



## Teachers' Resource Laboratory

*Creating Avenues for Development of Scientific Temperament in Marginalised Children*



Reached **7500** children over three years



All girls mentored through the model score **90** percentile



**70%** girls mentored through TRL can successfully undertake Science and Maths projects.



Bahraich,  
Uttar Pradesh, India

### Overview

Many in India believe that girls are less suitable for learning science and mathematics. As a result, for generations, girls from marginalised and rural communities have been deprived of developing a logical and analytical bent of mind. They have been discouraged from following their dreams of becoming an engineer, doctor, pilot, etc. Even the teachers mentoring these girls remain largely incapable and often reluctant to correct this perception, leading to poor academic performances by their students, especially girls, in science and maths.

CARE India is working with teachers to build their capacities by providing adequate support in the form of laboratories and allied infrastructure. This way, the teachers can act as enablers who pass on their learnings to their students. This way all students, especially girls, can gain practical experience in science and maths concepts.

The Teachers' Resource Laboratory (TRL) is an innovative model addressing the barriers that prevent marginalised

children, especially girls, from choosing to study science, technology, engineering and mathematics (STEM).

“STEM learning implies efficiently utilising science and mathematical concepts, experiencing real life based applications of scientific concepts, and gaining age appropriate exposure to computer coding.”

## Approach

- Change the community's perception that girls cannot learn science and maths
- Create access to resources, tools and methods for teachers and build their capacity to teach STEM, especially to girls, and address the diverse learning needs of the students
- Create an interest and enthusiastic participation within children

## Implementation

The TRL model has been designed to support the government's endeavours to strengthen STEM education in India. Giving students and teachers access to STEM laboratories at the local level is crucial. Addressing the resource gaps in the available education infrastructure is equally important.

Under the TRL project, CARE India set up and maintains STEM laboratories, libraries, ICT facilities, and training and mentoring options by trained resource persons. The project design has led to lowered costs, thereby ensuring sustainability. By providing the necessary infrastructure and mentoring facilities, teachers and children, especially girls, are encouraged to pursue STEM disciplines as potential career options.

An integral part of the model is the establishment of a supportive network of teachers, parents and community to enable girls to continue learning STEM. This is done through events like Science Melas, which give the parents and communities of the children a sense of involvement in their children's education. This opens up a whole new world of opportunities for the children, especially girls, and breaks the myth that girls cannot succeed in learning science and maths or pursue STEM-based careers.

## Achievements

The TRL model has been able to positively enhance the scientific aptitude in students. Girls mentored through the TRL model have scored in the range of 90 percentile, as compared to non-mentored children who scored in the range of 50 percentile.

Children mentored through TRL have been shortlisted to present their projects in the Raman Youth Science

Innovation, representing rural government schools in the country. They received appreciation for their tenacity and creativity, which they displayed through their STEM projects.

Acknowledging the model, the Government of Uttar Pradesh has scaled it up to all 18 divisions of the state, thus reaching all districts. The model has also received a mention in the Ministry of Human Resource Development's (MHRD's) 'Shagun' portal for being an innovation in STEM-based learning, at the grassroots level.



### Sandhya's Story

"My father works as a tailor, but he wants me to become a doctor. I want to fulfil my father's dream. When I become a doctor, I will no longer be poor and have enough money to take care of my parents and educate my two brothers."

Before the TRL project started in my school, I had no idea how I was going to become a doctor. I enjoy studying science and maths. I especially find magnets and its properties to be fascinating. When CARE India organised a visit to the TRL in my school, my friends and I were excited to see so many new and fascinating apparatus—we were elated! We saw live demonstrations of scientific concepts. We never imagined that we would be able to see and conduct our own science experiments.

These equipment and resources in the TRL ignited so many questions in my mind; I found myself unable to match the theoretical explanations given in textbooks or by teachers with what I saw during the practical experiments. The mismatch between the abstract concepts I had learnt in textbooks and the concrete examples I saw in resource lab have made me even more curious about the mysteries of science. My friends and I are so happy that we have a TRL in our school. Nothing can hold us back now, and nobody can tell us that girls can't excel in science and maths.



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