCHOOL	ASHA CHM
02	30 JULY	10 am	ST.JOSEPHS CONVENT	FARHA HASHMI
03	22 AUG	10 am	GOVT.BOYS HIGH SCHOOL	MEGHANA
04	10 SEP	10 am	GOVT.GIRLS HIGH SCHOOL	ASHA CHM
05	24 SEP	10 am	MADAKARI SCHOOL	BASAVARAJAIAH
06	12 NOV	10 am	KOTE SCHOOL	LAXMI JADHAV
07	19 NOV	10 am	GOVT.BOYS HIGH SCHOOL	MEGHANA
08	10 DEC	10 am	KOTE SCHOOL	LAXMI JADHAV
09	17 DEC	10 am	ST.JOSEPHS CONVENT	FARHA HASHMI
10	7 JAN 2023	10 am	MADAKARI SCHOOL	BASAVARAJAIAH

Time-Table for the year 2022-23

Day/Period	I	II	III	IV	Lunch break	V	VI	VII	Students can utilise according to the need. (with incharge) (4 PM TO 4:30 PM)
Monday			7						
Tuesday								9	
Wednesday			8						
Thursday						10			
Friday							6		
Saturday	Students from other schools								

ATL ADVISORY COMMITTEE FOR THE YEAR 2022-23

Sl. No	Name	Designation	Address	Contact
01	Sampath Kumar C D	Head Master	VVVS	9964467647
02	Mosin	Lecturer	DIET, CTA	
03	Ravishankar	CRP	NORTH CLUSTER CTA	
04	Pruthvisha S M	ATL Incharge	VVVS	9483095617
05	SyedaFarhaHashmi	Mathematics teacher	VVVS	7795217447
06	Chandan	Technical Mentor	VVVS	6360228455
07	Basavarajaiah P	Mathematics teacher	VVVS	9611268664
08	Asha C H M	Science Teacher	VVVS	8073638250
09	Meghana D V	Science Teacher	VVVS	9738348282
10	LaxmiJadhav	Science Teacher	VVVS	8296416848
11	Md. Arif	Mathematics Teacher	VVVS	9964645458

12	Mamatha P	Mathematics Teacher	VVVS	8073179635
10	Manjunath	Parent	CTA	
11	Prashanth	Parent	CTA	
12	Varun	Student	VVVS	
13	Yatra M Shetty	Student	VVVS	

2022-23 ACADEMIC YEAR BUDGET PLAN FOR ATL

School opening date: 16.05.2022

Current balance in ATL account: 294231.90 INR

EXPENDITURE:

SL. NO	PARTICULARS	DEBIT	CREDIT	BALANCE	REMARKS
01	KIDVENTO,MYSORE	88500.00	-	205731.9	
02	KIDVENTO,MYSORE	99232.00	-	106499.90	

REMAINING BALANCE AT THE END OF THE YEAR 2022-23: **1,06,499.90 INR**