Annexure-II

Background

The education system in India is undergoing a transformational process with special emphasis on Science and Math's education. Science education in India is faced by various practical challenges today. The first and the most basic problem that has persisted is our inability to ease the fear of difficult subjects such as science and math's and make it simple and fun so as to help retain the knowledge and strengthen the foundation of the child for future. Science Technology Engineering Maths (STEM) concept is growing worldwide as it aims to lessen the gap between contextual and rote based learning. The objective is replacing it with a physical and practical approach, which will equip children withthe skills and knowledge needed to get lucrative opportunities in their field of interest. It aims to ignite curiosity, inquisitiveness and passion for learning among the children so that they can opt for their higherstudies and beyond. It is in this context Greenko under its education thrust area of CSR proposes to setup Mini Science Center in the Govt High Schools located at its operational presence.

Mini Science Center (MSC)

Mini Science Centre (MSC) is an educative, innovative and systemic instrument designed to revolutionize science & math's education that makes learning simpler and accessible. It is a catalytic channel that is interactive, engaging & fun way of learning technique aimed to raise awareness, grasp the information & strengthen the aptitude of children; furthermore, MSC supports the teachers in teaching - with a focuson concepts from science & math's. Mini science Centre has a range of *80 table top working models with33 back-drops and manuals in regional language* to provide hands-on experience for learning/teaching Science and Mathematics for Class 5 through 10. The interactive models is in accordance with the syllabus of STATE Board, CBSE Board, and ICSE Board.

MSC will be a permanent and integral part of the school and academics right from its installation. The models designed for MSC forms the basis for effective education and better understanding ofthe academic concepts and their practical applications. Principally these models are ….

- For all students from standard 5 to 10.
- Intentional and standards-based.
- Active, interesting, and relevant tostudents.
- Reflect current research and practices that are curriculum based.
- Age-level appropriate.
- Integrate skills from different subjects of Science and Mathematics. Incorporate staff training in science and Math's teaching.
- Based on ongoing assessment of student needs and progress.

Expected outcome of the Program

- Aptitude of students for learning science and mathematics improved by creating simple, child friendly eco system which is fun and enjoyable.
- Empowering teachers with easy teaching aids.
- Improve teaching pedagogy by use of models in conducting the science and math's class through better engagement of teachers in teaching.
- Increased enrolment and interest in STEM-related courses in school.
- Continued participation in STEM programming.
- Increased self-confidence in tackling science & Math's classes and projects.
- Shift in attitude about careers in STEM.
- Increased test scores as compared to non-participants.
- Increased general knowledge of science & math's-based concepts.
- Gains in 21st century skills, including communication, teamwork, and analytical thinking.

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- Higher likelihood of graduation and pursuing a STEM career.

Implementation Strategy :

School selection and criteria:

- Schools should be for underprivileged children.
- Schools will be such where scientific and math temper among children is not developed and quality education is required to learn in better and easy way.
- Schools are identified by DEO of the location selected and letter will be derived with list of schools mentioned.
- On permission from Funding Partner and principal approval we shall collect following data and individual school letters.

DATA collated:

a. School Address and contact details of HM.
b. Room availability as per out lay plan.
c. Letter of acceptance.
d. Student's strength in school.
e. No of Teachers (Maths and science).
f. Gender segregation details.
g. Cumulative grades of students along with number of students in class/division.

This report will be known as School Identification Report/Baseline report.

Installation -

a) An Installation team conducts implementation of 80 models with 40 colourful backdrops and Safety board and80 placards for each model.
b) Pre and post pictures of Installation will be shared.
c) Installation report derived.

Teachers Training Program-1st and 2nd

Teachers Training Program- Trainer's team gets in touch with *School* authorities- Principal & teachers schedules thetraining date & venue.

The training consists of:

- Orientation of Models.
- Usage as per concepts and its 5 daily usage.
- Mapped document of Model with curriculum.
- Establish topics and usage as per the timetable.
- Explain follow up process
- WhatsApp support group formation.
- Expected output from teachers of documentation of usage, as they are plug and play and can be takento class for demonstration and explanation.
- Register of MSC, as they are plug and play and can be demonstrated in class during the conceptclarity.
- Identify and prioritize issues to be dealt by teachers.
- Set up goals for best practice documentation.
- Inform about M&E visit and process.

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The same above process is follow for 2nd Teachers training post. The documents supporting this activity is:

- Call sheet.
- WhatsApp group snap shot.
- Goal set document for output.
- Teacher's attendance sheet of training.
- Pictures and Videos (if possible).

This report will be known as Teachers Training program report.

The above same data will be part of the 2nd Teachers Training Program report.
Immediately on receivingclosure of installation set up.

Monitoring & Evaluation -

The M&E officer initiates the M&E visit with getting in touch with Principal & teachers of the visit and the same is updated on the whatsApp group. Reconfirms the same 72 hours before departure.

The M&E consists of: Collating data on.

- No. of students per class/division.
- Cumulative grades of students.
- Gender segregation.

Finalized questionnaire with support for Principal, Teachers and Students. The Principal and teachers questionnaire will be qualitative, students will be quantitative and qualitative with FGD and IDI.

The student's quantitative tools will be:

- Fill in the blanks.
- Match the columns.
- Questions and 3 options.
- Pictorial identifications of models.

Qualitative:

FGD and IDI lead questions will be framed for students on actual usage in class and MSC.

The same above process is followed for 2nd M&E (1st Year Baseline).
The 2nd M&E will be the 1st year baseline and based on the goal set data will be captured in the 2nd set of questionnaire, which will be developed. The documents supporting this activity is:

- Call sheet.
- WhatsApp group snap shot.
- Questionnaire.
- Notes of FDG & IDI.
- Pictures and Videos (if possible).
- Raw data in excel.
- Draft M&E report for EY comments.
- Finalized M&E report.

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This report will be known as 1st M&E report.

Maintenance -

The maintenance team will visit the school after the 1st M&E visit.

The visit will notify the school of visit and reconfirm 72 hours prior to departure

The maintenance will undertake:

- Repairing and Replacement as and where required.
- Re-clean the premises.

The documents supporting this activity is:

- Pictures of repaired model.
- Pictures of replaced model.
- Signed report of maintenance from Principal & Teacher.

This report will be known as Maintenance report.

Outcomes/Result expected -

- Improvement of aptitude of the students in regards of science and mathematics.
- Development of inquisitiveness, critical thinking, problem solving skills and creativity of students.
- Enhancing the skills of teachers by training them to teach in a practical manner.
- Improve teaching pedagogy by use of models in conducting the science and math's class through better engagement of teachers in teaching.
- Strengthening of concepts of Science and Mathematics.

Impact Assessment -

- Monitoring Evaluation: Undertake M&E activities for baseline data. M&E team visit twice a year.
- Reports to measure and encourage teachers for the maximum usage of MSC.
- Closely evaluate the students to monitor their interest

Parameters checked during the M&E Process

First M&E Parameters		
Sr. No.	**Teachers Parameters**	**Students Parameters**
1	Usage of the MSC in school	Students awareness on MSC
2	Installation	Students visits in MSC & Handling the Models
3	TTP Impact	Students able to explaining the models
4	Teachers Trained	Students Feedbacks
5	Need of additional training /Refresher TTP	
6	WhatsApp activity Group	

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7	Usage of Models(Taken in class/students MSC usage)	
8	Items provided by STEM	
9	School Maintained stock register	
10	MSC Neat & Clean	
11	MSC Registers Maintaining	

Second M&E Parameters

Sr. No.	Teachers Parameters
1	No. of teachers trained
2	School stock register Maintaining
3	Additional Support given
4	Teaching with help of STEM Learning Models
5	Clarity on MSC Objectives
6	List of material provided

Tentative Timeline Plan -

PO & Contract.	School Identification.	Installation.	1-TTP.	1st Follow up.	2nd T TP.	Maintenance	2nd M&E. (Annual Report)
1st week	Within 2 -3 weeks from PO.	3-weeks from school identification & Closure.	15 to 20 Days from installation.	45 days from 1st TTP.	15-20th Day from 1stFollow-up.	20 to 25 weeks from Installation	35th to 40th week from Installation

Project Location & School Details -

- State: Madhya Pradesh.
- District: Mandsaur
- Name of the Village: Mawata
- School Name: Govt. Higher Secondary School
- School Standard: 6th to 12th.
- Students Strength: 250.
- Class Room Size for MSC: 300 Sq. ft.

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List of 80 Models -

Sr no.	Name of the model	Sr no.	Name of the model
1.	Constellation Viewer	41.	Transverse wave pendulum
2.	Newton's Disc	42.	Area of triangle
3.	Colour Shadow	43.	Area of parallelogram
4.	Periscope	44.	Coupled Pendulum
5.	Kaleidoscope	45.	Solar Light
6.	Laws of Reflection	46.	Wind Mill
7.	Corner Mirror	47.	Shape of earth due to rotation
8.	Infinity Tunnel	48.	KE PE Track
9.	Magic Water Tap	49.	Loop The Loop
10.	Total Internal Reflection.	50.	Rope Puzzle
11.	Fun with Magnets	51.	Refraction Cylinder
12.	Law of Inertia	52.	Newton's Cradle
13.	Circle and Ball	53.	Centrifuge Puzzle
14.	Action and Reaction	54.	Hand Battery
15.	Parrot in the Cage	55.	Periodic Table
16.	Zoetrope	56.	Cone Run Uphill
17.	Pin screen	57.	Tower Of Pisa
18.	Floating Ball	58.	Lever
19.	Floating Fan	59.	Pulley Block
20.	Tornado	60.	Wheel and Axel
21.	Hand Pump	61.	Heat Absorption
22.	Anamorph	62.	Day and Night
23.	Floating Magnets	63.	Viscosity Tube
24.	Magnetic Field Tube & Immiscible Fluid	64.	Rock and Minerals
25.	Moment of inertia	65.	DNA
26.	Lazy Tube	66.	Lateral Shift
27.	Hyperbola	67.	Force & types of friction
28.	Magnetic effect of electric current	68.	Funny mirrors
29.	Pythagoras Model & Moire Pattern	69.	Marble Slide
30.	Elliptical Carrom Board	70.	Resonance
31.	Two Congruent Right Triangles	71.	Weight Illusion
32.	Area of a Circle	72.	Area of Trapezium
33.	(a+b)2 =a2+2ab+b2	73.	Sum of angles of Quadrilateral
34.	(a+b+c)2 = a2+b2+c2+2ab+2bc+2ca	74.	(A+B)^2 - (A-B)^2 = 4AB
35.	a2-b2=(a+b) (a-b)	75.	Electric bell
36.	Sum of the angles of a triangle	76.	Human Torso
37.	Tangram	77.	Ear & Eye
38.	Parking Puzzle & T puzzle	78.	Human Joints
39.	Organ pipes	79.	Plant Cell
40.	Area of rhombus	80	Animal Cell

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