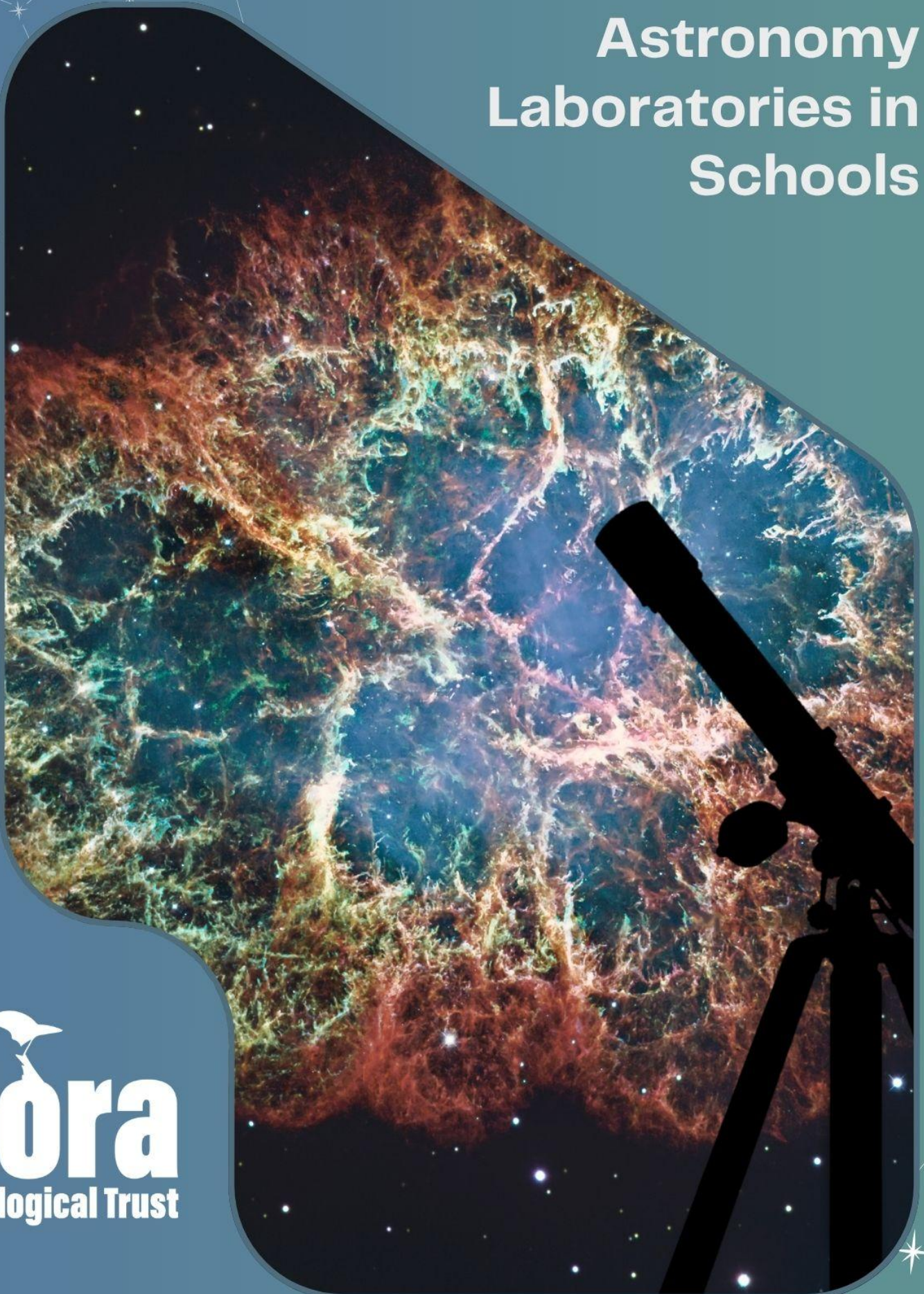


FINAL PROJECT REPORT

Astronomy Laboratories in Schools



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Jammu & Kashmir and Leh - Union Territory

Implementing Organization	Iora Ecological Trust
Project Partners	Spark Astronomy Pvt. Ltd. & Life Lab Foundation
Funder	Shiv Nadar Foundation (via Vama Sundari Investments Pvt. Ltd.)
Programme Facilitator	Office of the Principal Scientific Advisor, Govt. of India
Project Period	December 2020 – January 2021
Project Locations	KV No.1 Jammu KV Leh KV Kargil
Total Grant Utilized	INR 12,26,610

1. Executive Summary

Iora Ecological Trust, in consortium with Spark Astronomy Pvt. Ltd. and Life Lab Foundation, successfully established Astronomy Laboratories in three Kendriya Vidyalaya schools across Jammu & Kashmir and Leh. The project was implemented with financial support from Shiv Nadar Foundation (channelled through Vama Sundari Investments Pvt. Ltd.) under Corporate Social Responsibility, and in partnership with the Office of the Principal Scientific Advisor to the Government of India.

Three fully operational astronomy laboratories were installed within the stipulated timeline. All three schools – KV No.1 Gandhinagar Jammu, KV Leh, and KV Kargil – acknowledged the successful completion of the project and issued formal Letters of Appreciation. The laboratories are now serving students from Class 1 to Class 12, providing hands-on exposure to space science, astronomy, and STEM education.

2. Background and Rationale

India's aspirations in space exploration, the expansion of ISRO's programmes, and growing student interest in STEM subjects highlighted a critical gap: limited access to practical astronomy education in government schools, especially in geographically remote and strategically sensitive regions such as Jammu & Kashmir and the Union Territory of Leh.

The Office of the Principal Scientific Advisor to the Government of India identified Kendriya Vidyalaya schools in these regions as priority locations for science infrastructure upgrades. Iora Ecological Trust led a consortium of specialised organizations to design and deliver a structured Astronomy Laboratory programme. The project aimed to:

- Democratise access to astronomy and space science for K-12 students in government schools
- Build scientific temper and inquiry-based learning in underserved regions
- Provide teachers with training and long-term support for sustained engagement
- Align with national priorities around science promotion and the development of India's space-capable youth workforce

3. Project Objectives

The project set out to achieve the following outcomes:

- Install fully equipped Astronomy Laboratories in three Kendriya Vidyalaya schools in J&K and Leh
 - Equip each laboratory with telescopes, spectrosopes, working models, VR sets, and immersive interior infographics
 - Conduct comprehensive two-day residential teacher training at each school
 - Provide students access to asteroid hunting training and live sessions with astronomers
 - Establish ongoing monitoring, mentoring, and lifetime support for the laboratories
 - Encourage student participation in national competitions including the Astronomy Olympiad and NTSE
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4. Partner Organisations

Iora Ecological Trust (Lead Consortium Partner)

A public charitable trust registered in Haryana, Iora Ecological Trust works at the intersection of ecosystem conservation, clean technology, sustainable livelihoods, and science outreach. For this project, Iora served as the lead implementing and financial management entity, responsible for coordination, fund utilisation, compliance, and reporting to the donor.

Spark Astronomy Pvt. Ltd. (Technical Partner)

Spark Astronomy is a New Delhi-based organisation specialising in astronomy education. It led the technical design, procurement, lab installation, interior design, and teacher training for all three schools. Spark Astronomy provided lifetime technical support and mentoring to all three laboratories post-installation.

Life Lab Foundation (Student Engagement Partner)

Life Lab Foundation connects school students and teachers with globally reputed scientific organisations. It oversaw student engagement activities, facilitated expert interactions, and supported implementation at the school level.

5. Project Scope and Deliverables

Each of the three laboratories was delivered as a complete, self-contained astronomy learning centre. The scope of work per laboratory included:

Equipment and Materials

Item	Specification / Quantity
Telescopes	4 units (6-inch Dobsonian, 76mm, 50mm x2)
Spectroscopes	20 handmade units
Planispheres	25 laminated units
Virtual Reality Box Sets	2 units
Working Models	30 models with descriptions
3D Projector + Content + Glasses	1 projector; 15 pairs 3D glasses
Adapters (Astrophotography)	T-ring + A-focal eye piece adapters
Solar Filters	Solar filter set for all telescope sizes
Study Materials	Messier catalogues, books on telescope history, astronomer biographies, K–12 curriculum (2 copies)
Posters & Fun Facts	Astronaut biopics (3), space fun facts (15), moon poster
Laser Pointer	Star laser pointer pen

Interior Design

Each laboratory received a comprehensive interior transformation to create an immersive space science environment:

- Two walls fully/partially covered with astronomy infographics
 - One wall dedicated to posters, planispheres, and zodiac constellations
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- One wall for mounted working models
- Galaxy mural on the ceiling

Training and Capacity Building

- Two-day residential in-school teacher training: equipment uses, star-gazing sessions, curriculum integration, astrophotography, and hands-on activities
- Annual Skype/online session with professional astronomers or astronauts
- Asteroid Hunting training for students
- Monthly newsletter with current astronomy news and hands-on activity ideas
- Lifetime monitoring, mentoring, and guidance support

6. Implementation

Timeline

Phase	Activity	Timeline
MoU & Agreements	MoU signed between Iora Ecological Trust and Vama Sundari Investments; MoU signed between Iora Ecological Trust and Spark Astronomy	November – December 2020
Procurement	Procurement of all lab equipment, study materials, and interior design materials	December 2020
Lab Installation	Physical installation and interior design at KV Jammu, KV Leh, and KV Kargil	December 2020 – January 2021
Teacher Training	Two-day in-school teacher training at all three schools	January 2021
Handover & Appreciation	Lab handover; Letters of Appreciation received from all three school principals	January – February 2021

Institutional Governance

Financial management was governed by a formal MoU between Iora Ecological Trust (Grantee) and Vama Sundari Investments Pvt. Ltd. (Company/Donor), establishing protocols for fund disbursement, budget approval, utilisation certification, and audit. A separate MoU between Iora Ecological Trust (First Party) and Spark Astronomy Pvt. Ltd. (Second Party) defined technical responsibilities, budget governance, procurement procedures, and reporting obligations. Both agreements were executed on Delhi e-Stamp paper.

7. Schools Covered

School	Location	Date of Appreciation Letter	Signatory
KV No.1, Gandhinagar	Jammu, J&K – 180004	29 January 2021	Principal, KV No.1 Gandhinagar
KV Leh	Leh, Ladakh – 194101	28 January 2021	Principal, KV Leh
KV Kargil	Kargil, Ladakh – 194105	02 February 2021	Principal, KV Kargil

All three school principals acknowledged the establishment of astronomy laboratories in their schools and expressed appreciation to the implementing consortium and Shiv Nadar Foundation for their support.

8. Outcomes and Impact

Direct Reach

The three laboratories together serve an estimated student population across K–12 classes at Kendriya Vidyalayas in two Union Territories — Jammu & Kashmir and Ladakh — regions with historically limited access to advanced science infrastructure.

Student-Level Outcomes

- Equal access to astronomy and space science for all students from Class 1 to Class 12
- Hands-on, experiential learning through working models, telescopes, spectroscopes, and VR sets
- Development of life skills: critical thinking, problem solving, data analysis, patience, and self-awareness
- Preparedness for national-level competitive examinations including the Physics and Astronomy Olympiads and NTSE
- Exposure to astrophotography and asteroid hunting — skills with direct applications in professional astronomy

Teacher-Level Outcomes

- Enhanced capacity to integrate astronomy into the school science curriculum
- Ongoing access to online and offline support, guidance, and updated teaching resources
- Annual connection with global astronomy experts through facilitated sessions

Institutional Impact

- Three government school laboratories officially acknowledged and operational in strategically important border regions
- Model replicable across other Kendriya Vidyalayas and government schools nationally
- Strengthened partnership between civil society, corporate CSR, government science advisory bodies, and specialised education organisations

9. Financial Summary

The total approved project budget was INR 12,26,610 (Twelve Lakh Twenty Six Thousand Six Hundred and Ten Only), covering three laboratory installations. The cost per laboratory was INR 4,08,870.

Budget Head	Cost per Lab (INR)	Total - 3 Labs (INR)
Telescopes & Optical Equipment	53,830	1,61,490
Working Models & Scientific Equipment	62,095	1,86,285
Interior Design & Infographics	48,000	1,44,000
Study Materials & Planispheres	16,975	50,925
3D Projector, Content & Glasses	1,33,630	4,00,890
Teacher Training	7,000	21,000
Yearly Monitoring & Programme Support	20,000	60,000
Boarding, Lodging & Logistics	33,040	99,120
VR Box Sets & Accessories	8,800	26,400
Miscellaneous (posters, filters, adapters)	25,500	76,500
TOTAL	4,08,870	12,26,610

Fund disbursement, procurement, and expenditure were managed in accordance with the terms of the MoU. All unspent funds, if any, were to be returned to the donor within one month of MoU expiry as per agreed terms.

10. Compliance and Governance

- MoU executed on Delhi e-Stamp paper (Certificate No. IN-DL07486208507511S – Iora/Vama Sundari; IN-DL12588257990541S – Iora/Spark Astronomy)
- Financial statements and progress reports submitted to donor as per MoU terms
- Annual Utilisation Certificate provided by independent auditor
- Procurement governed by competitive quotation process with donor approval
- Child Protection Policy and Safe Workplace Policy in place as represented by the implementing organisation
- Anti-bribery and anti-corruption compliance maintained throughout implementation

11. Acknowledgements

Iora Ecological Trust places on record its sincere appreciation to all partners and stakeholders who made this project possible:

- Shiv Nadar Foundation and Vama Sundari Investments Pvt. Ltd. for their generous CSR funding and trust in the consortium
 - The Office of the Principal Scientific Advisor to the Government of India for the institutional framework and facilitation
 - Spark Astronomy Pvt. Ltd. for technical excellence in designing and installing the laboratories
 - Life Lab Foundation for student engagement support
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- The principals, staff, and students of KV Jammu, KV Leh, and KV Kargil for their enthusiasm and cooperation

12. Conclusion

The Astronomy Laboratory project demonstrated that targeted, well-governed, and partnership-driven interventions can successfully bring world-class science infrastructure to remote and underserved schools. Three fully operational astronomy laboratories now serve the students of Jammu & Kashmir and Ladakh — many of whom had never before looked through a telescope or encountered space science as a living, explorable subject.

The project was completed within budget, within the stipulated timeframe, and to the satisfaction of all partner schools. Iora Ecological Trust remains committed to sustaining the impact of this initiative and to expanding similar science outreach efforts across India.

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