To,
Ms Kuljeet Kaveeshwar
Sr. Technical Director
Globant

Date: 16th October 2023

Respected Mam,

Greetings from STEM Learning! A social enterprise, which is conceptualized with an aim to empower children from rural and semi urban communities with the basic concepts of STEM Education. We have 10 years of experience of inculcating scientific temper among school children, now we have a presence in 23 states and have served more than 1900+ schools, in that over than 1 million underprivileged students get benefited, apart from that we have trained more than 7000+ teachers, and also we are partnered with 125+ (PSU's, NGO's & NPO's across PAN India).

Mini Science Centre (MSC) is a prerequisite for teaching science and math's to school children in a simpler way. Our Program involves setting up of Mini Science Centre (MSC) in schools to help children from standard 5th to 10th. The models are hands-on & facilitate effective teaching. We provide 80 hands-on, table-top, plug n play & fun loving interactive models in accordance with the syllabus of STATE Board, CBSE Board, and ICSE Board.

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 with the 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 higher studies and beyond.

In continuation with this letter is a detailed proposal for your consideration and perusal.

We look forward to hearing from you with your support.

Thanking you,

Azhar Kazi
Manager – Corporate Partnership
STEM Learning Private Limited

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Strategic Proposal for Mini Science Centre




Mini Science Centre *Teacher Training Program* *Science Competition* *Monitoring & Evaluation*

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Contents

- ABOUT US.
- MISSION, VISION, GOAL, OBJECTIVES.
- STRATEGIC AREA OF FOCUS, PROJECT NEED.
- PROJECT SUMMARY STATEMENT, EXPECTED OUTCOME.
- STEM PROJECT LOCATIONS, LIST OF ACTIVITIES.
- PROJECT IMPLEMENTATION STRATEGY
- METHODOLOGY
- OUTCOMES, IMPACT ASSESMENT
- Financial Implications
- SUSTAINABILITY PLAN, CONCLUSION
- LIST OF 80 Models.

1: About: STEM Learning Pvt Ltd -

STEM Learning was conceptualized with an aim to inculcate basic concepts of Science, Technology, Engineering, Mathematics at school level, thereby encouraging inclination of students / learners towards science and technology. Models designed by STEM help students in identifying and experiencing the actual concepts which they learn from text books making it more practical in approach

STEM believes that school education can't be only visual or audio but it is important for the children to practically feel the products and experience it. With this vision, STEM has customized 80 models based on 130+ concepts of Science and Math's for better learning and understanding of the concepts. STEM believes in adding more models for improved learning of students especially for those from less privileged section of the society.

STEM through its MSC's have benefitted over 1 Million students with 8000+ teachers in 1900 + schools across 23 states in India. In addition to this, STEM learning also has a niche in installing 30 big science Centre's in different talukas of Maharashtra under Manav Vikas Mission Project of Maharashtra Government. These science centres have trained more than one lakh students who otherwise would have never got chance to experience and explore science in a practical and easy way.

STEM's models are approved by ***6 SCERT***- *Maharashtra, Goa, Chhattisgarh Odisha Nagaland and Jammu & Kashmir* for their alignment with the curriculum and the approvals by the SCERT's of Andhra Pradesh, Telangana and Karnataka are awaited forapproval.

2A: Mission Statement -

To enhance students' aptitude towards science & math so that they embrace it and grow with it while relishing the learning process.

2B: Vision Statement –

To be recognized globally for bringing innovative learning products in School Education and contributing to the society by reaching to the less privileged students

2C: Goal -

Learning made accessible to all children for aptitude enhancement.

2 *C.1:* **Immediate Goal:** Reaching to Large population of under privileged Children PanIndia

2. *C.2:* **Aim:** Ensuring equal opportunities for learning and development of all under privileged Children.

2. *C.3:* **Immediate Aim:** Reaching 2000 schools in the academic year 2021-22.

2. *C.4:* **Objective:** Empowerment/Enhancement of aptitude of children.

2D: Specific Objectives -

To ignite scientific interest in children so that:

- Question intelligently.
- Learn through discovery.
- Connect scientific knowledge to their world
- All of these are expected to strengthen scientific temper in children, thus laying the foundation for a flourishing career in Science & Mathematics.

3A: Strategic areas of Focus -

- Providing quality teaching aids to improve teaching methods for students from lesser privileged sections of society.
- Enhancing a positive attitude, learning capacity, and skills of students.
- Providing a platform where students and teachers can volunteer for customized engagement programs/events.
- Creating partnerships and collaborating with various stakeholders to ensure sustainability of the project.

3B: Background and Project Need -

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 and resisted solution since early education, 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 is knowledge about the material, natural world. It is knowledge produced from systematic observation, measurement, experimentation, exploration, and speculation and theorization about natural objects, their properties and their interactions. Whether the topic of forces in Physics or the solubility of substances in water from Chemistry, or germination in Biology, the science curriculum directs attention to the material world, to things and processes in it; about which it would like children to learn—to notice, name and think about things based and theories that characterize these disciplinary approaches, further more mathematics establishes the foundation for calculation is a part of everyday life

However, disciplinary approach is essential in learning BUT it is also imperative to ensure that we make the subject interesting; as, it is a challenge to large percentage of children to comprehend the formulas and equations. This not only limits the learning of students about science & Math's but also lessen the interest of children in these subjects and a fear psychosis is created in their minds for these subjects.

Our Honorable Prime Minister during the 104th Indian Science Congress on 'Science and Technology for National Development, emphasized that the government is committed to support the different streams of scientific knowledge from fundamental science to applied science with an emphasis on innovations.

Prime Minister instituted the concept of 'scientific social responsibility'. Underlining the need to inculcate the concept of 'scientific social responsibility (SSR)', akin to corporate social responsibility, PM Shri Narendra Modi ji put the impetus on corporates to actively participate in developing science and technology centers across India.

We at STEM Learning provide the Mini Science Centre – (MSC) that support and encourages the students to develop aptitude & skills. Science activities done to stimulate curiosity, provide practical opportunities to explore a concept in easy ways, develop appropriate hands on experience in understanding science and its concepts which is sadly absent today across all our education syllabus. More so with inadequate teaching staff in rural, municipal schools which are for the underprivileged children adds to the existing challenge in the education system.

4A: Project Summary Statement -

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 focus on concepts from science & math's. Mini science Centre has a range of *80 table top working models with 33 back-drops and manuals in regional language* to provide hands-on experience for learning/teaching Science and Mathematics for Class 5 through 10.

MSC will be a permanent and integral part of the school and academics right from its installation.

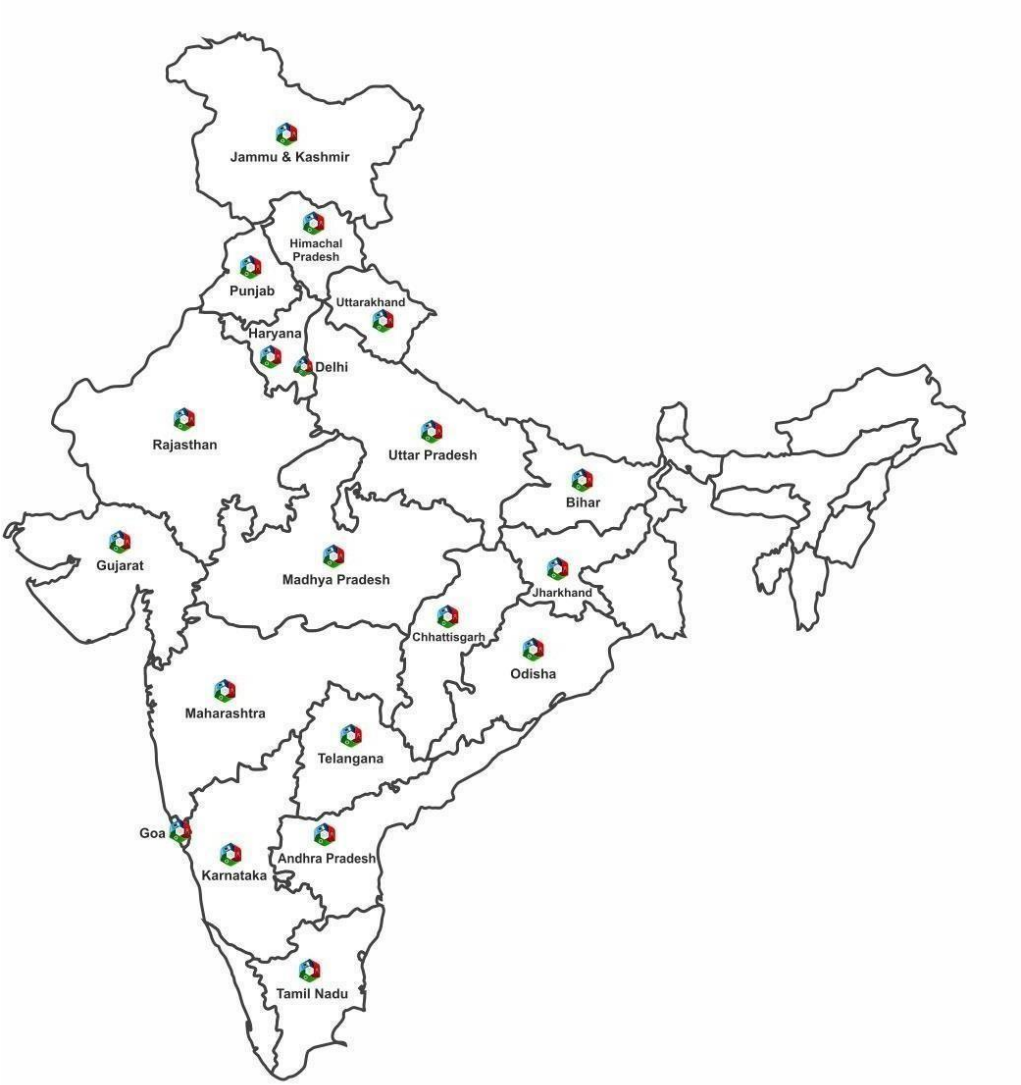
The models designed for MSC forms the basis for effective education and better understanding of the academic concepts and their practical applications. Principally these models are ….

- For all students from standard 5 to 10.
- Intentional and standards-based.
- Active, interesting, and relevant to students.
- 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.

4B: 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.
- Higher likelihood of graduation and pursuing a STEM career.

5: STEM Learning MSC Locations -



STEM learning has pan India presence in 23 states of India and have proven our process of Installation, delivery- Teachers Training Program along with Monitoring & Evaluation and Maintenance of MSC.

1. Maharashtra 2. Rajasthan 3. Gujarat 4. Karnataka 5. Himachal Pradesh 6. Jammu & Kashmir 7. Goa 8. Haryana 9. Delhi 10. Tamil Nadu 11. Uttar Pradesh 12. Jharkhand 13. Chhattisgarh 14. Madhya Pradesh 15. Andhra Pradesh, 16.Odisha 17.Telangana.18.Bihar.19 Uttarkhand.20.punjab21.Odisha22.Dadra ang Nagar Haveli 23.Assam

6: Project Implementation Strategy -

6A: 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

6B: Installation -

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

6C: Teachers Training Program-1st and 2nd

Teachers Training Program- Trainer's team gets in touch with School authorities- Principal & teachers schedules the training 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 taken to class for demonstration and explanation.
- Register of MSC, as they are plug and play and can be demonstrated in class during the concept clarity.
- Identify and prioritize issues to be dealt by teachers.
- Set up goals for best practice documentation.
- Inform about M&E visit and process.

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 receiving closure of installation set up.

6D: 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.

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

6E: 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 free maintenance is for 1st year only, year 2 onwards will be charged. The documents supporting this activity is:

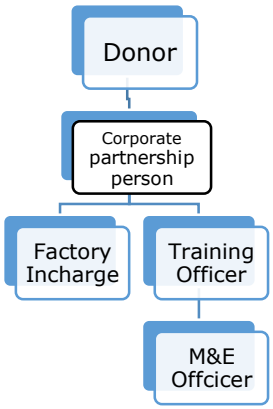
- Pictures of repaired model.
- Pictures of replaced model.
- Signed report of maintenance from Principal & Teacher.

This report will be known as Maintenance report.

7: Methodology -

Research type: Primary Research
Frequency of data collection: Twice in year
Variables used: Teachers, location, students and standard etc.
Sampling: Random sampling
Mode of data collection: FGD/Questionnaire

Data Flow



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	
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

8A: 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.

8B: 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

9: Financial Implications -

SR.NO	ITEM	DESCRIPTION	Cost for 1 School	No of School	Cost for 5 schools
1	MINI SCIENCE CENTRE	80 MODELS + 80 USERS PLACARD+ 37 COLOURFUL BACKGROUNDS + 1 SAFETY PLACARD + 1 TEACHERS MANUAL INCLUDES INSTALLATION, DELIVERY	315,000	5	1,575,000
		TAXES @ 18%	56700		283500
		TOTAL	371,700	5	1,858,500
2	TRAINING OF TEACHERS (TTP)	Fresh & Refresher Training	40,000	5	200,000
		TAXES @18%	7200		36000
		TOTAL	47,200	5	236,000
3	MONITORING & EVALUATION	Base-Line, End-Line	40,000	5	200,000
		TAXES @ 18%	7200		36000
		TOTAL	47,200	5	236,000
4	ANNUAL MAINTENANCE CONTRACT	CLEANING SERVICING & Repair (if any)	40,000	5	40,000
		TAXES @ 18% (cost applicable from second years)	7,200		7200
		TOTAL	47,200	5	0
5	INFRASTRUCTURE	SET UP OF PLATFORMS & ELECTRIC CONNECTIONS	40,000	5	200,000
		TAXES @18%	7,200		36,000
		TOTAL	47,200	5	236,000
TOTAL (1+2+3+5) (A)			**513,300**	5	**2,566,500**
6	NGO	Administration Cost @ 5% (B)	25,665	5	128,325
Grand Total (A+B)			**538,965**	5	**2,694,825**

10A: Sustainability Plan –

Mini Science Centre also takes care of sustainability part. Mini Science Centre model is sustainable because of the following actions:

- Zero Operation Cost.
- MSC enhances the very basic requirement of the schools to support its existing syllabus.
- A vibrant network of teachers will be available for training 3rd year onwards, creating a peer lead program.

10B: Conclusion -

As the famous saying goes, "It is greater to work to educate a child, in the true and large sense of the world than to rule a state." The real empowerment of a country lies in the hands of the children. There cannot be any weapon bigger than education to empower country. STEM education plays an important role as it pervades every aspect of life.

Our MSC (Mini Science Centre) programme provides more practical based learning and teaching style of Science and mathematics concept. This would equip the students with better clarity on the application of difficult concepts of Science and mathematics in their syllabus. The clarity of concepts would enable the students to think critically, analyze and explore the new horizons which would eventually benefit the society. The following are the benefits of Mini Science Centres:

Capacity Building of Teachers: MSC enables teachers to explain all the Mathematics, Physics and Science concept in a more effective manner. It saves the teaching time by 50% which means the increase in productivity of the teachers in school.
Improves the scientific temperament of students: Instead of reading from book and listening to teachers, MSCs Plug & Play models involve the students in teaching process which ignites the students' inquisitiveness and also provide better clarity and logic about the theories.
Encourages Innovation: MSC boost the confidence among the students by educating them with science and mathematics concepts. The new-found scientific temperament in them encourages them to transform their innovative into reality.
Promotes Creativity: Creativity cannot sustain without Science. Whether it is an engineer or an architect, they have to be well versed with science and mathematics theories to create a sustainable design. The knowledge of STEM will allow the creative to use the material and space effectively.

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11: 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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THANK YOU

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