





## SPARK OF CURIOSITY Project Report

2022-23

#### Sare Taare Zameen Par Trust:

STZPT is a non-profit organization. At STZPT, our mission is to make a profound impact on rural education through our immersive and experiential learning approach. Through Tare Zameen Par, our science outreach program, we bring the wonders of astronomy, science, and math directly to the doorsteps of underprivileged students.

#### www.tarezameenpar.com

#### **Spark of Curiosity:**

Spark of Curiosity is one of the most appreciated programs of TZP. It is a whole academic year engagement program that provides Immersive and Experiential learning along with fun activities that ignites the spark of curiosity among students.

Spark Of Curiosity | Tare Zameen Par

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#### **Rural Education**

Our focus is on enhancing education in rural India. Not only does it help combat poverty and illiteracy, but it also has numerous social, economic, cultural, and political benefits. We strive to address this crucial issue in a professional manner.

#### **Schools in Rural India**

We aim to enhance the quality of education in rural India where over 90% of elementary level schools are government-run. With 87% of schools located in villages, our focus is to provide the latest innovative learning tools to bridge the gap and improve the learning experience. As professionals, we are committed to making a meaningful impact in the lives of students and teachers in rural India.

#### **Importance of Science Education**

As professionals, we understand the immense value of science education for students. It provides an opportunity to gain knowledge about the functioning of the world around us. Science teaches children about their surroundings and offers benefits beyond potential breakthroughs. However, it's crucial to ensure that rural kids comprehend the importance of science education. Let's work together to make this a reality.

#### **Challenges in Learning Science**

As professionals, we understand that practical learning is paramount for mastering science. However, we acknowledge that government-run schools in rural areas face challenges in providing quality education due to limited resources. Despite the lack of adequate labs, teachers, and access to the latest technologies, these schools struggle to offer their students an opportunity to visit science centers in metropolitan cities. Our goal is to ensure that our solution reaches every last mile.

#### **Our Solutions**

TZP's Science outreach programs are designed to provide quality education in Astronomy, Science and Math. Through our Innovativeproducts like,

- Digital Mobile Planetarium,
- Mobile Science Lab,
- Mobile Science Exhibitions
- Spark of Curiosity program, etc.



# Project Overview

Science and Math have been the toughest subjects for the students. However, it is very important to learn these subjects as they provide a framework for finding answers. Math models phenomena and relationships in our observable environment, while articulating concepts from the intuitive to the obscure. Science gives deep attention to the quality and interaction of the things that surround us. But the students from the remote areas aren't privileged enough to get good teachers, well-equipped science labs, or access to the latest technologies.

**'Spark of curiosity'** is an Innovative program executed by **Tare Zameen Par** in association with **Synopsys.** It is a combination of various programs that aims to ignite the curiosity to learn the science concepts. It includes

- Digital Mobile Planetarium Shows
- Customized Science kits distribution.
- Offline Lectures
- Virtual Lectures
- Career guidance and counselling
- Group Activities by Students
- Student Interaction with Indian Scientist
- Quiz Competition



#### **Scope of Work**

For the FY 2022-23, Synopsys has collaborated with Tare Zameen Par to execute 'Spark of curiosity' to achieve sustainable impact on the science education in the rural Karnataka.

What we have committed,

- Vision: To build an interest in learning science by introducing Hands-on learning or experiential learning to the remote area students. And make them learn and understand the concepts more deeply.
- Targeted Number of students: For the engagement of academic year 2022-23, the program was designed to target 3000 students.
- Targeted Geographical area: On the initial discussion with the dignitaries of Synopsys, it was decided to conduct spark of curiosity program in Rural and remote places of Karnataka



#### **Resources**

Science concepts can be learned more effectively through experiments. But the schools from remote areas are not able to provide such facilities. Therefore, we came up with the solution that we should make a set of experiments in the form of soft toys. That would be easy to distribute also. Resources that we had committed are,

- Science kits: Made up of foam material. Students have to dismantle the sheet and set up the experimental set-up. Itgives 'Building Block game' experience to students that helps to create interest.
- Handbook: All the set of kits are provided with a handbook that can guide student how to set up the experiments along with the explanation of concept in regional language.
- Science Instructor: An experienced science instructor from the team TZP who conducts online and virtual lectures to teach students and solve their queries regarding science experiments and related topic.
- Project coordinator: All the activities are being planned are executed under the coordination of Project coordinator. Like, selection of school, legal permissions, planning with schools with concern of authorized person, etc.
- Virtual Meetings: Because of the Digital India initiative, most schools get internet connections and projection systems. That we use for the virtual lectures and follow-ups. If any school doesn't have such facilities, we coordinate with teachers to allow students to use their smart phones to connect the virtual lectures.

#### **Edutainment activities**

During the execution of the program that had planned with Synopsys, we thought of adding few more activities to achieve the maximum impact. We had designed the academic engagement program that include,

- Digital Mobile Planetarium: It's an inflatable dome with 360° projection system that gives immersive experience. Through this mobile planetarium, students from remote areas can experience the similar shows that urban student can experienceby visiting Planetariums in science centers.
- Interaction with Indian Scientist: It has built curiosity to communicate and receive inspiration from passionate Indian Scientists. The Spark of Curiosity initiative has received appreciation from the renowned Sri C N Laxminarayana. RTD. District Science officer, District Science Center, Kalaburagi a unit of NCSM MOC, Govt of India. He actively interacted with students during the session and resolved their queries during Spark of Curiosity program.
- Quiz Competition: Making students participate in competitionslike quizzes can build their interest to learn by enjoying it. While one student is playing the quiz, the student from the audience also tries to find and give the answers. We have used the same concept. We designed the questionnaire in such a way that it includes very simple questions mapping to their syllabus. To bring a joyful environment to their learning.
- Other Activities: To ensure the outcomes of the project we have also conducted Virtual Lectures, Offline Classes, Career guidance and counseling, quiz in individual class, Assessment, ORIGAMY, Group Activities for the Students



#### **Designing of Science Kits**

We planned to design the kits in such way that it can also give 'the building blocks game' experience. This becomes an interesting part of it.

- Material: The science kits are made up of foam material which is very light weight and safe to use.
- Content: Experiments in science kits are mapped to the syllabus. There are different sets of experiments for different class. Each kit has 10-12 experiments.
- Explanation: There is a handbook in each kit. That has pictures of experimental setup along with explanation.
- Handbook Language: Kannada.





#### **Cover Design**

We have designed the cover of the science kit in a unique way. It is actually a poster containing information about 12 Indian Scientists. The poster is rolled on the box which can be easily removed and can be pasted on the wall. The idea is that students can paste it on the wall near their place of study so they can idolize our Scientists.





#### **Inauguration Event**

The inauguration event was held at Govt. Boys High School, Malur in the Kolar district. it was organized offline as well as virtual mode. The Chief guests and Guests of honor actively initiated to lighten the "Spark of Curiosity" program.

- Guests: The science kits were inaugurated by Hon Chief guest, the renowned Sri. Bijay Chowdhury, Lead CSR, Synopsys. In the presence of guest of honor Sri Praveen S, Block Resource person (BRP), Sri Dinesh Badagandi, Founder, Tare Zameen Par, Sri Ramakrishnappa B, Vice Principal, Govt Boys high school, Malur.
- Invitation Poster:



- Event Highlights: Around 644 students from the Malur school and the nearby schools were present for the inauguration. Guests interacted with students inspiring them to believe in themselves and dream big. After the formal inauguration, the Guest of honor addressed the students. Then the Hon. Chief guest Sri Pravin S shared his valuable experience and had an interaction session on easy Math with students where students asked questions to him. Later we distributed science kits to all students. Simultaneously they also experienced the Digital Mobile Planetarium shows.
- Replication: after the first successful event, we have replicated this during all the next phases of Science Kit distribution.
- Glimpses:



## Summary of Spark of Curiosity



Note: Click on image to open the video

#### **Distribution of Kits**

We had targeted 3000 students from different geography. We tried to cover some areas in South Karnataka and Some areas in North Karnataka as well. We have distributed science kits in 22 Schools. Through this initiative we have created curiosity in their minds to think beyond in science & Technology The mechanism tounderstand by imagination from the start of the day to its setting down and thereafter the night sky into space through which they will utilize every opportunity around them and benefit from every element of this project.



## • School Data

Sr	Name Of the School	No Of the Student
No		
01	GJC Saligrama	306
02	GJC Hanagodu	372
03	GHS Doddahejjuru	166
04	GHS Nagapur Hadi	138
05	GHPS Kolavige	12
06	GHPS Haradanahalli, Nanjangud	75
07	GHPS Doddahejjuru	35
08	GHPS Hindagudlu	36
09	GHPS Muduganuru	10
10	GHPS Bharathvadi	36
11	GHS Neralakuppe	135
12	GHS Manuganahalli	108
13	GHPS Haralahalli	45
14	GHPS Abburu	34
15	Govt Valmiki Ashram school, Kolavige	20
16	GHPS Hanagodu	29
17	Government Boys High school Malur	515
18	Government Boys primary School Malur	129
19	G H S, Madikeri	235
20	Govt model primary school, Madikeri	87
21	Karnataka Public school ponnampet	362
22	Govt Jr College, Haradanahalli	115

Total: 3000

#### **Teacher's Training**

We organized a two-day residential training camp in Mysore for at least one teacher from each school and the cluster head. A well-known academician who developed the Muni International method of education Mr. Ashok Thakur, and well-known trainer and Speaker Mr. Chetan Ram mentored all teachers. During this training, teachers from targeted rural schools learned innovative teaching methods and 21st-century life skills that they can apply to their regular teaching. To aid them further, we provided a free online platform with access to the latest learning tools, animated education content, and assessment platform for teachers and students. The teachers were thrilled to be a part of this training and expressed their gratitude to Synopsys and Tare Zameen Par team for this opportunity.



#### **Offline Lectures**

We always focus on conceptual learning. Learning science is more effective and useful if the concept is understood more practically keeping the topics and experiment in mind. We had arranged offline lectures where our science teachers used to explain the deep concept behind the experiments, Origami activities and career guidance have helped students to choose a right path in career.



#### **Virtual Lectures**

We also arranged the lectures over ZOOM. Some schools don't have a projector and internet facilities. We discussed with teachers to form groups of students and give them their smartphones to attend the zoom lectures. This went well and it could help us to keep in their touch to solve any problem related to science kits.



#### **Group Activities by Students**

Group Study helps students to build best communication skill and improve creative thinking. It gives a chance to develop as a student, person and professional. We have implemented this thought by encouraging them to perform the experiments from science kits in group and different experiments from ongoing curriculum. That helps them to learn more effectively.



#### **Science kits in regular Teaching**

Teacher's involvement plays major role to achieve our goals. Many teachers found it easy to explain the subject topics usingscience kits because we already have designed these kits according to their syllabus. Teacher's contribution led us to give a title 'Jupiter of Curiosity'. The title suggested by Mr Chandrashekar B U,Principal R&D Engineer, Synopsys. This year we have given this title to Mr Pattabhiramachandra GS, a senior Teacher from Government High school, Haralahalli, Hunsur.



#### **Quiz Competition**

We had also organized the Quiz Competition to give extra benefit through the program Spark of Curiosity. The advantages of Quiz Competitions that we have observed are,

- Students tend to actually read the material.
- ✓ Students are placed in the right attitude for learning.
- ✓ Students feel more confident to discuss the material.
- ✓ Students raise their grades by simply reading the material.
- The quiz provides a good lead-in for either a lecture or discussion of the material.
- ✓ Students grow curious about the answers.
- ✓ The easy chance to do well gives students a feeling of self-esteem.
- Students are provided with a real foundation for intellectualgrowth



#### **Digital Mobile Planetarium**

Digital Mobile Planetarium is our most appreciated project that gives immersive learning experience. It is an inflatable dome with 360<sup>o</sup> projection system. There are well-established planetariums in metro cities. But, students from remote areas cannot afford to visit them. But our Digital Mobile Planetarium takes that experience to the doorsteps of remote area students. Along with Astronomy, we have other science-related content in English and other regional languages. We had arranged Planetarium shows during each phase of science kit distribution.





#### **Pre and Post Assessment**

We conducted a pre-assessment questionnaire before embarking on our project, followed by a post-assessment upon completion. We are pleased to report that students' learning attitudes have seen a marked improvement. The chart below demonstrates that initially, the majority of students scored between 1 to 4. However, after the project, the majority scored within 5 to 8. Furthermore, there was a significant increase in the number of students who scored 9-10. Overall, we are delighted to see such positive results in our students' learning attitudes.



## Output Outcome & Impact

Output	Outcome	Impact
• Distribution of 3000 Science Kits	<ul> <li>Introduced Experiential learning pedagogy</li> </ul>	<ul> <li>Developed habit of Conceptualize learning that will help them in their entire education</li> <li>Improved practical skills and presentation skills</li> </ul>
• 20 Planetarium Visits	• Provided Immersive learning	• Built an interest in Science and astronomical studies. That will eradicate superstitious beliefs about astronomical events
• Offline-Online lectures	<ul> <li>Provided teaching based on Conceptual learning using science kits</li> </ul>	<ul> <li>Students learned how to relate science concepts to actual life events &amp; understand its applications.</li> <li>New teaching method built an interest in students to learn science and math concepts.</li> </ul>
• Expert talk	<ul> <li>Solved doubts</li> <li>Provided Motivation and Guidance</li> </ul>	• Students will overcome from exam fear and build their confidence.
Origami	Introduced     origami to learn     math concepts	• Students learned math topics in a playful manner.
• Quiz competition	<ul> <li>Students actively participated</li> </ul>	• the competition helped in Building confidence and student participation have increased



#### **Video Feedback**

It is our pleasure to say that the 'Spark of Curiosity' program is enjoyed by students and appreciated by teachers. Even many students had contacted us personally through social media to share their videos where they have assembled the kits and performed the experiments by their own. This is the proof that we are reaching towards our goal. Students are exploring themselves and involving in conceptualized learning.

#### Video Feedback by Teacher

Ms. Ashwini Cluster Head, Hunsur Taluk https://youtu.be/nnfkk3uXqD4



Mr Puneet Teacher, GHS Saligrama https://youtu.be/GMuJDmmId2k



#### **Video Feedback by Students**



<u>https://youtu.be/joUv2uRe0QI</u> More on our Youtube channel : <u>Tare Zameen Par – Digital Mobile Planetarium</u>

#### **Appreciation by Teachers**

have Shach --ಶಾಲಾ ಶಿಕ್ಷಣ ಮತ್ತು ಸಾಕ್ಷರತಾ ಇಲಾಖೆ, ಮೈಸೂರು ಸರ್ಕಾಲಿ ಹಿಲಿಯ ಪ್ರಾಥಮಿಕ ಶಾಲೆ, ಭಾರತವಾಡಿ 9 ದೊಡ್ಡಹೆಜ್ಜೂರು ಕ್ಷಸ್ಟರ್, ಹನಗೋಡು ಹೋಬಳಿ, ಹುಣಸೂರು ತಾಲ್ಲೂಕು, ಮೈಸೂರು ಜಿಲ್ಲೆ ಶಾಲಾ ಡೈಸ್ ನಂ. 29260402701 ಸಂದರ್ಶಕರ ಪುಸ್ತಕ DADOF : 24-02-2023 Л. ತಾರೆ ಜರ್ಮನ್ ಸರ್ ಸಿನಾಪಿಸ್ ವಿಸ್ತ್ರಂತು:- ವಿಳ್ವಾನ ಚಿಡುವಟಕೆಗಳ್ಳ ಮಕ್ಕಳನ್ನು ತೊಹಗಿತ್ತಿ ವೈಸ್ವಾನಿಕೆ ಮನೋಭಾವನೆ ಚೆಳೆಸುತ್ತಿಸುವ ಬಗ್ಗೆ 2022-23 te merzy zaro moas man ಕಾಲೆ. ಭಾಶತವಾಹಿಯಲ್ಲ ತಮ್ಮ ಸಂಸ್ಥೆಯ ವತಿಯಿಂದ ಶ್ರೀ ಪ್ರ್ಯಾಬಾಯನ್ ಕವರ ನೇತೃತ್ವದಲ್ಲ ವಿಜ್ಞಾನ ಈ ಕಾಮಿ. ಕುತೂಹಲದ ಕಿಡಿ, ವಿಜ್ಞಾನ ಕಟ್ ವಿತರಣೆ, ವಿಜ್ಞಾನ ರಸಹುತ್ನೆ, ತಾರಾಲಯ ವೀಕ್ಷಣೆ, ವಿಸ್ಲಾನಿಗಳೊಂದಿಗೆ ಸಂವಾದ, ಕಿಕ್ಷಿಕರಿಗೆ ತುನಶ್ಚೇತನ ತರಬೇತಿ ಮುಂತಾದ ಕಾರ್ಮಕ್ರಮಗಳ ಮುಂಕ ಮಕ್ಕಳ್ಳ ವಿಜ್ಞಾನದ ಬಗ್ಗೆ ಟಿಸ್ಕೆ, ಕುತೂಹಲವನ್ನು ಮೂಡಿಸುವ ಮೂಲಕ ಅವಶ್ಯ ವೈಜ್ಞಾನಿಕ ಮನೋಚನ ಉಂಟುಮೊಹಲು ಶ್ರಮಿಸುತ್ತಿದ್ದೀರಿ. ತಮಗೆ ಸನ್ಮ ಶಾಲೆಂತು ವತಿಯಿಂದ ಹನ್ನವಾದಗಳನ್ನ ಹಳ್ಳಸುವುದರ ಜೊತೆಗೆ ಮುಂದೆಯೂ ಹಹ ನಿಮ್ಮ ಸಹಕಾರ ಹಿಕ್ಕೇ ವರಲ ಎಂದು ಚಿತಿಸುತ್ತೇವೆ. We dance his 24/2/23 ವಂದನ್ ಭಾಂದ್, ಸರ್ಕಾರಿ ಉನ್ನತೀಕರಿಸಿದ ಹಿರಿಯ ಪ್ರಭಾರಿಕ ಶಾಲೆ ಭಾರತವಾಡಿ. ಹುಣಸೂರು ತಾಲ್ಲೂಕು ಮೈಸೂರು ಜಿಲ್ಲೆ - 571105 C:---- :29260402701

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Govt.High School Neralakuppe, Hunsur Tq, Mysore Di. 571106, Ph. No 9663242206

#### Dear Sir.

It is an immense pleasure to write this letter for your prestigious organization "SYNOPSYS" and "TARE ZAMEEN PAR". I wanted to thank you for everything you have done for our school. You gave us the best possible start in life to experience the actual science, supporting us through school and college and helping us through some tough times since. You have always prioritized our needs and shared both science and reality by your Yearlong program for the year 2022-2023.

Thank you Tare zameen par for conducting such programs and Synopsys for supporting this noble initiative and for encouraging us to do the best for our students. There will never be enough words to convey how much Synopsys mean to us and how grateful we are for showing us what unconditional teaching truly means and various programs such as Planetarium show, Scientist Talk, Quiz, group activity, webinars etc. It was great experience for immersive and experiantal learning for our students which including Maths, Science and Astronomy

Thank you Synopsys and Tare Zameen par.

ಮಾರ್ಚ್ಯಾತ್ರಮ್ ನಿರ್ದಾರ. ಸರ್ಕಾರಿ ಪ್ರಧಾನ, ನೆಂಗಳಾವೆ, ಹನಗೋರು ಹೋಗ ಟುಗಾಗಂರು ನಾ, ಮೈಲಾರು ಜಲ್ಲೆ

# **Project Summary**

#### Spark of Curiosity program FY 22-23

#### Total No of kits Distributed: 3000

#### Schools Visited: 22



Web page: Spark Of Curiosity | Tare Zameen Par



Saare Tare Zameen Par trust #52, 9th Main Road, Banashankari Stage 2, Bangalore, Karnataka 560070, PHONE: 9035013642, 9035013649 Visit our website: <u>www.tarezameenpar.com</u> Drop your queries at: <u>info@tarezameenpar.com</u>