

TURNING POINT

Zeal Education Trust

Ahmedabad, Gujarat



Zeal Education
Ignite the genius in your child

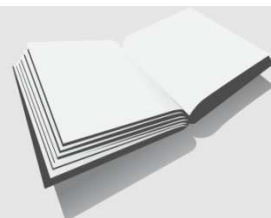


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1. Executive Summary

Particulars	Description
Project Goal	The project's overarching goal is to increase students' enthusiasm in learning through making the learning process exciting and fascinating and to bring within them the joy of discovering new phenomena in science and mathematics
Project Objectives	• 4000 students' enthusiasm for science and mathematics improve significantly • 80 teachers find teaching science and mathematics fascinating through a completely new approach
Rationale	The rationale for providing opportunities for students, regardless of their background, to engage in hands-on science and math activities is clear. Despite similar basic skills, students often lack exposure to enriching experiences that can ignite their interest and potential. By providing opportunities to create science and maths models and conduct experiments, we tap into their curiosity and excitement, fostering a deeper understanding of STEM subjects. This approach not only develops practical skills but also instils a sense of accomplishment, motivating students who were previously disengaged to recommit to their education. Ultimately, such interventions have been shown to significantly reduce dropout rates, offering a transformative turning point in students' attitudes towards learning.
Target Beneficiaries	Students and teachers of targeted location.
Linkages with SDG's	• Quality Education (SDG 4) through improved access to high-quality educational resources. • Reduced Inequalities (SDG 10) by promoting inclusivity and equitable access to education. • Partnership for the Goals (SDG 17) through collaborations with educational institutions, governments, and corporations.
Geography	The proposed project will be implemented in 40 schools in a specific location (to be selected in consultation with the donor).
Concept	The project concept is to implement hands-on science and mathematics initiatives in schools across diverse regions, providing students with the opportunity to engage in model-making and experimental activities. Regardless of their background or location, students will have access to enriching experiences that foster curiosity and excitement about STEM subjects.
Expected Outcome	A significant number of students join Science mainstream and perform superlatively, motivated by the program and its insights.

Project Duration	12 months
Project Budget	Rs. 14,74,500 for 10 schools

2. Background

In contrast to other projects that look at Science and Maths education from the content point of view, **Turning Point** completely focuses on **changing the attitude** of teachers and students towards science and maths. The aim of the project is to ensure that teachers and students look upon science and maths with **fascination** and a **desire to learn more**. Once this happens, they become **self- learners** and are driven to trying to find out more.

As it is, science holds a fascination for young students, but the subject is normally discussed in a dry and uninteresting manner. Even space, the most **fascinating** of subjects for young students, becomes a matter of learning names and properties of planets and stars. When students realize after making a model of the solar system how huge it is, they become eager to learn more.

Maths is a subject that is either loved or hated: especially in middle school, there are very few students who are neutral to it. There have been many studies, including our own observations with students, about why this happens, but they are unanimous about the need to introduce a sense of **astonishment** and **fascination** for the subject. Even making a set of binary cards and playing with it introduces students to patterns in maths and shows them how fascinating maths can be. The vision of the project is to bring about a **sea change** in the attitude of students towards science and maths. This is done with **simple, yet fascinating models and experiments**.



3. Rationale of the project



The basic skills and abilities of **majority** of the **students studying in schools in our country** are the same, whether they hail from **metropolitan cities** or from **peri-urban areas** or from **rural pockets**. The problem is the **timely opportunities** they get from the **surrounding environment**, or the **lack of it**. Given the right exposure, opportunities and environment, a **student from a government school even in the remotest locale** can **excel** and **reach great heights**. Exposing such

students to making **Science and Mathematics models** and doing **Experiments** that **seem like magic** fills them with **awe and excitement!** These experiences not only develop **kinaesthetic skills** and a better understanding of **science and mathematics**, but also **lead to a sense of achievement in them**.

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Students who rarely come to school or pay attention in the classes become self-driven and return to mainstream education instead of dropping out, post participating in this initiative. Accordingly, it has been observed that this intervention results in a significant reduction in dropouts. This kind of exposure for the first time may act as a **Turning Point in their lives and completely alter their attitude towards learning!**

4. Profile of Zeal Education Trust



Zeal Education Trust was set up in January 2016 by **Dr. B R Sitaram** and **Ms. Sandhya Sitaram** to provide specific educational services to underprivileged schools through CSR programs sponsored by the corporates and other organizations. The main goal of the trust is to involve corporates in igniting the minds of students of the underprivileged section of the society so that they also get opportunities to get into mainstream professions.

Zeal Educational Trust is involved in innovative education programs, especially in science and maths. Our specially customized Maths/ Science **Teachers Training Workshops**, thoughtfully designed **Model Making and Experiments Education kits** focus to bring quality to education.

Zeal's program for Corporate Social Responsibility makes education more valuable through non-traditional ways of learning. These programs bring a turning point in the perspective of students and teachers towards maths and science, which we consider a significant and noteworthy achievement!

Our programs are aimed at ensuring that children look upon science and mathematics as fascinating subjects that they want to learn. We do this by making our programs entertaining and enlightening: fun with learning!

About Turning Point

Turning Point is a one of its kind innovative initiative and has been designed to change the attitude of teachers and students towards science and mathematics. Moving away from the traditional method of learning, since 2015, Turning Point has been an extremely successful CSR activity in Government Schools, catering to students in the standards VI-VIII. The first foray was an intervention in schools in Savli Taluka of Vadodara District, sponsored by **Mahindra Intertrade** followed by 33 schools in and around Dhamra, Odisha, for **Adani Foundation**. M/s **Zydex Industries** then sponsored the program in over 400 schools of Vadodara District in the years 2016 and 2017. In 2022 and 2023, this intervention has been implemented in 11 schools in and around Ahmedabad for **AIA Industries**, in 10 schools in Morbi, Gujarat for M/s **Gujarat Gas Limited** and in 10 schools in Bengaluru, Karnataka, for **NewSpace India Limited (NSIL)**, Department of Space (ISRO). In 2024, the initiative was implemented at Dahej district for **Gujarat Alkalies and Chemicals Limited** in ten Govt schools.



5. Proposed Project Activities

This intervention is typically focused at **10 schools** taken as a cohort. Over the duration of one year, 40 Govt schools will be divided into four groups of ten each. The objective of this intervention is to enhance the level of inquisitiveness in a student and make the learning of science and mathematics joyful and fascinating, thereby leading to continued interest in the subjects.

Month 1:

Preliminary selection of schools in the targeted location for the intervention will be done. The selection of the schools in the relevant geographical location will be based on the following criteria:

1. Be close to one another so that teachers can travel to the workshop venue
2. Have classes 6-8
3. Have reasonably large student enrolment so that the benefits of the program reach maximum number of students (100 minimum from each school)

****Please refer to annexure for content sample*

The Department of Education officials will be approached in the beginning of the intervention; they will be informed about the intervention and its benefits. Next, the list of schools will be finalized in consultation with the authorities, and basis the permission granted to do the intervention in these schools which will be supported with an agreement with the Department, the final list of schools will be arrived at. Immediately thereafter the principals and the administration from these ten schools will be approached one by one with the permission letter as received from the **Department's District Education Officers**. Each principal will be informed to discuss the program with the teachers and consequently the students to gauge how the school would respond to the program. They will be explained about the benefits of the intervention. Students studying in Grade VI to VIII will be the target beneficiaries from the intervention. **Two teachers as representatives from each school** will be selected to attend a **5-day Training of Teacher workshop** (This will also be mentioned in the Agreement with the Department of Education). A unanimous decision of the dates when the workshop will be held and teachers from all the 10 schools taken in this cohort may attend will be taken. An informative **WhatsApp group** will be formed involving all stakeholders (principals, DEO, NGO officials) to keep track of the progress. This phase takes one month to be completed

The program then consists of three major phases across Months 2 and 3, as mentioned under the following activities:

In the first week of 2nd month, the 5-day teacher training program will be conducted. For the **workshop venue**, one of the ten schools will be identified as a venue. This school must

1. Be centrally located and easy to access from the cohort of the ten schools



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2. Have sufficient rooms for organizing the workshop and for storing materials, stationeries.

Here the **20 selected teachers** (2 from each school) will be trained to make 60 different models in science and mathematics – **30 different models per teacher (total 60 different models per school)**, and **40 experiments** basis the model prototypes (A few samples are mentioned in Annexure I). **All the materials required for making the models will be provided to each teacher** and the teachers will take back the models to the school. They will also learn to perform 40 different experiments in science and mathematics (8 different experiments per day x 5 days). The first half of each day will be devoted for making the models, and second half for experiments. Instructions in English and Hindi or in local language will be provided along with the model materials.



Back in the schools, the teachers will train their students in making the same models and performing the experiments, using the materials provided. The methodology is not lectures, but through experiential learning for teachers and students. For this purpose, **4 more copies of the kits** will be sent to each of the schools. The school teachers or students do not need to go out to buy any material. This happens over a period of 45 days, getting completed in the 3rd month. During this phase, the representatives from the Trust will continuously coordinate and monitor the entire set of activities.

Each school will get

- **5 copies each of the materials required to make the 60 selected models.** One copy each will be used during the workshop and the remaining ones will be used with students.
- **Material** for performing the **40 experiments** with school students.
- **A banner** bearing the name of the **stakeholders** that schools will be requested to prominently display while working with students and during the exhibition.
- **A set of cards that will be a smaller version of the banner** that schools will be requested to display along with the models during the exhibition.

Students will prepare the models and arrange a school exhibition of the models and the experiments in the last week of the 3rd month of the intervention. While preparing and conducting the exhibition, students along with the teachers will put the skills that they had



learnt to use and explain the concepts. The parents/guardians of the students along with the school authorities, Education officials from the district and State along with other key opinion leaders will also be extended invite in the exhibition.

It is planned and proposed to conduct **four such batches (total 40 schools)** during the year.

6. Monitoring & Documentation

Project Monitoring

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The program is monitored during the workshop through **observations** and **teacher feedback**. Once the teachers start the school program, a constant monitoring of activities through **videos** and **images** will be sent on the WhatsApp group. In case teachers do not appear to be active, they are contacted and asked to resume activities. In this scenario, interactions will be held with principals. Finally, the school exhibitions give a first-rate opportunity to find out exactly how students have understood and absorbed. This helps gauge the **interest and enthusiasm** shown by teachers and students alike

Documentation

Recordings and notes would be prepared

- Report after the 5-day workshop is completed
- Report after the exhibitions is conducted
- Images and videos of the workshop, activities in the school after the workshop and of the exhibitions
- Feedback by the teachers and the students
- Case studies of the students in terms of how the intervention helped them and best practice models



7. Project Visibility

- A Banner will be designed bearing the name and logo of the corporate, along with the name and logo of Zeal Education Trust
- The banner would be displayed during the workshop
- One copy of the banner will be given to each school. The teachers will display the banner when they work with the students when they train them
- The banner will be displayed during the exhibition
- The 50 boxes of material supplied to the schools (5 boxes each) will bear the same poster in the form of a sticker
- The poster will be converted to 3"x 4" cards that would be displayed on the tables during the exhibition

8. Project Outcome

The success of this intervention lies mainly in terms of attitudinal changes that impact the teachers and students. The teachers and students acknowledge the change the program brought in their lives, let alone in the classes, months and years after the program got over. Students claimed that they decided to pursue a career in science thanks to Turning Point. Besides, due to the keen interest in Science and Mathematics, a significant reduction of dropout and more children getting fascinated by these subjects are found. There are some pointers



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to the effect of the program which can be (and have been) observed during interactions.

Pedagogical techniques of facilitating learning: During the program, teachers were made to go through techniques like the process approach and the Socratic methods of learning by questioning. Teachers realized and gained the belief that such methods could be actually put into practice with their students. This is seen through the effect of teachers using the approaches in interactions with students.

The teachers learn new skills like measuring accurately, cutting, pasting, understanding plans, etc. They grow in confidence with every model they made and become sure that they could make models by themselves

9. Budget

A	Activity Cost		Total
1	Approval Meetings	20,000 per batch	20,000
2	Kits for Workshop and Schools	52 kits per batch x Rs. 21,000 per kit	10,92,000
3	Resource Person Allowance	3 persons x 5 days x 10,000 per person per day	1,50,000
4	Resource Person Travel	3 persons x 10,000 per person	40,000
5	Refreshment during the Workshop	Rs 300 per person per day x 25 persons x 5 days per workshop	37,500
6	Exhibition	4 sets of exhibitions, resource person travel and stay.	50,000
7	Monitoring		25,000
	Total Activity Cost		14,14,500
B	Human Resources		
1	Project In Charge	3 months x 20,000 per month	60,000
	Total Human Resources		60,000
C	Grand Total		14,74,500

Annexure

Examples of Models

- Napier's Bones (Multiplication Magic)
- The Spirit of Alabama (Glider)
- Constant Sum Strips (Numbers magic)
- The M-shaped puzzle (Centre of Gravity)
- The Galilean telescope
- The Lens Camera
- Zoetrope (Animation)
- The Quiz Board (Electricity)
- The Food web model (Ecosystem)



Examples of Experiments

- The singing Pipes (centrifugal force)
- The paper that does not get wet in water (Air occupies space)
- The magic powder (super absorbing water gel)
- The magic message (turmeric chemistry)
- Balloon Experiment (Air pressure)
- The 2-ball experiment (Conservation of Momentum)
- Coloured Shadows (the physics of How shadows can be coloured)
- Water in a glass with hole (free fall physics)
- Making a Rainbow (Dispersion)
- Neuroscience experiments

