# INNOVATION AND SCIENCE PROMOTION FOUNDATION

# ANNUAL REPORT

# 2024-2025

ISPF

Innovation & Science Promotion Foundation

# Annual Programme Overview (2024–25)

## 1. Purpose of the Report

This annual report presents the key activities, implementation highlights, and outcomes of two major experiential science programmes conducted during the academic year 2024–25.

## 2. Programmes Covered

The document consolidates the completion reports of:

- Project Anveshan – a hands-on science learning initiative implemented across selected government schools.
- Project Jigyaasa – a STEM education programme implemented across multiple states through partner schools.

## 3. What the Report Contains

Each section details the programme objectives, delivery model, student engagement, teacher involvement, achievements, and measurable impact. Photographs, activity summaries, and outcome metrics have been retained from the original reports for authenticity.

## 4. How to Read This Report

The following pages are organised into two major sections

Section 1: Project Anveshan and Section 2: Project Jigyaasa—with minimal changes to the original structure. A final summary consolidates insights and key learnings across both projects.

# SECTION 1: Project Anveshan

***Hands-on Science Learning Programme***

*Project Anveshan is a hands-on science learning initiative implemented across selected government schools. The following section presents its activities, implementation highlights, outcomes, and overall impact.*

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# PROJECT ANVESHAN ANNUAL REPORT 2024 - 2025

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# PROJECT OVERVIEW

- ***Project Anveshan is a hands-on learning initiative supported by Aditya Birla Jan Seva Trust and implemented by ISPF. It enhances Science & Math education by making complex concepts simple through engaging activities.***
- ***For underprivileged students of govt. schools.***
  - ***Boosts curiosity & critical thinking***
  - ***Connects theory with real life.***
- ***The science workshop was initiated in 5 government schools of Rishra , since August 29th 2024.The first school in which we initiated was Rishra Girls High School .The schools included in this project are:-***

| | |
|---|---|
| **RISHRA VIDYAPITH BOYS** | **9 Sec– A,B,E** |
| **RISHRA VIDYAPITH GIRLS** | **9 Sec – A,B,C** |
| **SHRI KRISHNA VIDYAMANDIR** | **7 Sec – A,B ; 8 Sec – A,B** |
| **RISHRA GIRLS HIGH SCHOOL** | **7 & 8** |
| **BRAHMANANDA KESHAV CHANDRA** | **7 & 8** |

- ***Project Anveshan is a visionary joint initiative of ABJST and the ISPF that aims to empower underprivileged students through hands-on learning experiences.***

- ***The students of classes 7 & 8, presently 8 & 9, are taught hands-on activities to create an impactful and engaging learning environment, ensuring that students develop a strong foundation in scientific concepts through experiential learning.***

- ***In this project, 1100 students benefited from classes 8 & 9 at the five government schools of Rishra.***

- ***Practical, hands-on activities facilitated student learning through direct engagement with the material. The process of creating physical models fostered creative thinking and problem-solving skills.***

- ***These activities cultivate intellectual curiosity. Student engagement and motivation are enhanced through experimentation with diverse approaches.***

| SCHOOL | GRADE - 8 | GRADE - 9 | TOTAL |
|---|---|---|---|
| Rishra Vidyapith Boys High School | None | 250 | 250 |
| Rishra Vidyapith Girls High School | None | 356 | 356 |
| Rishra Girls High School | 30 | 28 | 58 |
| Brahmananda Keshav Chandra High School | 42 | 42 | 84 |
| Shri Krishna Vidyamandir High School | 171 | 120 | 291 |

*In September, the science workshop was conducted across five government schools and engaged around 1,100 students from Classes 7 and 8, now 8 & 9. The program was designed to improve scientific understanding through hands-on, experiential learning. The students participated in weekly sessions.*

*Tactivities taught:-*
*1. Osmosis*
*2. Acid-Base Indicators*
*3. Shapes & Angles*

*In the month of October, due to the Durga Puja vacation, we conducted online sessions, students came across different scientific concepts & explained the prior tactivities taught in the classes. The recorded sessions were uploaded to a YouTube channel.*

*You can access it using the given link. Click*

- ***In the month of November, the offline science sessions resumed. In three out of five schools, they had their Offline Baseline Assessment. This test was based on their WBBSE syllabus. This test helped to recognise their conceptual clarity and learning gaps.***

  ***School Names – 1.Rishra Vidyapith Boys***
  ***2.Brahmananda Keshav Chandra School***
  ***3.Shri Krishna Vidya Mandir School***

- ***In the month of December, the leftover schools had their Baseline Assessment Test. The resumed science sessions helped them build their scientific concepts and relate them with real world applications.***

- ***After the completion of their Annual Examinations in mid-December 2024, students transitioned into a scheduled session break, allowing a brief pause in academic activities before the commencement of the next term.***

*In the month of January, the students of grades 7 & 8, presently 8 & 9, had their regular classes.*

*The students completed the tactivities*
*1. Straw Propeller*
*2. Static Electricity*
*3. Shrink & Sink Density*
*4. Ammonia Gas*

*In the month of February, the Screening Test was conducted in one out of five schools with their regular scheduled classes. The students scoring 80% marks were selected for the Quiz Competition.*

*They had their Intra-school event in the month of March. The regular classes were adjourned for the WBBSE Exams (10th board exams).*

*The screening test was conducted in the months of March & April in four leftover schools.*

*Intra-School Event was organised in the month of March in four out of five schools. The Inter-School Event was not possible in Rishra Vidyapith Boys because of the WBBHSE (12th Board Exams)*

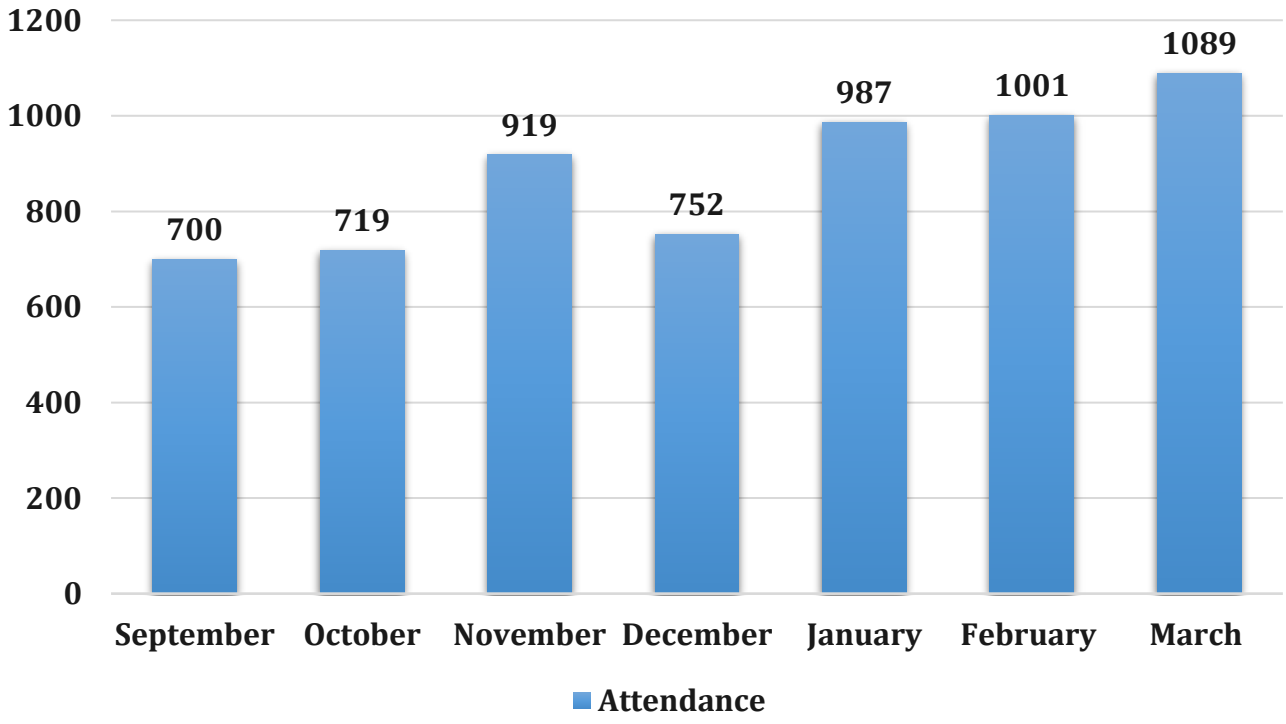
# TACTIVITIES IMPLEMENTED

| Activity | Grades | Concepts Covered |
|---|---|---|
| Acid and Base Indicator | 8 & 9 | pH levels, natural indicators, acidic and basic substances |
| Shapes and Angles | 8 & 9 | Geometric reasoning, identification of shapes, measurement of angles |
| Osmosis | 8 & 9 | Water movement across membranes, plant cell behavior, diffusion principles |
| Straw Propeller | 8 | Air pressure, motion, Newton's Third Law |
| Ammonia Gas | 8 | Properties of gases, solubility, chemical behavior of ammonia |
| Food Test – Glucose | 8 | Nutrient detection, Benedict's test, chemical indicators for carbohydrates |
| Pin Hole Camera | 8 | Rectilinear light travel, image formation, basic optics |

# TACTIVITIES IMPLEMENTED

| | | |
|---|---|---|
| Static Electricity | 9 | Electrostatics, charge interaction, attraction and repulsion forces |
| Shrink and Sink – Density | 9 | Mass-volume relationship, buoyancy, Archimedes' principle |
| Microscope – Epidermal Cells | 9 | Microscopic observation, cell structure, plant epidermis analysis |
| Electrolysis | 9 | Chemical decomposition, ion migration, conductivity through liquids |

# ATTENDANCE (SEP'24 – MAR'25)



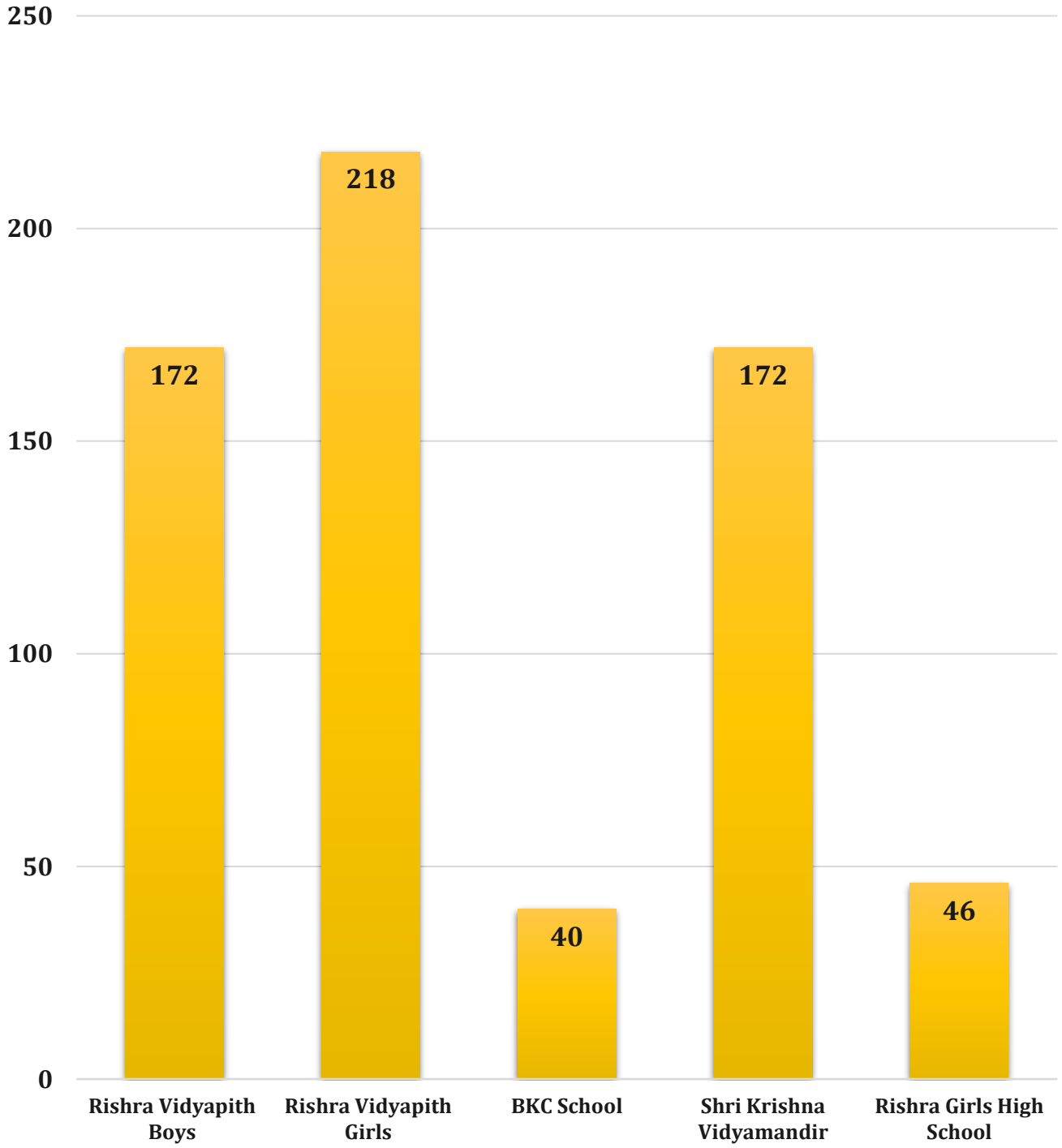
# BASELINE ASSESSMENT

***Baseline assessments were conducted in each school to evaluate students' understanding and analytical abilities, aligning with the curricular standard.***

***Total Marks: 20 marks***
***Question Pattern: MCQ-Based***
***Time Duration:30 marks***
***Grade – 7 & 8***

***The Questionnaire of the Baseline Assessment of Grade 7 & 8 are attached in Annexure A & Annexure B , respectively.***

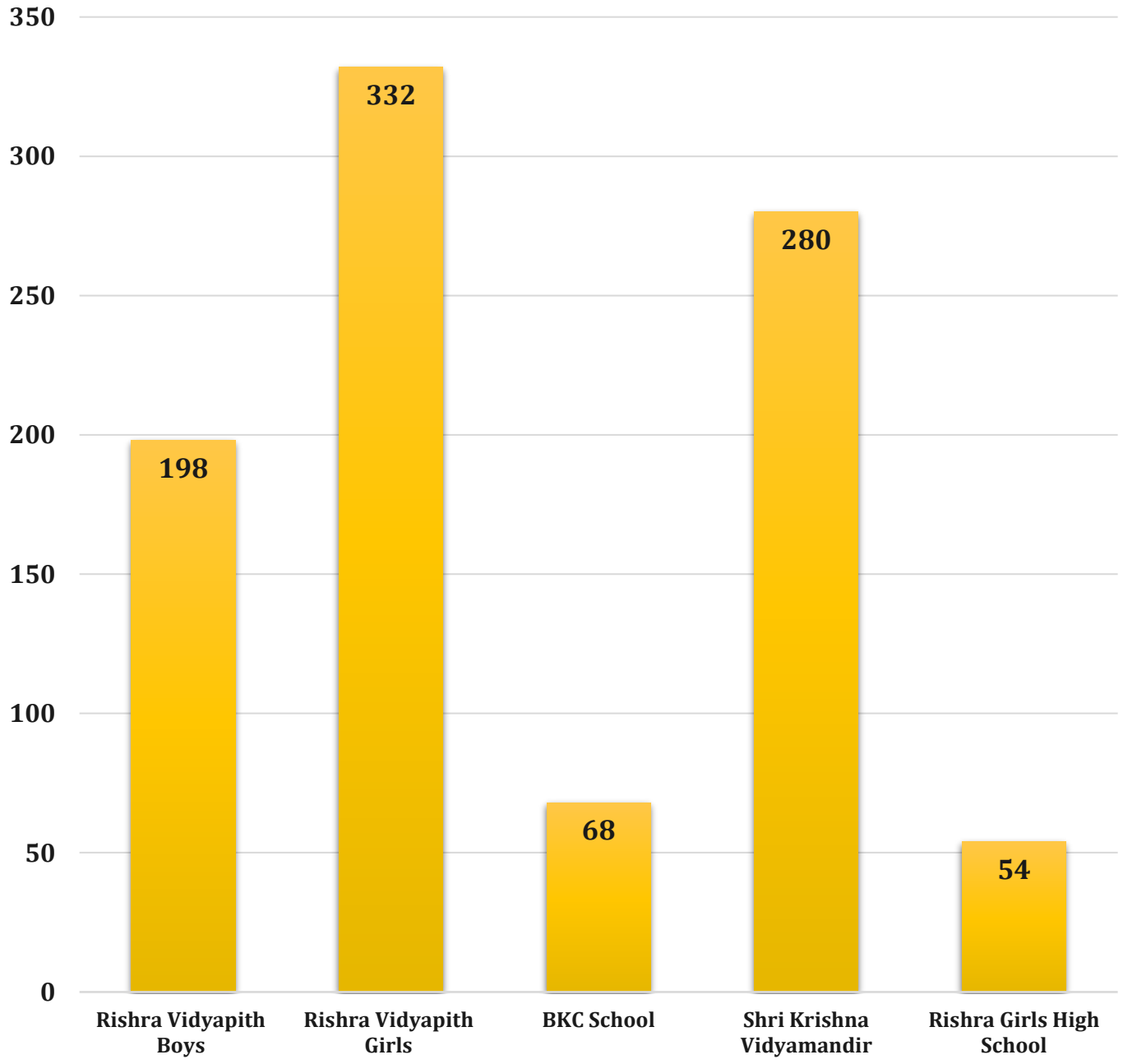
# BASELINE ASSESSMENT PARTICIPATION



# SCREENING TEST

***The Screening test was conducted in all five schools to assess students' understanding and analytical skills.***
***To qualify for the screening test, the students need to score at least 25+ out of 30 to qualify for the Quiz competition. Pattern: 30 marks for short answer type (SAQ) questions, 10 marks on communication skills and attendance, 10 marks for teamwork skills.***
***Qualified students will advance to the Intra- School Quiz Competition in February. Test Format: 50 marks | Duration: 40 minutes.***
***The Annexure A & B for both the Grades were shared with the monthly report of January.***

# SCREENING TEST PARTICIPATION



# INTRA-SCHOOL EVENT IN RISHRA SCHOOL

***A successful intra-school quiz competition was held , engaging students in the following schools :-***

***School Name – Rishra Girls High School on 7th of February.***
***Venue – School's ICT room.***

***School Name - Rishra Vidyapith Girls on 27th of February.***
***Venue – School's ICT room & hall.***

***School Name – Shri Krishna Vidyamandir High School on 8th of March.***
***Venue – School's Hall.***

***School Name – Rishra Brahmananda Keshav Chandra High School on 28th March***
***Venue – School's ICT room.***

*The quiz competition was structured as a multifaceted event , encompassing three distinct segments –*
*1. Traditional Quiz Competition*
*2. Demonstration Round*
*3. Speak-Up Session*

*All participants showed commendable effort, and the competition served as a valuable learning experience.*

*The event concluded with a prize distribution ceremony, recognising the achievements of the winning teams.*

*The quiz competition was well-attended by principals in all the schools, the dedicated science teachers and supporting parents, creating an encouraging atmosphere.*

## INTRA-SCHOOL EVENT AT VIDYAPITH GIRLS

QUIZ COMPETITION


DEMONSTRATION

GUEST'S SPEECH


PRIZE DISTRIBUTION

WINNING TEAM


SPEAK-UP

# INTRA-SCHOOL EVENT AT RISHRA GIRLS HIGH SCHOOL

DEMONSTRATION


QUIZ COMPETITION SPEECH

GUESTS

PRIZE DISTRIBUTION

HM'S SPEECH


**INTRA-SCHOOL COMPETITION AT BRAHMANANDA KESHAV CHANDRA SCHOOL**


**INTRA-SCHOOL EVENT AT SHRI KRISHNA VIDYAMANDIR HIGH SCHOOL**

# LEARNING OUTCOMES


Voice Testimonials

**STRAW PROPELLER**

**STATIC ELECTRICITY**

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- Students of all the classes meticulously recorded their observations and experimental findings in observation sheets. This focuses on the practical aspect of data recording.
- Students demonstrated critical thinking and scientific inquiry skill emphasizing the importance of careful observation and data collection in scientific investigations

***Improved Academic Performance***
***Students demonstrated noticeable improvement in science assessments, reflecting a stronger grasp of core concepts through hands-on, experiential learning.***

***Increased Engagement and Curiosity***
***Participation levels rose significantly, with students showing heightened enthusiasm for science topics and actively seeking opportunities to explore beyond the curriculum.***

***Enhanced Communication and Presentation Skills***
***Regular group discussions and activity presentations have improved students' ability to articulate scientific ideas clearly and confidently in front of peers.***

***Strengthened Teamwork and Collaboration***
***Working in small groups during experiments and activities helped students develop essential teamwork skills, fostering mutual respect, shared responsibilities, and peer learning.***

***Improved Attendance and Confidence***
***The interactive and student-centric approach led to better attendance, with many students expressing increased confidence in both academic and interpersonal settings.***

# HM'S Testimonials

*" These hands-on science activities have greatly enhanced our students' critical thinking and problem-solving abilities, offering a learning experience beyond traditional classroom methods. We sincerely appreciate this valuable opportunity."*
*— Headmistress Rishra Vidyapith Girls' Schoo*

# TESTIMONIALS


*"We sincerely thank ABJST and ISPF for initiating this impactful project. It has meaningfully engaged our students through hands-on science activities, significantly boosting their interest in scientific exploration. We truly value this initiative and kindly request its continuation and expansion for sustained learning benefits."*

*— Faculty Member, BKC School*

# TESTIMONIALS


*"This workshop has significantly enhanced my child's understanding of scientific concepts and sparked a genuine curiosity to explore and learn more. I sincerely thank ABJST and ISPF for organizing these sessions and hope such initiatives continue to support and enrich students' learning journeys."*
*— Parent Feedback*

# Results & Attendance

***Student's Attendance Growth***

*This section highlights attendance & participation of the students, showcasing engagement and participation trends. A detailed spreadsheet with attendance records is here. Click*

***Baseline & Screening Test Performance***

*This section presents student marks in the baseline and screening tests. The linked spreadsheet will provide detailed scores and insights into their progress. Click*

# PROJECT IMPACT

***Improved Student Attendance:***
***A noticeable rise in student attendance was observed throughout the duration of the project, indicating increased interest and consistent engagement in the sessions.***

***Enhanced Conceptual Clarity:***
***Students demonstrated a clearer understanding of scientific principles, as reflected in the progression from baseline to screening test results.***

***Higher Academic Performance:***
***There was a measurable improvement in science assessment scores, showcasing the effectiveness of experiential learning in reinforcing theoretical knowledge.***

***Increased Classroom Participation:***
***Students became more actively involved in discussions and hands-on activities, leading to a more dynamic and interactive learning environment.***

***Development of Critical Thinking:***
***The project promoted analytical skills and problem-solving abilities through structured experiments and model-making exercises.***

***<u>Strengthened Communication Skills</u>:***
***Regular presentations and group discussions enhanced students' ability to articulate scientific ideas confidently and clearly.***

***<u>Boost in Teamwork and Collaboration</u>:***
***Collaborative tasks encouraged peer-to-peer learning, mutual respect, and cooperative engagement among students.***

***<u>Greater Student Motivation</u>:***
***The engaging format of the activities sparked curiosity and self-driven exploration, fostering a deeper interest in science subjects.***

***<u>Positive Behavioural Changes</u>:***
***Students displayed improved discipline, punctuality, and responsibility, attributed to their sustained involvement in project sessions.***

***<u>Overall Holistic Growth</u>:***
***Beyond academics, students gained confidence, interpersonal skills, and a sense of accomplishment, contributing to their all-around development.***

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# *SECTION 2: Project Jigyaasa*

***A Multi-State STEM Education Programme***

***Introductory Paragraph (20–30 words):***
*Project Jigyaasa is a multi-state STEM education programme implemented across 30 government schools. The following section outlines its key pillars, achievements, student engagement, and documented outcomes.*

# Annual Report

# Jigyaasa FY 24-25


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SIEMENS

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# 1. EXECUTIVE SUMMARY

Project Jigyaasa is a long-standing STEM education initiative by **Siemens Limited**, aimed at transforming STEM learning in government schools across India. The programme seeks to ignite curiosity, critical thinking, and problem-solving skills among students from underserved communities.

For the 2024-2025 cycle, **Siemens Technology and Services Private Limited (STSPL)** partnered with the **Innovation and Science Promotion Foundation (ISPF)** as the technical and implementation partner to deliver the programme across **30 government schools** in Bengaluru, Chennai, and Gurugram.

## Key Achievements:

- Reached over **11,000 students** from disadvantaged backgrounds
- Trained more than **100 teachers** in experiential, inquiry-based STEM pedagogies
- Established **37 active STEM clubs** for student-led exploration
- Organised multiple intra- and inter-school STEM fairs, promoting innovation and application of STEM concepts
- Provided career guidance to **3000+ students** in grade 9, expanding their awareness of STEM career pathways

Leveraging ISPF's expertise in experiential learning, the partnership has created meaningful learning experiences, despite challenges in securing permissions and sustaining student engagement. Project Jigyaasa remains committed to nurturing a culture of scientific inquiry and innovation, preparing young learners for a promising future in STEM.

## 2. IMPACT NUMBERS

Project Jigyaasa made significant strides this year, impacting students and teachers across 30 schools. The program combined **teacher training, student engagement through STEM Clubs, and experiential learning opportunities** like Robotics, Stargazing, and Eco-Connect Day. The **STEM Fair emerged as a key platform** for students to apply their learning through hands-on projects.

Regular **capacity-building sessions for STEM Coaches** ensured they could effectively mentor teachers and guide students. These efforts have fostered **a stronger culture of inquiry, experimentation, and problem-solving**, making STEM learning more engaging and accessible.

| Category | Total Count | Highlights |
|---|---|---|
| Schools Participating | 30 | STEM Clubs were set up in all schools, fostering hands-on learning. |
| Total students impacted (Grades VI-IX) | 11,388 | Directly engaged through various STEM interventions. |
| Total students in STEM Clubs | 1300 | Actively participated in hands-on STEM activities. |
| Total students participating in Career Counseling sessions | 3,434 | Guided on STEM career pathways and future opportunities. |
| Total students participating in STEM Fairs (School Level) | 1,318 | Provided a platform for students to showcase projects. |
| Total students participating in STEM Fairs (City Level) | 222 | Engaged in hands-on model-making to explore ideas for the future of transportation, applying STEM concepts in a practical setting. |
| Total school teachers benefitting from Teacher Capacity Building sessions | 100 | Equipped with pedagogical tools to enhance STEM learning. |
| STEM Coaches Trained | 8 | Coaches received offline and online training, including hands-on sessions. |
| Special STEM sessions conducted | 38 | Included Robotics, Stargazing, Eco-Connect Day, and STEM Talk sessions. |

# 3. PROJECT KEY PILLARS

## 3.1 Teacher Training and Pedagogical Support

Building on the foundations laid in previous years, ISPF leveraged its expertise and partnership with its sister organisation, **ThinkTac**, to design and execute the programme with a fresh perspective. The initiative continued to strengthen **teacher capacity and classroom pedagogy**, ensuring effective STEM learning for students.

### Key Activities and Highlights:

#### A. Training and Resources:

- The teacher training efforts benefited from the **robust methodologies introduced by ThinkTac in previous years**.
- Training sessions were conducted by **senior educators from the ThinkTac team**, ensuring expert guidance and hands-on learning.
- These methodologies were carefully **aligned with NCERT and State Curriculum**, ensuring **seamless classroom adoption.**
- Teachers received **comprehensive instructional materials** and **concept-focused resources** to integrate STEM concepts into their daily teaching practices.

#### B. Regular Support Visits

- **STEM Coaches conducted weekly school visits** in the project schools of Bengaluru, Chennai, and Gurugram.
- They provided **tailored mentoring and support**, addressing teacher-specific needs and challenges.

#### C. Observing Teacher Uptake

- STEM Coaches **captured the extent to which teachers engaged with and applied** the pedagogical approaches introduced in the training.
- While some teachers integrated the methodologies into their lessons seamlessly, **the overall uptake varied**, with factors such as curriculum constraints and prior teaching habits influencing implementation.

## Impact of Teacher Training Initiatives

| Metric | Details |
|---|---|
| Total Teachers Trained | 100 teachers across all locations benefited from capacity-building sessions. |
| Location-wise Breakdown | **Bengaluru**: 17 teachers<br>**Chennai**: 35 teachers<br>**Gurugram**: 48 teachers |
| Impact on Classroom Practices | 62% of trained teachers actively engaged with training materials and incorporated interactive, inquiry-based methods into their teaching. |
| Support System | Continuous collaboration between ISPF facilitators and teachers fostered a structured support system for sustained pedagogical shifts. |

***Detailed report of the teacher capacity building can be found in the annexure.***

## 3.2 STEM Club and Student Engagement

A central pillar of Project Jigyaasa has been fostering student-driven exploration and engagement through STEM Clubs. These clubs provide students with opportunities to explore STEM concepts beyond the classroom through structured, hands-on activities guided by STEM Coaches.

## Key Activities and Highlights:

- **Formation and Structure of STEM Clubs**: STEM Clubs were established in all **30 participating schools** across Bengaluru, Chennai, and Gurugram. These clubs served as dedicated spaces for students to engage in interactive STEM activities, experiments, and projects.
    - **Club Leadership Structure**: While the STEM Clubs are ideally student-led, the process of selecting the club leadership varied across locations this year. This diversity in the leadership process reflects the unique dynamics and preferences at each location, but all approaches aimed to promote leadership, accountability, and student empowerment. **For the next academic year, it will be ensured that all office bearers are elected by the students across all locations.**

        - **Gurugram and Chennai**: Leadership was election-based.
        - **Bengaluru**: A **hybrid approach** was used, where teachers nominated candidates, and students elected the leadership from the nominated individuals.
- **Guided Student Engagement**: Club members were given **a set of activities to choose from,** ensuring that students had agency in their learning while receiving structured guidance from STEM Coaches. The clubs provided a platform for students to develop curiosity, problem-solving skills, and teamwork through guided explorations.

- **Special STEM Events and Observances**:
  - **National Engineer's Day** was celebrated across all three locations, engaging both STEM Club members and the broader school community.
  - A few STEM Clubs in Bengaluru participated in **Science Day** celebrations at a whole-school level.

- **Hands-On Learning and Exposure**:
  - Students worked with **low-cost materials** provided to them for hands-on activities, reinforcing STEM concepts through experiential learning.

- **Museum Visit**:
  - **An exposure visit to the Visvesvaraya Technological Museum was organised for STEM Club students in Bengaluru**, providing real-world exposure to scientific concepts.
  - Clubs maintained activity records in dedicated registers, though the level of documentation varied, with some students actively recording insights while others made minimal entries.


- **Expert-Led Sessions**: Several STEM Clubs had the opportunity to participate in specialised sessions conducted by **Subject Matter Experts (SMEs)**, enhancing their exposure to advanced STEM concepts. These included:

**STEM Talk Session**

Organised for all STEM Clubs across Bengaluru, Chennai, and Gurugram. Senior educators conducted interactive talks on the interconnections within STEM fields and their relevance in everyday life. Following the session, students worked with simple model-making resources to identify key STEM principles and explored dependent and independent variables in their experiments.

**Stargazing Session**

Organised for three STEM Clubs in Bengaluru and one in Chennai.

**Robotics Sessions**

Conducted for one STEM Club in Bengaluru.

**Eco Connect Day**

Two STEM Clubs in Bengaluru participated in this initiative, exploring environmental and sustainability concepts through hands-on activities.

- **Participation in STEM Fairs**: STEM Club students actively participated in STEM Fairs at both the school and city levels. While the fairs were open to all interested students, club members played a significant role in showcasing projects and engaging in scientific discussions. (A detailed account of STEM Fairs is provided in section ***3.3 STEM Fair.***)

## Impact of STEM Club Initiatives

| Metric | Details |
|---|---|
| Total number of STEM Clubs | 37 |
| Total students in STEM Clubs | 1,300 |
| Total students in STEM Clubs | **Bengaluru**: 399<br>**Chennai**: 430<br>**Gurugram**: 471 |
| Key learning outcomes | • Strengthened conceptual understanding through hands-on STEM exploration<br>• Improved problem-solving and critical thinking skills<br>• Enhanced collaboration and teamwork in project-based activities |
| Core STEM Club activities | • **Student-led experiments and model-making** using low-cost materials<br>• **Guided inquiry-based STEM explorations** facilitated by STEM Coaches<br>• **Interactive discussions and peer learning** sessions within clubs<br>• **Documentation of experiments and reflections** to track learning progress |

| | |
|---|---|
| Club leadership structure | Each STEM Club was student-led, with designated roles to promote leadership and accountability:<br>• President<br>• Vice President<br>• Secretary<br>• Vice Secretary |
| Club themes and structure | Each club selected **two out of four themes** to explore in-depth:<br>• Heat<br>• Mixture and Separation<br>• Electricity and Magnetism<br>• Light<br><br>Each theme was structured into **three types of activities**:<br>• **Exploration using MUTs** – Hands-on investigations to build conceptual understanding<br>• **Creativity** – Open-ended tasks encouraging innovation and application<br>• **Problem-Solving** – Challenges requiring logical thinking and teamwork |
| Additional enrichment activities | • **STEM Talk Session** – Understanding STEM interconnections through models<br>• **Robotics Sessions** – Hands-on exposure to robotics and automation<br>• **Stargazing Session** – Exploring astronomy with expert guidance<br>• **Eco Connect Day** – Promoting environmental awareness through activities |

## STEM Club impact numbers: Gurugram

| S.No | Name of the School | Girls | Boys | Club Strength |
|---|---|---|---|---|
| 01 | GSSS Mullahera | 16 | 17 | 33 |
| 02 | GSSS Sarhaul | 15 | 18 | 33 |
| 03 | GSSS Bhim Garh Kheri | 21 | 24 | 45 |
| 04 | GGSSS Bhim Nagar | 45 | 0 | 45 |
| 05 | GBSSS Gurgaon Village | 0 | 30 | 30 |
| 06 | GHS Harsaru | 14 | 25 | 39 |
| 07 | GHS Chandu | 18 | 22 | 40 |
| 08 | GSSS Kadipur | 40 | 55 | 95 |
| 09 | GSSS Daulatabad | 43 | 28 | 71 |
| 10 | GSSS Jamalpur | 30 | 10 | 40 |
| | **Total** | **242** | **229** | **471** |

## STEM Club impact numbers: Chennai

| S.No | Name of the School | Boys | Girls | Club Strength |
|---|---|---|---|---|
| 01 | Arignar Anna GBHSS Poonamallee | 45 | 0 | 45 |
| 02 | GGHSS Poonamallee | 0 | 45 | 45 |
| 03 | GGHSS Keelamanabedu | 0 | 41 | 41 |
| 04 | GHSS Thandurai | 26 | 24 | 50 |
| 05 | PUMS Thirumazhisai | 25 | 35 | 60 |
| 06 | GHSS Sundara Sholavaram | 20 | 24 | 44 |
| 07 | Sundaram GBHSS Thirumazhisai | 30 | 0 | 30 |
| 08 | GGHSS Ayapakkam | 0 | 40 | 40 |
| 09 | GBHSS Ayapakkam | 35 | 0 | 35 |
| 10 | GGHSS Kamarajar Nagar | 0 | 40 | 40 |
| | **Total** | **181** | **249** | **430** |

## STEM Club impact numbers: Bengaluru

| S.No | Name of the School | Boys | Girls | Club Strength |
|---|---|---|---|---|
| 01 | GHPS Jarganahalli | 17 | 13 | 30 |
| 02 | GHPS Veerabhadranagar | 20 | 10 | 30 |
| 03 | GHPS Basavanagudi | 14 | 16 | 30 |
| 04 | GHPS Sunkenahalli | 24 | 19 | 43 |
| 05 | GHPS Netaji Subhash Chandra Bhose Awasi Vidyalaya, AGS Layout | 14 | 16 | 30 |
| 06 | GMPS GHS Byatarayanapura | 25 | 40 | 65 |
| 07 | KPS VV Puram | 36 | 23 | 59 |
| 08 | KPS Primary School Saraki | 19 | 18 | 37 |
| 09 | GMPS Yediyur | 26 | 23 | 49 |
| 10 | GHPS Hosakerehalli | 19 | 7 | 26 |
| | **Total** | **214** | **185** | **399** |

***Detailed report of the teacher capacity building can be found in the annexure.***

## 3.3 STEM Fair

The STEM Fair was a key initiative designed to provide students with a platform to apply their knowledge of STEM concepts through hands-on projects and creative problem-solving. Conducted at two levels—school and city—the fairs encouraged experiential learning, collaboration and innovation among students.

### Highlights of the STEM Fairs:

#### A. School-Level STEM Fairs:

- Organised within individual schools, these fairs encouraged students to create working models or experiments of their choice.
- STEM Coaches provided necessary guidance as well as materials for the projects, with each model eligible for material support of up to ₹300.
- Teachers, STEM Coaches, Siemens volunteers, and other educators assessed the projects, providing feedback and encouragement.
- Winning students were selected across categories—1st, 2nd, 3rd place, and special mentions, based on the jury's discretion. These winners moved on to compete in the city-level STEM Fair.
- Prizes were chosen to add value to students' academic journeys—school bags, water bottles, USB rechargeable LED study lamps, and tiffin boxes for position holders, while all participating students received stationery kits.


#### B. City-Level STEM Fairs:

- Students presented their winning school fair models and displayed them for general viewing at the venue.
- The competition followed a fresh format: two working days before the event, schools were informed of the **theme—Transportation of the Future Challenge**—which was shared with all participating students.
- An **exhaustive list of materials** was curated by the senior educator team after extensive research. These materials were made available at the venue, and students could use any quantity of any material for their models. However, **no external materials were permitted.**

- **Siemens volunteers played multiple roles**—mentoring student groups, assessing projects in progress, or serving on the jury panel. More details on their contributions are covered in a separate section of the report.
- The event was strengthened by the presence of **eminent educators**, making it a **robust and inspiring competition.**
- Winners were selected in five categories—**1st, 2nd, 3rd place, and Runner-ups 1 and 2**—and were awarded **different types of binoculars. All participating students received digital writing boards** as a token of appreciation.


## Impact of STEM Fairs

The STEM Fairs served as a culminating event, showcasing the outcomes of the year-long learning journey. They provided students with an opportunity to apply the skills, knowledge, and problem-solving abilities developed through various STEM Club activities, teacher support, and hands-on learning experiences.

| Metric | Details |
|---|---|
| Total Number of Students in School-Level STEM Fairs | **Bengaluru**: 396<br>**Chennai**: 547<br>**Gurugram**: 357<br>**Total: 1318** |
| Total Number of Students in City-Level STEM Fairs | **Bengaluru**: 84<br>**Chennai**: 70<br>**Gurugram**: 68<br>**Total: 222** |

| Metric | Details |
|---|---|
| Learning outcome | The STEM Fairs play a crucial role in opening the space for critical thinking, problem-solving, and teamwork, thereby enhancing students' collaborative skills. |
| Application of STEM Knowledge and Engagement with Experts | Students applied STEM concepts in real-world contexts, while engaging with peers, educators, and volunteers, reinforcing the importance of STEM in addressing challenges. |

***Detailed report of the STEM fairs can be found in the annexure.***

## 3.4 Capacity Building of STEM Coaches

Empowering STEM Coaches with the skills, knowledge, and confidence to mentor teachers and engage students effectively remains a priority under Project Jigyaasa. A structured capacity-building programme was implemented to address these objectives.

### A. Foundational Training – July 2024

- A **three-day intensive workshop** was conducted for STEM Coaches at Bengaluru, with participation from all teams from **Bengaluru, Chennai, and Gurugram** to enhance their facilitation skills and subject knowledge.
- The training focused on **inquiry-based learning methodologies**, innovative pedagogical approaches, and hands-on exposure to science and mathematics activities.
- Coaches were introduced to **the QPOSE framework (Question, Predict, Observe, Solve, Evaluate)** and **Design Thinking** to develop problem-solving and creativity in students.

### B. Ongoing Capacity Building – Weekly Enrichment Sessions

- Regular **online enrichment sessions** are conducted by **senior educators** to deepen understanding of science and mathematics topics and effective pedagogical strategies.
- Coaches have also been trained in using ISPF's **in-house data collection software**, including **unLab, Teacher Corner, and visit tracker forms**, ensuring effective documentation and impact assessment.

### C. Advanced Technical and Software Training – March 2025

- From **17th to 21st March**, STEM Coaches participated in a **hands-on Solid Edge training** led by a **Siemens instructor from Siemens Technical Academy (STA)**. As an outcome of this training, coaches are currently developing a slide deck to be used for student training on Solid Edge.

- Additionally, on 2**0th and 22nd March, internal training sessions** covered **science and mathematics Multiple Use Tacs (MuTs)** and further exploration of **data collection software** to enhance their teaching and reporting capabilities.
- On 26th March, Gurugram coaches also participated in an offline robotics training session conducted by an SME, who had previously facilitated student sessions in Bengaluru. This session deepened their understanding of robotics concepts and hands-on facilitation techniques. Similar sessions are planned for Bengaluru and Chennai coaches in the near future.

## Impact of STEM Coach Capacity Building Initiatives

| Metric | Details |
|---|---|
| Total number of coaches trained | 3 coaches from Gurugram and Bengaluru (2 STEM, 1 IT) and 2 coaches from Chennai (2 STEM) participated in various training sessions, including a foundational workshop in July 2024 and ongoing sessions. |
| Impact on coaches | Coaches are confident in guiding teachers and students in STEM methodologies and implementing hands-on learning approaches. |
| Attendance and Effectiveness of Coaching | All 6 coaches attended both online and in-person sessions and rated the sessions as **extremely effective** in enhancing their understanding of STEM activities. |
| Confidence in Conducting STEM Activities | 100% of coaches feel **very confident** in conducting STEM activities post-training |
| Impact on Student Engagement | 100% of coaches reported that the sessions significantly increased student engagement in STEM activities. |
| Preferred Mode of Training & Suggestions | 50% preferred in-person sessions, 33% found both modes equally effective, and 83% requested more hands-on activities and real-life classroom applications. |

***Detailed report of the STEM Coach capacity building can be found in the annexure.***

## 3.5 STEM Infrastructure development

The STEM Infrastructure Development initiative under **Project Jigyaasa** focused on equipping schools with essential tools and resources to create a **conducive environment for STEM learning**. By bridging the gap in available materials, the project aimed to empower both **students and teachers** to engage effectively in **hands-on STEM activities**.

### Key Activities and Achievements

- **In-Classroom STEM Activities**: Each school received **seven hands-on STEM activities per grade** in both **Science and Maths**, aligned with the **state curriculum**. These activities were designed to be conducted by teachers **during regular classroom sessions**, making experiential learning an integral part of everyday teaching.
- **STEM Club Activities**: In addition to in-classroom STEM learning, each **STEM Club** explored **two specific themes in depth**, engaging in **problem-solving, creativity, and exploration activities**. These themes provided opportunities for students to apply STEM principles beyond the textbook, fostering **critical thinking and innovation.**
- **Provision of Digital Resources**: To support structured **STEM learning**, teachers received access to a **digital platform** that guided them through the **activity flow, stored progress**, and facilitated **organised tracking of student engagement**. This resource enabled teachers to conduct **systematic and structured STEM sessions** while ensuring consistency across schools.
- **Infrastructure Upgrades**: Each location received **50 desktop computers** (distributed across **10 schools**), along with **desks, chairs, UPS systems, extension boards, and internet connectivity** to support **digital STEM learning**. In **Gurugram**, additional **electrical wiring work** was completed in eight schools as per specific requests, while other schools managed their own wiring setups. *(More details on digital integration are covered in Section 3.6 - Digital Learning.)*
- **Storage Solutions**: To ensure proper **storage of STEM materials**, each school received a **basic cupboard** to store STEM kits, learning materials, and other resources. Additionally, **three schools per location** received **metal cupboards** to store expensive resources like 3D printers, ensuring safe and organized usage.
- **3D Printers & Robotics Kits**: To introduce **advanced STEM learning**, each location was provided with **six 3D printers, their filaments, and two robotics kits**, which are **shared across all 10 schools**. These resources allow students to **experiment with prototyping, coding, and engineering concepts,** adding a **practical, hands-on dimension** to their STEM education.

### Impact of STEM Infrastructure Initiatives

| Metric | Details |
|---|---|
| In-classroom STEM activities | Each school received **7 activities per grade** for **science and maths,** mapped to the state curriculum. Teachers conducted these during regular classes to enhance conceptual understanding. |
| Provision of Digital Resources | Teachers were provided access to a **digital platform (Teacher Corner)** that facilitated STEM activity implementation. This platform included **step-by-step instructional flows, progress tracking features, and storage for completed activity data**, enabling structured and efficient execution of STEM activities. |

| Metric | Details |
|---|---|
| STEM Club activities | Each STEM Club explored **2 specific themes** in depth, engaging in **problem-solving, creativity, and exploration-based activities** beyond classroom learning.<br>A set of basic measuring equipment was also given to all schools.<br>A set of additional science and maths MUTs (Multi-use Tacs) have also been given to the schools. |
| Infrastructure upgrades | Each location received **50 desktop computers** (shared across 10 schools) along with **desks, chairs, UPS systems, extension boards, and internet connectivity** to support digital STEM learning. **(More details in Section 3.6: Digital Learning.)** |
| Electrical setup support (Gurugram) | Additional **wiring work was undertaken in 8 schools** to facilitate better use of digital resources and infrastructure. |
| Storage solutions | Every school received **a basic cupboard** for storing provided STEM materials. Additionally, **3 schools per location** received **metal cupboards** for the **secure storage of expensive resources like 3D printers**. |
| 3D Printers and Robotics kits | Each location received **3 3D printers and 6 sets of robotics kits**, which are shared among all 10 schools in that location as needed. |
| Student engagement and participation | Feedback from teachers suggests higher student engagement in STEM activities, with students showing greater enthusiasm for hands-on learning. |
| Teacher integration of STEM resources | STEM Coaches **observed and provided feedback** on teachers' integration of STEM resources across **13 parameters**, including classroom implementation, mindset, reflection, and collaboration. Teachers demonstrated strong engagement with STEM learning, with average ratings of **Bengaluru – 4.1, Chennai – 4.2, Gurugram – 4.3**. |

## Measuring Equipment List

**1. Multimeter**

**2. Tachometer**

**3. Thermometer**


4. Measuring Tape

5. Weighing Machine

6. Stopwatch


7. Spring Balance

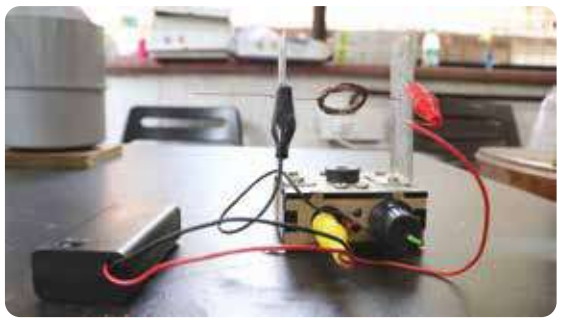
8. 10X Magnifying Glass


9. Compass

## Additional Science MUTs

1. Hand Centrifuge

2. Light Colour Arithmetic



3. DC Motor

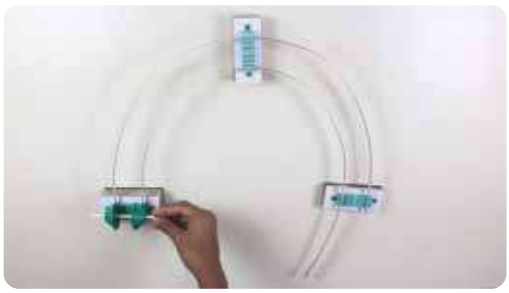
4. Thermal Insulation Model

5. Rocket Launcher

6. Ticker Timer

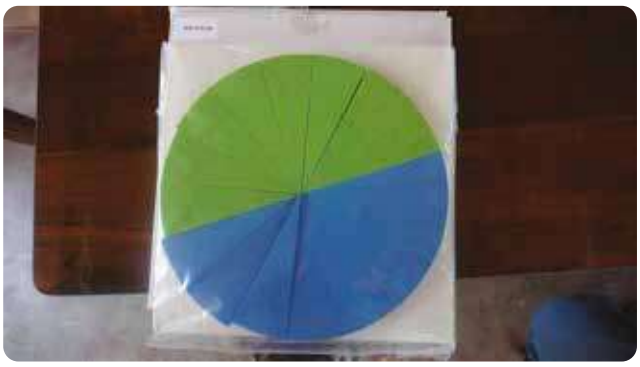
7. Climaze

8. Handmade Paper Screens A4 size



9. Train Wheel Model

## Additional Maths MUTs



1. Area of Circle

2. Transparent 3D Solid Set 5cm (Set of 12 pcs)

3. Fraction Bar

4. Angle Sum Property of Triangle

5. Geometry Kit

6. Geo Geometry Sticks

7. Factorisation Tiles

8. Cubic Identity $(A+B)^3$

9. Ring of Theorem

## 3.6 Digital learning

The Digital Literacy initiative under Project Jigyaasa focuses on equipping students with essential digital skills by establishing dedicated labs and introducing structured training programs.

### Key Activities and Achievements:

- **Establishment of Digital Literacy Labs:**
  - Digital Literacy Labs were set up in all schools across Bengaluru and Chennai, with **50 systems distributed among 10 schools in each location**.
  - In Gurugram, **two schools had already received systems in the previous project year**.
  - Labs were equipped with **desks, chairs, UPS units, extension boards, and internet connectivity**.
- **Onboarding of IT Coaches:**
  - **IT Coaches were recruited for Bengaluru and Gurugram** to facilitate digital literacy training and ensure consistent implementation.
  - In Chennai, the recruitment of an **IT Coach is still in progress**, with ongoing efforts to fill the position.
- **Introductory Student Training:**
  - IT Coaches began **foundational sessions** focusing on basic computer learning sessions:
    - Identifying **hardware and software**
    - Hands-on activities like **using a mouse and keyboard**
    - Basic **computer navigation skills**

### Focus Areas for Student Learning:

#### A. Digital Productivity Course (UNICEF P2E Certification):

- IT Coaches are **certified in the UNICEF Passport to Earning (P2E) program**, which includes two courses:
  - **Digital Productivity** – covering **MS Word, Excel, and PowerPoint**
  - **Financial Productivity** – focused on financial literacy and digital transactions
- **For students, only the Digital Productivity course will be implemented in the FY 2025-26.**
- Training sessions will be designed to help students **earn their own P2E certifications** once they gain confidence in using computers.

### B. Solid Edge Training:

- A **step-by-step curriculum** is being developed to introduce students to **Solid Edge**, an advanced engineering software.
- Content will be **broken down into small, digestible modules** suited to different learning levels.
- The curriculum will integrate **concepts from school subjects** (e.g., **shapes, angles, and measurements**) to help students make real-world connections.

## Impact:

The establishment of Digital Literacy Labs has **significantly improved students' access to technology**, helping them develop fundamental digital skills. These labs have laid the groundwork for **fostering digital confidence**, and as training progresses, students will become more proficient in **using technology for productivity and creative problem-solving**.

| Metric | Details |
|---|---|
| Number of computers distributed | Bengaluru: 50 systems across 10 schools (2–8 systems per school) Chennai: 50 systems across 10 schools (2–9 systems per school); Gurugram: 50 systems across 10 schools (5–10 systems per school. |
| Number of Gurugram schools upgraded | 8 schools received electrical setup upgrades to support digital infrastructure. |
| IT Coach recruitment | Bengaluru and Gurugram: IT Coaches onboarded; Chennai: Recruitment in progress. |
| Digital Productivity Course | 2 IT Coaches certified in UNICEF Passport to Earning (P2E) program. Curriculum includes MS Word, Excel, and PowerPoint, with student training planned for FY 2025-26. |
| Solid Edge Training curriculum | Curriculum development underway to teach Solid Edge engineering software through small modules integrating school concepts like shapes and measurements. |

## System distribution snapshot:

| Location | Name of School | Systems Installed |
|---|---|---|
| Bengaluru | GHPS Jarganahalli | 2 |
| | GHPS Veerabhadranagar | 5 |
| | GHPS Basavanagudi | 3 |
| | GHPS Sunkenahalli | 5 |
| | GHPS Netaji Subhash Chandra Bhose Awasi Vidyalaya | 8 |
| | GMPS GHS Byatarayanapura | 8 |
| | KPS VV Puram | 6 |
| | KPS Primary School Saraki | 6 |
| | GMPS Yediyur | 2 |
| | GHPS Hosakerehalli | 5 |

| Location | Name of School | Systems Installed |
|---|---|---|
| Chennai | Arignar Anna GBHSS Poonamallee | 5 |
| | GGHSS Poonamallee | 7 |
| | GGHSS Keelamanabedu | 2 |
| | GHSS Thandurai | 3 |
| | PUMS Thirumazhisai | 3 |
| | GHSS Sundara Sholavaram | 5 |
| | Sundaram GBHSS Thirumazhisai | 3 |
| | GGHSS Ayapakkam | 6 |
| | GBHSS Ayapakkam | 7 |
| | GGHSS Kamarajar Nagar | 9 |

| Location | Name of School | Systems Installed |
|---|---|---|
| Gurugram | GHS Chandu | 10 |
| | GSSS Daulatabad | 5 |
| | GMS Jamalpur | 0 |
| | GSSS Kadipur | 5 |
| | GHS Harsaru | 5 |
| | GSSS Mullahera | 5 |
| | GSSS Bhimgarh Kheri | 0 |
| | GBSSS Gurgaon Village | 5 |
| | GSSS Sarhau | 5 |
| | GGSSS Bhim Nagar | 10 |

## 3.7 Career Guidance and Awareness

The Career Awareness initiative under Project Jigyaasa was delivered in collaboration with **iDreamCareer (iDC)**, leveraging their expertise in guiding students from underserved backgrounds toward **informed career choices**, particularly in STEM fields.

### Key Activities and Achievements:

- **Career Planning and Awareness Sessions:**
  - A total of **3,434 Grade IX students** across **Gurugram, Bengaluru, and Chennai** attended structured workshops facilitated by **iDC**.
  - Sessions covered:
    - **Career planning and decision-making**
    - **Understanding strengths and weaknesses**
    - **Subject selection for higher education**
    - **Overview of STEM career pathways and opportunities**

- **Baseline and Endline Surveys:**
  - Surveys were conducted to assess students' awareness levels **before and after** the sessions.
  - Key areas measured included:
    - Understanding of **personal strengths and career interests**
    - Awareness of **STEM education and career options**

| Career Parameters | Baseline (%) | Endline (%) |
|---|---|---|
| Awareness of strengths | 69.4% | 73.7% |
| Awareness of weaknesses | 70.6% | 75.1% |
| SWOT analysis - understanding | 30.6% | 34.2% |
| Students interested in Vocational careers | 28.2% | 31.6% |
| Students interested in Professional careers | 44.7% | 48.1% |
| Awareness about expenditure required | 30.6% | 39.5% |
| Awareness around time-investment | 55.3% | 63.2% |
| Backup career planning | 47.1% | 53.1% |

- **Career Information Portal**: Students were **provided access** to iDC's career guidance platform, which includes:
  - **Detailed career pathways**
  - **Information on colleges, exams, and scholarships**
  - **Self-assessment tools for career exploration**

However, the **extent of student engagement with the portal remains unclear**, and further efforts may be needed to ensure **effective utilisation**.

### Impact:

- The sessions **sparked curiosity** and provided students with a **structured approach** to exploring STEM career options.
- Students gained **practical insights** into aligning their subjects with career aspirations.
- Increased awareness of **emerging STEM fields** and their **real-world applications**.

***Detailed report of the Career Guidance sessions can be found in the annexure.***

## 3.8 Support Siemens Employee engagement program

The Siemens Employee Engagement Programme under Project Jigyaasa provided students with opportunities to interact with industry professionals, bridging the gap between theoretical STEM concepts and real-world applications. It also offered Siemens employees a meaningful way to engage with students and contribute to society by sharing their expertise and experiences.

### Key Activities and Achievements:

- **National Engineer's Day Celebration (September 2024):**
  - Three schools per location (Bengaluru, Chennai, and Gurugram) hosted National Engineer's Day celebrations, engaging the entire school community.
  - Siemens volunteers facilitated the event, leading interactive games and activities focused on engineering concepts.
  - A total of **93 Siemens volunteers** participated in the event.
- **Siemens Volunteers' Participation in STEM Fairs:**
  - **School-Level Fairs**: Siemens employees served as judges, evaluating student projects based on creativity, functionality, and teamwork.
    - A total of **24 volunteers** participated in the event.
  - **City-Level Fairs**:
    - Siemens employees participated in multiple roles, including jury panel members, mentors, and supervisors.
    - A total of **19 volunteers** contributed to the event.
    - Volunteers observed that while many student teams demonstrated strong teamwork and creative use of materials, some projects lacked originality, with repeated static models being a recurring concern.

## Volunteer Feedback Insights:

- **Event Organisation:**
  - Volunteers consistently appreciated the structure, timing, and activities of the events. Some suggested extending the duration and improving resource distribution for smoother execution.
- **Collaboration and Model Quality:**
  - Creative projects such as homopolar motors and DIY batteries were well-received. Volunteers recommended introducing a wider range of themes to encourage more diverse innovations.
- **Volunteer Experience:**
  - All volunteers expressed interest in participating in future engagements, emphasising that interacting with students and witnessing their enthusiasm for STEM was a rewarding experience.

## Impact of Siemens Employee Engagement Programme

| Metric | Details |
|---|---|
| Event Feedback - National Engineer's Day | 84% rated the event as "Very Well Organised"<br>88% found student engagement "Very Effective"<br>81% were "Very Satisfied" with their contribution |
| Volunteer Observations - City STEM Fairs | 72% of student teams demonstrated strong teamwork; 68% showed creative use of materials; 12% of projects lacked innovation. |
| Future volunteer participation | 100% of volunteers expressed willingness to participate in future events. |

| | | No. of Volunteers | | |
|---|---|---|---|---|
| S.No | Event | Bengaluru | Chennai | Gurugram |
| 01 | National Engineer's Day | 54 | 20 | 19 |
| 02 | School STEM Fairs | 16 | 7 | 1 |
| 03 | City STEM Fairs | 10 | 6 | 3 |

***Detailed report of the National Engineer's Day and STEM Fairs can be found in the annexure.***

# Summary of Key Outcomes (Across Both Projects)

***Annual Work Report 2024–25***

## 1. Total Students Reached

- Project Anveshan: ~1,100 students across five government schools
- Project Jigyaasa: 11,388 students from Grades VI–IX across 30 government schools
  Combined Reach: 12,000+ students engaged through hands-on, inquiry-based STEM learning

## 2. Number of Teachers Engaged

- Anveshan: Science teachers involved in facilitation, assessments and event support
- Jigyaasa:
    - 100 teachers trained in experiential and inquiry-based STEM pedagogy
    - Multiple teachers supported through weekly mentoring, classroom observations, and structured resources
      Combined Teacher Engagement: 100+ teachers supported and upskilled across both projects

## 3. Major Achievements

- Large-scale implementation of experiential STEM learning across two states
- Successful conduct of:
    - Baseline and screening assessments
    - Intra-school quiz events
    - School-level and city-level STEM fairs
- Establishment of 37 active STEM Clubs across Jigyaasa schools
- Introduction of advanced STEM exposure:
    - Robotics sessions
    - Stargazing sessions
    - Eco-Connect Day
    - Solid Edge engineering software training
- High student participation, improved attendance, and strong school leadership support

## 4. Key Highlights of Experiential Learning

- Students engaged in structured, hands-on activities that strengthened conceptual understanding
- Activity-based learning improved:
    - Critical thinking
    - Observation and reasoning
    - Problem-solving
    - Communication and presentation skills
- Increased student curiosity, confidence, and participation
- Real-world case-based learning accelerated scientific literacy
- Project-based learning experiences in Jigyaasa helped students apply STEM principles creatively
- Interactive events (quiz competitions, demonstrations, STEM fairs) promoted collaboration and innovation

## 5. Teacher & Coach Development Highlights

- Teachers gained confidence in integrating experiential methods into classroom instruction
- STEM Coaches underwent:
    - Foundational workshops
    - Weekly enrichment sessions
    - Advanced software training (Solid Edge)
- Coaches reported increased capacity to mentor teachers and support student-led STEM learning

## 6. Infrastructure & Digital Enablement

- 50 computers provided in each of the Jigyaasa locations (Bengaluru, Chennai, Gurugram)
- Digital literacy labs established and supported with IT coaches
- Access to MUTs, STEM activity kits, measurement tools, and robotics kits
- Schools equipped with cupboards, furniture, and upgraded electrical setups where required

## 7. Overall Impact

- Strengthened foundational STEM skills across more than 12,000 students
- Improved academic performance and conceptual clarity
- Increased student motivation, engagement, and attendance
- Development of communication, teamwork, and leadership skills
- Strong culture of inquiry and innovation emerging across partner schools
- Enhanced readiness for future STEM learning and career pathways

## 8. Future Direction

- Deepen experiential learning through expanded STEM Clubs and advanced project cycles
- Strengthen teacher training for long-term sustainability
- Amplify digital learning through structured courses and engineering software integration
- Scale the programme to additional schools and regions
- Increase industry and community engagement through events, mentorship, and exhibitions