Dear readers,

The year 2022 has been a fruitful year at RLF in terms of impact. In this edition, we are happy to share the events that brightened our year.

**From the Chairperson's Desk:**

Last three years have been a difficult period for all of us but especially for small companies like RLF. RLF being a production house, work from home is not possible, and thus it has been particularly difficult. Further, this period (31 March 2021) also saw the end of incubation support from MEITY (Govt of India). The implication was that RLF also needed to become self-sustaining just when the pandemic and its restrictions were severely hampering production, distribution, and training. It is the incredible efforts of the RLF team that kept the operations ongoing, utilizing the break periods in the restrictions and managing to scale up volume and support to achieve self-sufficiency.

**What’s in this Newsletter:**

- Training’s in 13 schools across 6 cities
- Impact study and stories
- Science lab manual with NCERT
- Digital content books available
- Workshop on Tactile Resources
- Regional language tactile books
- Upcoming book and aids launches
- New schools under TLS -2023
- New Training Programs: Regular classes at School
This would not have been possible without the support of our individual donors as well as CSR of different companies. We are extremely grateful to all of you for supporting us during this difficult period and also partnering with us in this noble venture. We have a very credible performance and range of activities to share with you through this Newsletter. We look forward to your support in the coming years. All feedback is welcome.

Prof. M. Balakrishnan
Chairperson, Raised Lines Foundation

Trainings in 13 schools across 6 cities in India

Physical training sessions on tactile books for both students and teachers were conducted at the school premises of the blind schools in Karnataka, Delhi and Gujarat. The trainings were conducted in three sessions for each school. The students were given an overview of tactile books and their benefits. They were taught to hold the book in the correct direction, how to read the book’s contents and navigate through it.

1. The first session for juniors, class 1 to 5 students and teachers - Students were asked to identify the object corresponding to an alphabet, find and select their favourite fruits, and identify the animals and mimic their sounds. Following this, the colouring activity was done where students were taught to identify different textures and borders on the colouring sheet and use different colours to fill within raised boundaries.

2. The second session for seniors, class 6 to 10 - Students felt tactile maps for the first time and were thrilled to feel the shape of India, the position of the oceans, islands and various states and locate their own state on the map. Using the Exploring Windows book the students were taught computer layouts, and with Learning with Tactile Graphics, they learned new shapes, monuments, festivals, emoticons, etc.

3. The third session for teachers - This session focused on using Science and Mathematics books in regular classroom teaching. The books covered all concepts required from class 1st to 10th for Science and Mathematics.

<table>
<thead>
<tr>
<th>No of training's</th>
<th>No. of teachers</th>
<th>No. of students (Girls and Boys)</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>107</td>
<td>910 (385 and 425)</td>
</tr>
</tbody>
</table>

Students engrossed in the training sessions
Feedback from students and teachers

Our team surveyed a group of 22 teachers and 38 students from 12 schools across India to understand the impact of our tactile books on their teaching and learning, and the results were promising.

84% of students are able to understand all the concepts that were taught using tactile diagrams.

Nearly 90% felt that the availability of tactile would make students with visual impairment opt for Science and Mathematics in higher classes.

82% of teachers have started using tactile books in regular classroom teaching.
Stories of positive impact

We came across several inspiring stories during our Touch Learn Shine project. Sharing a few.

“I also want to see it like sighted children”

‘Where there is a will, there is a way’, this famous quote would be synonymous with Maria, a visually impaired student studying in class 10 in Shree Ramana Maharshi Academy for the Blind, Bangalore. Soft-spoken and focused, Maria is one of the smartest students, says the principal. The excitement was evident on her face when she could feel and imagine the icons on the computer screen with our “Exploring Windows” computer book. She says the tactile diagrams help her understand concepts quickly and easily. Rather than just listening to the screen reader, she can now imagine the layouts of various icons on the screen.

When asked about which diagrams she wants: “I want all the pictures in the books. I want to see it like sighted children. If the teacher says a boy is walking with a stick, I also want to see that in tactile”.

“I can see and teach shape of a mountain”

A special education graduate, Ms. Bhagya has 22 years of experience in teaching visually challenged children. Being a seasoned teaching professional, her teaching skills are mesmerizing. She takes time to hold each child’s finger and trace the tactile diagrams. As a visually impaired teacher, she says the tactile books helped her know the shape of the temple she visits and the bus she travels in daily. The book has helped her learn many things too. She said when the children were taken to the mountains for trips, they enjoyed the climb, but how the mountain looked as a whole, they understood only with the tactile graphic of the mountain.

“I’m thankful that I got to touch and feel objects like a racquet, TT bat, ball, boathouse after so many years in my life and the children have gotten an opportunity to learn it much younger,” says Ms Bhagya.

“I want to become an IAS officer”

Shazia is a class 9 student at Jagruti School for the Blind in Pune. Her conceptual knowledge is limited in Science and Mathematics as it is difficult for her to understand concepts like the solar system, the human body, light and geometry. After touching the Science and Mathematics concepts in tactile for the first time, Shazia was thrilled and overjoyed. She never thought that such diagrams could be learnt with touch. “Tactile diagrams should be part of daily classroom learning. With the help of these books, my friends and I are able to answer diagram-based questions.” she says.

Shazia confidently says, “I want to become an IAS officer. With the help of these diagrams, I can understand the India map properly and also will have good knowledge of Mathematics concepts which will eventually help me in fulfilling my dreams.”
"I want them to learn more and love mathematics"

While playing with his sister and reading with one eye closed was when Mr Durga Prasad, a Mathematics teacher at Institute for the Blind, Delhi realized that he could not see anything. His loss of vision with time did not stop him from becoming a mathematics teacher in a school. But as his eyesight was deteriorating, the management asked him to discontinue. He did not let this dampen his spirits and pursued a course in special education and started teaching Maths to visually impaired students. He has been trying to teach geometry to the students, but due to a lack of resources, it has been a challenge. Now with the availability of tactile diagrams, he believes it is possible.

"Diagram-related questions are exempted in exams for visually impaired students but understanding these concepts helps in increasing their overall knowledge, I want them to learn more and love mathematics.” this spoke volumes of his passion for teaching and his fighting spirit.

**Tactile Science Laboratory Manual with NCERT**

RLF is working with NCERT Delhi to develop a Science Laboratory Manual in Tactile for students studying in Upper Primary Stage. The manual will enhance children’s comprehension of scientific concepts, and they will also acquire basic experimental skills. The manual contains 59 activities having 3 to 4 diagrams in each activity along with the corresponding content in print and braille. Multiple devices/apparatus used in the experiments are also depicted through tactile diagrams. The manual covers activities related to the concepts of food, materials, living things, natural phenomena and natural resources.
Digital content books available from class 6 to 12

This year our accessible content development team has converted more than **15000** pages of Science and Math content into accessible e-books making them readable with a screen reader on computers and epub reader apps like Thorium Reader. This includes NCERT class 6 to 12 books for subjects like Maths, Science and Computer. The team also now provides PDF remediation services for all kinds of content including scanned PDF documents. Working professionals are most benefited from this service. NCERT books in Hindi will also be available in the first quarter of 2023. **In 2023, the team will focus on making STEM books for State Boards and books for higher education available to students.**

Three Day Workshop on Content Accessibility and Tactile Solutions

A workshop on Content Accessibility, Tactile Solutions and AT for Independent Reading and Writing was organized by National Centre for Assistive Health Technologies (NCAHT) in collaboration with Raised Lines Foundation and Hungry Fingers. The three-day workshop focused on new methodologies for making content accessible, new tactile solutions and assistive technologies for accessing content and writing examinations: **The session was conducted with NCAHT team, RLF team and Prof.Bob Marek, founder of Hungry fingers and Director of Services for Students with Special Needs at the John Paul II Catholic University of Lublin, Poland.** The workshop was organized in 3 parts. Day 1 for design students on new AT solutions; Day 2 for special education diploma students on new teaching techniques; and Day 3 for teachers in blind schools.

The Year Ahead 2023-24

Regional Tactile Books and Story Books

In a recent survey conducted by us teachers, students and authorities expressed their need for sighted alphabets in their local language. After using our Hindi varnamala book to learn sighted alphabets as well as Hindi Braille with objects, the students began to ask for similar books in their local language. **With support from Vision Aid, our team is working on creating alphabet tactile books in Bengali, Marathi, Gujarati, Tamil, Telugu, Kannada and Urdu.** The team has begun the initial design process, and the books will be available for by July 2023.

Also, on request from children, we are working on **Panchatantra storybooks in five languages and activity books.** These books will also be available in by July 2023.
STEM LEARNING
TACTILE KITS

Launch of STEM Tactile Books and Learning Aids

Encyclopedia of Geometry Tactile Diagrams (Vol A and B)

In collaboration with Xavier Resource Centre for Visually Challenged (XRCVC), we've developed an Encyclopedia of Geometry Tactile Diagrams covering geometry concepts for students from grades 1 to 10. The encyclopedia is available in two volumes, Volume A and Volume B. It can be used by students with visual impairment and blindness globally, irrespective of the school curriculum and education board.

Tactile Science Primer (Volume A and B)

The Tactile Science Primer will help students from grades 1 to 10 to gain knowledge on varied and essential science concepts like the human body, ecosystem, solar system, energy and circuits. Volume A for grades 1 to 5 comprises basic concepts which will lay the foundation to understand complex science concepts provided in Volume B for grade 6 to 10.

GEOMKIT- A Tactile Geometry Kit

GEOMKIT is a set of accessible tools and accessories required for tactile geometry constructions on a standard Braille Paper by VI students. The box includes a tactile slate, point markers, line markers, ruler, protractor, set square, wheels arcs and tactile stylus. With GEOMKIT, a student with visual impairment can easily create a vast range of geometrical constructions. It is tested for all the geometrical constructions as per NCERT class 6 to 10 syllabus.

1000+ GEOMKIT has been provided to 30+ schools across India in collaboration with Saksham. 50+ training sessions have been conducted in the schools.
JOJO Blocks – in collaboration with Microsoft

JOJO Blocks are tactile playing rectangular blocks, each representing a number from one to twelve, where the block’s length increases with the block number. They are designed for children with vision impairments to gain a basic understanding of numbers, counting and numeracy, while engaging in a creative playful experience with the blocks.

Braille Playing Cards

There will be 2 versions of Braille playing cards. These cards are all-inclusive.

1. Junior Playing Cards – in collaboration with Vision Empower and Microsoft. Apart from the standard printed side, these cards have four tactile elements—the number and the suit in Braille as well as tactile representation. Unlike standard playing cards, Junior Braille Playing Cards do not have the picture cards of the King, Queen and Jack for further simplification.

2. Standard Braille Playing Cards – A complete deck of 52 cards with print as well as braille representation.

New training program: Regular classes 2023

In view of engaging with students better, our team is planning on providing regular classes at school dedicated to tactile diagrams. Classes will be available for all grades online and physically in select cities. Initially, we will focus on the schools covered by the Touch Learn Shine program. In primary classes, the focus will be on improving children's tactile perception and fine motor skills. For higher classes, tactile concepts will be chosen based on their curriculum. It’ll help them understand pictorial concepts in their syllabus better. We plan to begin the program next year mid.

New schools under Touch Learn Shine 2023

Till date, we have covered 30 schools in multiple states of India. In the next few months, we will be extending our program to 16 more schools covering 1000+ students.

Current geographical regions: Dehradun, Pune, Delhi, Bangalore, Chandigarh, Noida, Gandhinagar, Mysore, Belgaum, Shimla, Chennai, Madurai, Tirupati.

New geographical regions planned: Lucknow, Varanasi, Prayagraj, Patna, Vijaywada, Mumbai, Vizianagaram, Meghalaya.
Towards an Inclusive 2023!
RLF team wishes you a Happy New Year

Raised Lines Foundation (RLF)
RLF is a not for profit startup from IIT Delhi with the sole mission of empowering persons with visual impairment and enabling them to pursue subjects and careers of their choice.

What We Do

- Design and produce tactile books covering all children books to curriculum books.
- Convert handwritten, printed and digital documents into accessible formats.
- Make images accessible through image descriptions and tactile diagrams.
- Manufacture teaching-learning aids and educational accessible games.
- Special focus on content related to STEM education

As the famous Helen Keller saying goes "Alone we can do so little; together we can do so much." we've experienced it first-hand with significant collaborations and supporters.

Our Collaborators

Our Supporters
Connect with Us

If you know any person with visual impairment or an organization or school who may benefit from our solutions click to fill in the form

or

If you want to support persons with visual impairment, please connect with us:

rlf@raisedlines.org, +91-8929669336

To know more about our work, please visit our website:

www.raisedlines.org

Click to donate for our cause