



Atmashakti to YOU



SCIENCE



TECHNOLOGY



ENGINEERING



MATHEMATICS

SHARED RESOURCES, GROUND KNOWLEDGE

From Learning Gaps to Learning Futures



When we began engaging deeply with education, our starting point was not STEM, technology or even the future of work. It was a much more fundamental question: **Are children in the communities we work with actually learning?**

Our early learning assessments, followed by Mission 3-5-8 and the growth of our community-based learning efforts, helped us see education from the ground up. We saw children who were enrolled in school but struggling with foundational learning. We saw first-generation learners who needed support beyond the classroom. And, equally importantly, we saw something powerful within the villages themselves: young people, parents and community leaders willing to take responsibility for children's learning.

That belief gradually shaped our education journey: **solutions for rural and tribal education do not always have to be brought into communities; very often, the capacity to build those solutions already exists within them.**

Today, as I look at the stories in this special education edition, I feel we have reached another important point in that journey.

Collaboration Changes What Is Possible

One of the strongest lessons for us has been that no organisation needs to build everything itself. When we invited Shikshagraha into our Gramin Charcha, we were not beginning with a predetermined programme. We were creating a space to listen, exchange ideas and explore what different organisations could contribute.

What followed demonstrated what purposeful collaboration can make possible.

Different partners brought different strengths including pedagogy, STEM expertise, tools, training and tested approaches. Atmashakti brought something equally important: years of community relationships, local youth, village learning spaces and the trust required to take an idea into rural and tribal communities.

Together, these strengths became something none of us would have created in isolation.

The STEM Summer Camp took learning into 100 villages across Kalahandi, Kandhamal, Balangir and Mayurbhanj. Children experimented with filtration, circuits, magnets, food testing and other concepts using materials and experiences familiar to them. At the same time, nearly 200 rural young people stepped forward as facilitators, many discovering their own confidence and leadership while helping children discover theirs.

For me, this is perhaps the larger story behind this edition. Collaboration should not simply mean organisations working alongside one another. It should mean combining what each of us already knows, has tested and does well and then creating something better together.

We do not need to reinvent every solution. We need to become better at finding one another.

The Future Must Reach the Village

This matters even more because the world our children are entering is changing extraordinarily fast.

The future will demand much more than the ability to remember information. Young people will need to question, analyse, experiment, collaborate, communicate, use technology, adapt and solve problems.

Yet these opportunities cannot remain concentrated in cities or well-resourced schools. As this edition reminds us, **scientific temper cannot become an urban privilege.**

For tribal children, however, future-ready education should not mean moving away from who they are. A child growing up around forests, farms, streams and biodiversity is already surrounded by knowledge. Seed preservation, soil regeneration, water systems, food, forests, traditional architecture and Indigenous practices can become starting points for science rather than something education asks children to leave behind.

Our evolving education approach therefore connects **STEM and digital learning with Indigenous knowledge, climate resilience, entrepreneurship and life skills.**

This is the future I would like us to work towards: an education that gives a tribal child the confidence to engage with artificial intelligence without losing the wisdom passed down by her grandmother; to understand technology while understanding her forest; to pursue higher education if she chooses, create an enterprise in her village if she chooses, or build an entirely different future for herself.

Education should expand choices, not prescribe them.

From Programmes to Learning Ecosystems

Our next phase therefore cannot simply be about taking one successful camp to more villages. We want to deepen learning where the experiment has begun, take opportunities to many more communities, strengthen local youth as educators and mentors, and gradually build a locally rooted body of knowledge that others can use and improve.

One such next step is the proposed **Tribal STEM Localized Playbook**, which envisages documenting more than 100 locally designed, field-tested experiments rooted in Indigenous knowledge. These can then be adapted into local-language learning resources and shared with other communities.

Perhaps this is where Atmashakti's education journey is taking us: from addressing learning gaps to creating learning spaces; from supporting children to enabling local youth; from implementing programmes to

building ecosystems; and from asking what rural children lack to recognising what their communities already possess.

The stories in this edition show us that the most important change is sometimes very simple.

A child who was once afraid of giving the wrong answer begins to ask questions.

A young woman who never imagined herself as an educator begins leading children in her village.

Parents who were initially hesitant begin asking for the learning programme to continue.

That is where transformation begins.

Perhaps the more important question for all of us, civil society organisations, educators, funders, government, universities and communities, is this: **“What can we achieve together that none of us could achieve alone?”**

It is: **“What becomes possible if we bring together what each of us already has, and build the future together?”**

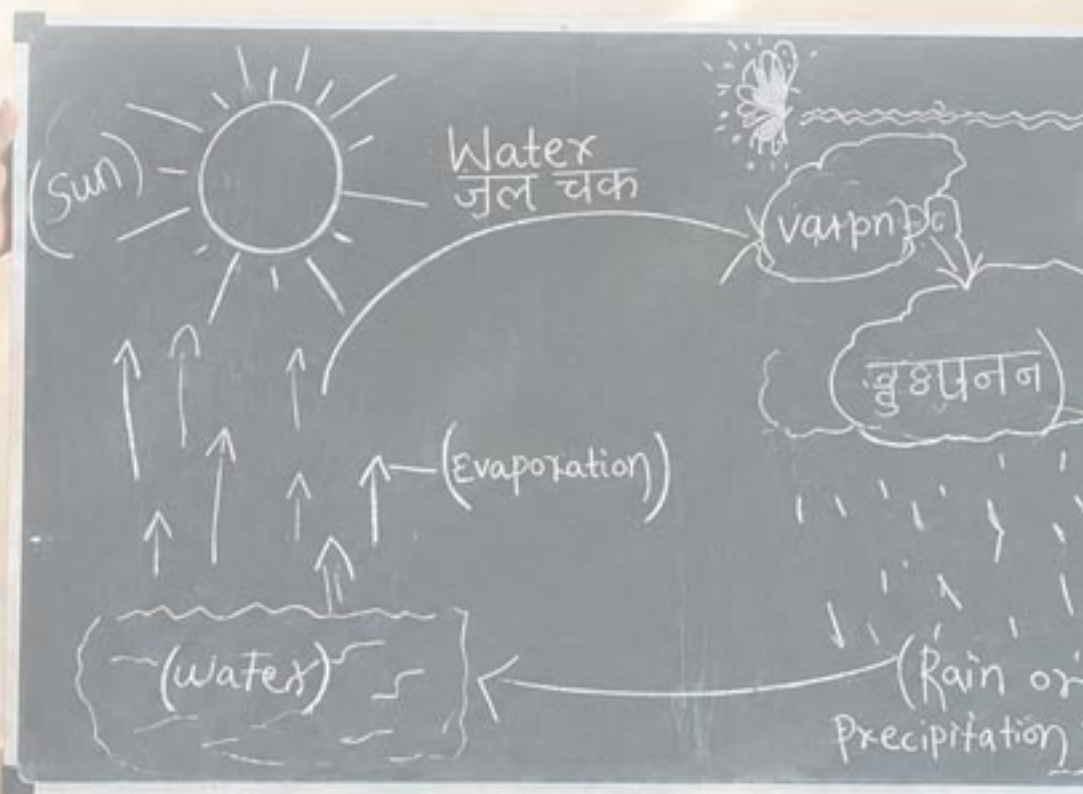
For millions of children and young people in India's rural and tribal landscapes, the answer to that question could shape not only the future of education, but the future of their communities.

Ruchi Kashyap

Ruchi Kashyap

Executive Trustee & CEO
Atmashakti Trust

SECTION 1: WHY SCIENTIFIC TEMPERAMENT MATTERS IN RURAL INDIA





Children discovering the joy of learning in their community

Who Gets to Think Like a Scientist?

Why scientific temper cannot remain an urban privilege

Every year, India celebrates new milestones in science. The country launches satellites, develops indigenous vaccines, advances artificial intelligence and aspires to become a global innovation hub. Yet another India continues to encounter science very differently.

In thousands of government schools across rural and tribal regions, science is often experienced less as inquiry than as information. Children memorise definitions, reproduce diagrams and prepare for examinations, but rarely have the opportunity to observe, experiment or discover. A lesson on evaporation may never involve watching water disappear from a bowl left in the sun. This raises an important question. How can India become a scientific leader if millions of rural children are never encouraged to observe, question and experiment?

An Unfinished Constitutional Promise

The Constitution of India recognised the importance of scientific thinking long before STEM became a focus of education policy. Article 51A(h) places the development of scientific temper, humanism and the spirit of inquiry among the Fundamental Duties of every citizen. This constitutional vision has been echoed by many thinkers, who argue that scientific temper is essential not only for scientific progress but also for an informed democracy.

The challenge is turning this vision into reality. While the **National Education Policy (NEP) 2020** calls for experiential learning, many rural schools continue to rely mainly on textbooks because of limited facilities and resources. Children may remember scientific concepts, but they often miss the chance to

observe, experiment and discover them for themselves.

Scientific temper cannot be memorised. It has to be experienced.

Learning by Doing

The experience of a six-week STEM Summer Learning Programme in Odisha offers an important glimpse into what changes when children are encouraged to investigate rather than memorise. Implemented by Atmashakti Trust and Sikshyagraha, in collaboration with district-level sangathans, the initiative reached 1,745 children across 100 villages in four districts through 197 trained rural youth volunteers.

The intervention itself was modest. There were no sophisticated laboratories or expensive equipment. Instead, volunteers used batteries,

Pic: Atmashakti Trust



wires, paper, magnets, seeds, soil and household materials to explore electrical circuits, filtration, evaporation, magnetic force and simple engineering concepts. Science moved beyond the textbook into kitchens, open compounds, ponds and fields, the environments children knew best.

The experience showed that science comes alive when children are encouraged to explore, experiment and discover for themselves. *"The best part was seeing the children become fearless. Earlier, they would stay quiet because they thought they might be wrong. Later, they started asking questions, trying new ideas, and even explaining things to each other,"* says Monalisa Sahu, a STEM volunteer from Balangir.

Making Space for Every Question

The programme's most significant outcome was not simply better understanding of scientific concepts but a visible change in children's confidence.

Monalisa Sahu, recalls that *by the final weeks, children were arriving nearly an hour before sessions began, eager to discover what*

experiment they would conduct that day.

In Bhandagaon, a Santhal village in Mayurbhanj district, Rashmita Hembrom had spent years volunteering at a Chatshalee, a community learning centre for first-generation learners. During that time, she noticed that many children were afraid to speak in class because they worried that giving a wrong answer would lead to criticism.

When she began facilitating STEM sessions, Rashmita realised that before teaching science, she had to rebuild children's confidence. Rather than beginning with experiments, she started with songs, storytelling and games. Slowly, the atmosphere changed. Children who had once remained silent began predicting outcomes, conducting experiments and explaining concepts to one another.

"Before I could teach science, I had to help children overcome their fear of learning," she says.

Parents noticed the change too. Children came home excited to repeat simple activities using things they found around the house or in

the village. They eagerly shared what they had learnt with their families and talked about nature, farming, and everyday life in new ways. Science was no longer just a school subject. It had become part of their daily lives.

Why Scientific Temper Matters

Scientific temper is not about producing more scientists. It is about raising a generation that can question, think critically, and make informed decisions.

With over 65% of India's population below the age of 35, the country's future depends on nurturing curiosity as much as knowledge. The National Education Policy 2020 rightly emphasises inquiry, creativity, and problem-solving, but these skills must reach every child, not just those in well-resourced schools.

The Odisha STEM Summer Learning Programme demonstrated that even simple, hands-on learning can transform how children engage with science. **Across 100 villages, 1,745 children, supported by 197 rural youth volunteers, began asking more questions, experimenting at home, and seeing science in everyday life.**

Not every child will become a scientist. But every child deserves the opportunity to think like one. If India truly wants to become a global innovation leader, scientific temper cannot remain an urban privilege. *The future of Indian science will not be decided only in research laboratories. It will be decided the day every child, in every village, feels confident enough to ask, "Why?"*





Mothers witness their children overcome hesitation, find their confidence, and engage enthusiastically in learning.

The Question that Changed Everything

A simple question about the human heart became the beginning of a village's journey from fear to scientific curiosity.

“When my daughter asked me to explain the human heart, I told her to memorise it.”

Puspanjali Nag remembers that moment with painful clarity.

Like many mothers in Banaimunda village of Odisha's Balangir district, she grew up believing that science belonged to someone else's world. It was a subject meant for children in cities, not for girls in remote villages like hers.

A Question No Mother Could Answer

For generations, science was viewed with fear in Banaimunda. Most parents had little formal education and could not help their children with science lessons. As daughters approached Class 10, families often chose the arts, not because girls lacked ability, but because science felt too difficult and there was no one to guide them.

Puspanjali was one of those mothers.

"I wanted my daughter to have a better life than mine," she says. "But I believed science was beyond us."

One afternoon, her daughter, Jyosna, returned from school carrying a science textbook.

Pointing to a diagram of the human heart, she asked, *"Maa, what does this do?"*

Puspanjali looked at the page, then at her daughter. She wanted to help. But she could not.

"The only thing I knew how to say was, 'Just memorise it. Pass the exam.'"

It was advice she herself had received as a child. In her world, education was about passing examinations, not understanding ideas or asking questions.

Looking back now, she says that perhaps the greatest thing mothers unknowingly passed on was not ignorance, but fear.

"For years we passed down the fear

of science. Today, we are passing down confidence instead."

When Science Became Something to Touch

Everything began to change when Monalisa, a young STEM volunteer from nearby Patnagarh, started activity-based science sessions in the village.

At first, Puspanjali expected another tuition class where children would memorise lessons. Instead, one evening Jyosna came home carrying a small cardboard toy car. **"Maa, look what I made!"** She placed it on the floor, and the little car began to move using magnets.

Excitedly, Jyosna explained magnetic force and how the model worked. **"I did not understand all the scientific words," Puspanjali admits. "But I understood something much bigger."** For the first time, her daughter was not repeating answers from a textbook.

She was explaining something she had discovered herself.

That evening, Puspanjali cried. Not because she finally understood science, but because she saw confidence replacing fear.

The Day Confidence Took Centre Stage

A few weeks later, parents were invited to the community learning centre. What they witnessed surprised the entire village.

Children who once spoke softly now stood before parents and grandparents, presenting science models they had built with their own hands.

Jyosna demonstrated a simple study lamp using a battery, a wire, and a bulb. She explained each step clearly and answered questions with confidence.

Around the room, other children proudly demonstrated experiments and shared what they had learned. Puspanjali looked around and noticed mothers quietly wiping away tears. Fathers smiled with pride. Grandparents watched in amazement.

The room was filled with something many families had never seen before.

Not examination marks. Not report cards. Confidence. Curiosity.

The courage to stand before others and say, **"This is what I learned."**

Changing Conversations at Home

The transformation did not stop with the children. It changed conversations inside homes across Banaimunda. Parents who once asked whether their daughters could manage science began asking different questions.

"What does she enjoy learning?"
"What does she dream of becoming?" One mother laughed, **"Earlier we chased our children to study. Now we have to call them back home because they don't want to leave the science class."**

Everyone laughed. Many cried too. Because they knew what had changed.

Education had become something more than passing examinations. It had become about curiosity, confidence, and possibility.

For Puspanjali, the greatest lesson was not that her daughter built a moving toy car or presented a science model. It was that education had changed the way children saw themselves. It had also changed the way mothers saw their children. **"We may not understand every scientific concept," she says. "But we have learned that our job is not to have every answer. It is to encourage our children to ask questions."**

From Passing Exams to Dreaming Futures

Recently, Jyosna came home and said, **"Maa, I want to become a scientist."**

There was a time when those words would have sounded impossible. Today, they sound entirely natural. Whether Jyosna becomes a scientist, a teacher, or follows another path is no longer the most important question. The real transformation is that she believes she can choose her own future.

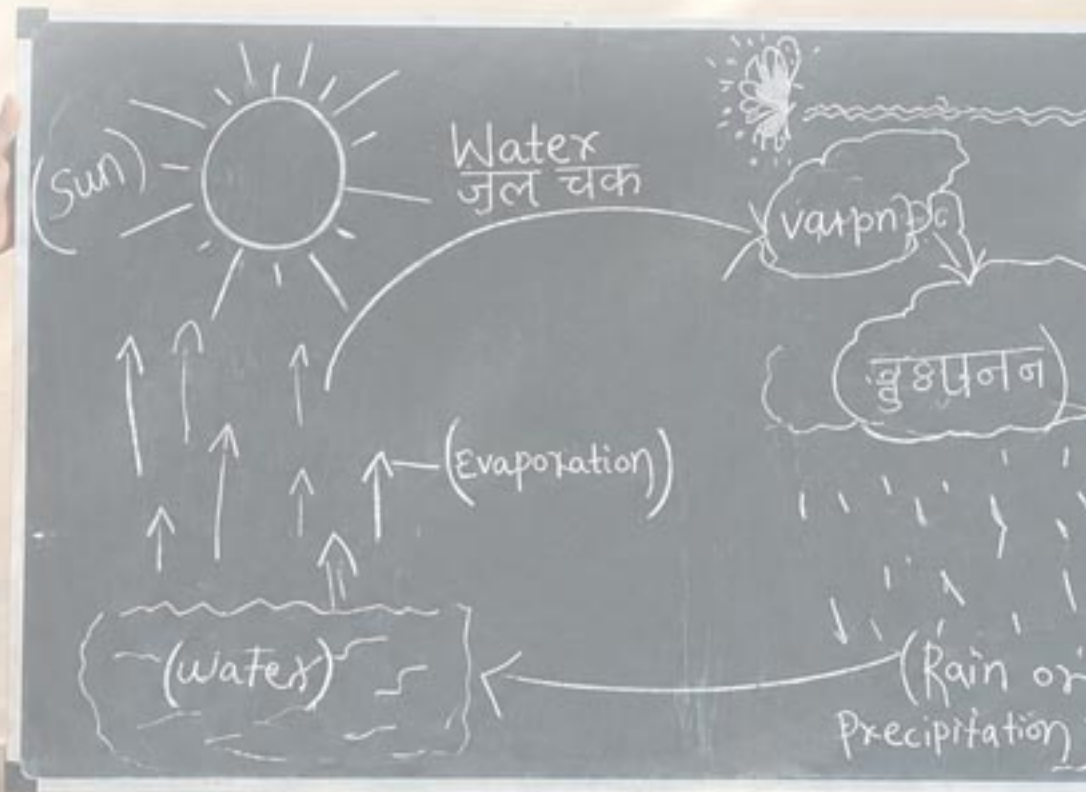
And now, her mother believes it too. **"Science is not a wall. It is a door. Every child deserves the chance to open it."** That is what education has come to mean in Banaimunda.

Not simply children who pass examinations, but children who understand, question, and dream. Perhaps most importantly, it has given mothers a new way of seeing their children's future. Education is no longer only a path to survival. It is a path to possibility.

Because in the end, that is what rural mothers truly want from education. **Not just successful children, but children who are free to imagine futures their parents once thought were impossible.**



SECTION 2: STEM THROUGH TRIBAL & INDIGENOUS KNOWLEDGE





Learning, creating, and sharing ideas together

Beyond the Textbook

Can STEM Education Reach Every Child in Odisha?

The National Education Policy (NEP) 2020 marks a transformative shift in India's education system. Moving beyond rote learning, it envisions schools as spaces where curiosity, creativity, critical thinking, and innovation thrive. Guided by the National Curriculum Framework (NCF) 2023, the policy advocates a competency-based approach that equips children not only with knowledge but also with the ability to apply it to real-life challenges.

This transformation is particularly significant because India has one of the world's largest school education systems, serving over 248 million students. NEP 2020 seeks to nurture scientific temper, digital literacy, creativity, and problem-solving skills from the earliest years of schooling, preparing learners for a rapidly changing world.

For Odisha, the transition carries special significance. Home to one of the country's largest tribal

populations, the state has thousands of schools in remote and geographically challenging regions. Under the leadership of the School and Mass Education Department and the State Council of Educational Research and Training (SCERT), the Odisha School Curriculum Framework 2025 and new textbooks are being developed in alignment with NEP to make classrooms more interactive, experiential, and relevant to children's lives.

Yet, the reforms also raise an important question. Can experiential STEM learning become a reality in schools where science laboratories are inadequate, digital connectivity remains limited, and teachers often manage multi-grade classrooms? This question is particularly relevant for Odisha's tribal regions. While curriculum reform provides the roadmap, its success will depend on whether every child has access to the

environment and resources needed to explore, experiment, and innovate.

STEM at the Heart of Learning

A defining feature of the new curriculum is the integration of STEM (Science, Technology, Engineering and Mathematics) from the primary grades onwards. Rather than teaching these subjects separately, STEM encourages children to connect ideas across disciplines, investigate problems, design solutions, and learn through hands-on experiences.

Whether measuring rainfall, building simple machines, coding basic programs, or designing water-saving models, students learn by doing rather than memorising. As one government school teacher from Udala, Mayurbhanj, observed, ***"Earlier, science meant memorising definitions. Today, students are asking questions, designing models, and testing their own ideas. The***



Local volunteers engaging children in learning, sharing ideas, and growing together in nature.

classroom has become far more interactive and exciting." This shift reflects the essence of experiential learning envisioned under NEP.

The STEM approach develops scientific inquiry, critical thinking, creativity, collaboration, communication, digital literacy, and evidence-based decision-making. Most importantly, it transforms students from passive recipients of information into active creators of knowledge.

Preparing Students for the Future

The world of work is changing rapidly. According to the World Economic Forum's Future of Jobs Report, employers increasingly seek analytical thinking, technological literacy, creative thinking, problem-solving, resilience, and AI literacy. These are precisely the competencies STEM education is designed to cultivate.

India is also emerging as a global technology and innovation hub. Government estimates indicate that 89% of new startups launched in 2024 were AI-enabled, while the country is expected to require more than 1.25 million AI professionals by 2027. As of June 2026, India has over 2.3 lakh Department for Promotion of Industry and Internal Trade (DPIIT), Government of India-recognised startups, making it the

third-largest startup ecosystem in the world. Nearly half of these startups originate from Tier-II and Tier-III cities, demonstrating that innovation is no longer confined to metropolitan centres.

Learning Beyond the Classroom

The strength of STEM education lies in connecting learning with children's everyday lives. A lesson on water conservation may inspire students to build a rainwater harvesting model. Mathematics becomes meaningful while measuring agricultural fields, while science comes alive when children investigate soil quality, biodiversity, or local ecosystems.

This approach is especially relevant in Odisha's tribal regions, where children's lives are closely connected with forests, agriculture, water, and biodiversity. Local ecosystems and traditional knowledge can become starting points for scientific exploration, helping children relate classroom concepts to their surroundings while strengthening observation and problem-solving skills.

Students are already experiencing this change. Bikash, a Class VII student from Udala shared, **"Building a simple bridge model helped me understand engineering better than reading a chapter in the textbook. Now I enjoy solving**

problems instead of just learning answers." Such experiences nurture confidence, curiosity, teamwork, and creativity while making science meaningful.

Technology is also expanding learning opportunities. More than 1.79 lakh ICT laboratories have been approved across Indian schools under various government initiatives, with investments exceeding Rs. 7,600 crore, helping extend digital learning to rural, tribal, and aspirational districts. However, access remains uneven, and many schools in remote areas continue to function with limited STEM infrastructure and learning resources.

Can STEM Reach Every Child?

The vision of NEP 2020 seeks to prepare a generation equipped with scientific temper, creativity, digital competence, and problem-solving skills to contribute to the vision of Viksit Bharat 2047.

Odisha has made encouraging progress in embedding STEM education within its school curriculum, but the success of these reforms will ultimately be measured by classroom experiences. Across many tribal and remote schools, inadequate science laboratories, limited digital infrastructure, scarce STEM learning materials, and insufficient teacher training continue to restrict hands-on learning and scientific inquiry. Unless these gaps are addressed through sustained investments in infrastructure, teacher capacity, and digital access, many children, particularly in tribal areas, will remain excluded from the full benefits of STEM education.

Ensuring equitable access to STEM learning is essential to building an inclusive, knowledge-driven India and to realising the vision of NEP 2020.





Local volunteers engaging children in learning, sharing ideas, and growing together in nature.

A Movement Takes Root

Growing a Culture of Curiosity in Rural India

Every Movement Begins with a Question

For Atmashakti, that question was simple yet reflective. What happens when rural and tribal children are given the freedom to explore science through their own lives and communities?

The answer unfolded over six weeks across villages in Odisha.

Throughout this special edition, we have seen children rediscover the joy of asking questions, parents gain confidence in their children's potential, teachers bring experiential learning, and entire communities celebrate curiosity. The STEM Summer Camp demonstrated that when science is rooted in children's everyday experiences and supported by families and communities, learning becomes meaningful, joyful and transformative.

The question is no longer whether this approach works. The challenge now is how to ensure that curiosity continues long after the camp ends.

A Pilot that Sparked Possibility

The future is built on what communities have already achieved. During its pilot phase, the STEM Summer Camp reached 100 villages across 19 blocks in Kandhamal, Kalahandi, Balangir and Mayurbhanj, supported by 197 local volunteers.

"The biggest change was not that children completed experiments. It was that they began asking questions they had never asked before," said Pushpa, a mother from Kalahandi.

Children explored scientific concepts through hands-on activities using locally available materials. They investigated everyday life, built

simple models, and discovered that science existed not only in textbooks but also in their farms, forests, streams, kitchens, and homes.

The most meaningful transformation happened beyond the experiments. Parents stayed to watch demonstrations, volunteers became mentors, and teachers discovered new ways to engage children. Science was no longer seen as the responsibility of schools alone. It became a shared community endeavour.

"When children could explain their projects to their parents in their own words, we knew they had understood the science," said Divakar, a volunteer from Kandhamal District.

From a Programme to a Movement

The Summer Camp was never intended to be a one-time intervention. It was designed to explore whether rural communities could lead their own STEM learning



An informal setting, but full of meaningful learning

journey. The experience proved that they could.

Children's curiosity deserves opportunities throughout the year. Communities need spaces where learning continues, and young people need mentors who inspire children beyond a single programme.

This learning is shaping Atmashakti's next step by building a community-led STEM movement across rural Odisha. Instead of keeping STEM inside classrooms, the vision is to make every village a place where people can explore, experiment, and learn science together.

Building the Ecosystem

The next phase aims to expand the initiative to nearly 200 villages, supported by around 200 STEM Fellows working alongside children, teachers, parents and community institutions.

Together with MakerGhat and Mantra4Change, Atmashakti seeks to build one of India's first large-scale community-led rural STEM ecosystems by combining experiential learning, indigenous knowledge and local leadership.

The vision extends far beyond another summer programme. Year-round STEM Clubs will keep children engaged in exploration,

while STEM Learning Labs will strengthen the capacities of Fellows, teachers and volunteers. Tribal Innovation Labs will encourage young people to address local challenges related to agriculture, forests, water, health, climate resilience and livelihoods by combining indigenous knowledge with scientific inquiry.

Community Science Festivals, STEM Challenge Competitions and locally developed experiment books will ensure that science remains connected to children's everyday lives.

Learning Rooted in Local Wisdom

One of the defining strengths of this ecosystem is its belief that indigenous knowledge and modern science complement one another. Children will explore traditional farming, forest biodiversity, local architecture and community innovations through scientific methods. Rather than replacing indigenous wisdom, STEM will help children understand, strengthen and build upon it.

"My grandfather always says not to burn the leaves in the forest because they become food for the soil. During the STEM activities, we learnt how dry leaves turn into compost and make the soil healthy. Then I understood that my grandfather's knowledge and

science tell the same story," said Meeta, a Class 12 student from Mayurbhanj.

When children recognise that valuable knowledge already exists within their communities, science becomes both relevant and empowering.

Imagining Tomorrow

Success will not be measured only by examination scores. It will be reflected in quieter but more meaningful changes: more girls pursuing science with confidence, children asking questions without fear, parents participating actively in learning, volunteers becoming respected STEM mentors, and villages celebrating science through local festivals and innovations inspired by community challenges. The journey that began with a Summer Camp is becoming something much larger.

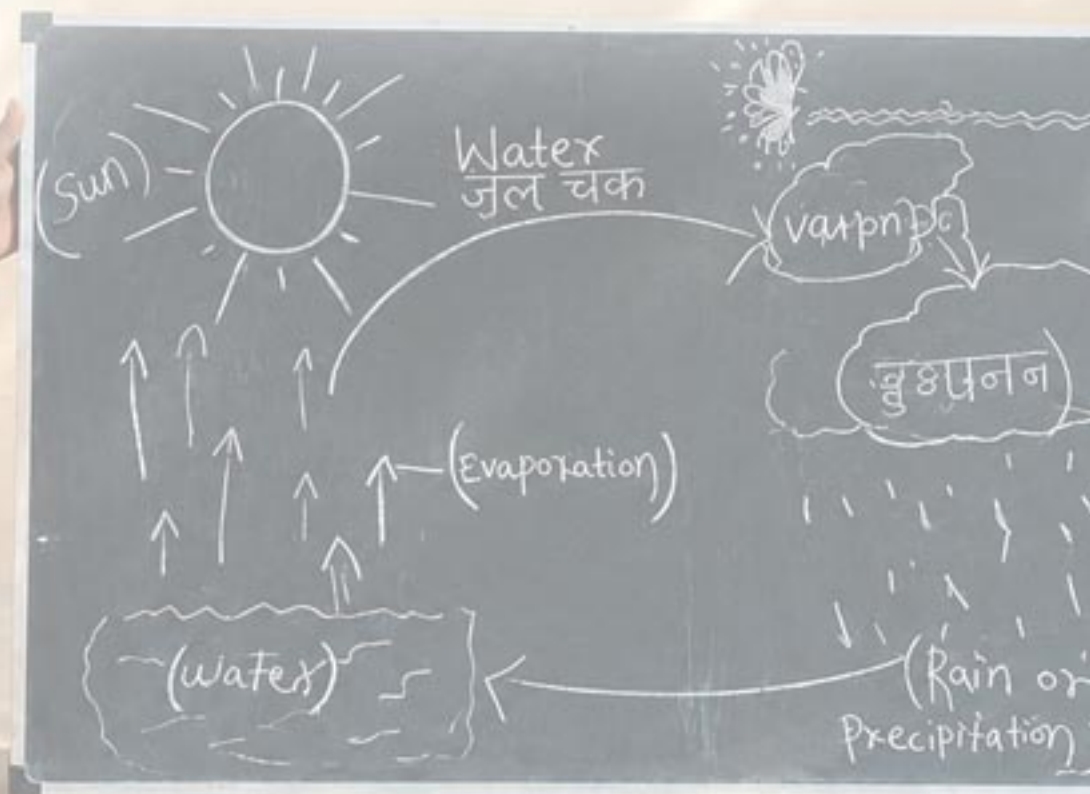
It is becoming a movement that reimagines where science happens, who participates and whose knowledge matters. It envisions villages as living laboratories where learning extends beyond classrooms into farms, forests, rivers and homes, and where children grow up believing they can solve problems rather than simply study them.

This movement is about much more than preparing children for STEM careers. It is about nurturing a generation that is curious enough to question, confident enough to experiment and compassionate enough to use knowledge for the well-being of their communities.

The lasting impact of this journey will not be measured by the experiments children completed, but by the confidence they gained to ask questions, explore possibilities and shape a better future for themselves and their villages.



SECTION 3: SUMMER STEM LABS: WHAT CHANGED?





A village learning session that encourages participation and creativity

From Curiosity to Confidence: How STEM is Inspiring a New Generation of Rural Change Makers

Reimagining Learning in Rural Communities

What happens when a child is encouraged to ask why instead of simply memorizing what? What changes when a young volunteer is trusted to lead learning in their own village? The answers unfolded over six weeks across the rural and tribal communities of Odisha through the STEM Summer Camp 2026. This Shikshagrah initiative brought together Mantra4Change, Atmashakti Trust, and Tan90 with a shared vision of transforming learning while nurturing grassroots leadership.

Implemented across 100 villages in 20 blocks of Kalahandi, Kandhamal, Balangir, and Mayurbhanj, the

initiative reached more than 2,000 children through hands-on science and mathematics activities rooted in everyday life. Instead of relying on textbooks and rote learning, children explored concepts through experiments such as filtration, simple circuits, magnetic applications, food testing, and study lamp design. These activities sparked curiosity, encouraged collaboration, and helped students see science not as a subject to fear, but as a tool for understanding the world around them. By the end of the programme, students demonstrated an 18.53% improvement in learning outcomes, while the majority reported enjoying the experience and wanting more

opportunities like this.

Rural Youth as Learning Leaders

Yet, the most profound transformation was not limited to the children. It was equally visible in the volunteers. Nearly 200 rural youth were trained to facilitate STEM learning in their own communities. Many had never stood in front of a classroom. Over six weeks, they evolved into confident facilitators, communicators, and community leaders. They learned to engage parents, organise learning spaces, solve problems, and inspire children through experiential learning. Women made up nearly 60% of the



A solar-powered prototype showcasing young innovation.

volunteer cohort, highlighting the programme's role in creating meaningful leadership opportunities for young women in rural communities.

Communities Begin to Believe

The ripple effects extended beyond the classroom. Communities that were initially hesitant gradually embraced the camps as they witnessed the children's enthusiasm and the volunteers' commitment. Attendance grew from just a handful

of students to vibrant learning centres serving an average of 15 to 20 children, with some centres attracting more than 40 participants. Parents who were once uncertain became strong supporters of the initiative and requested that the programme continue beyond the summer.

Building Confidence Through STEM

The STEM Summer Camp demonstrated that STEM education

is far more than a series of science experiments. It is a powerful tool for building confidence. For children, it nurtures curiosity, problem-solving skills, and the courage to ask questions. For rural youth, it develops leadership, communication skills, and a sense of purpose. When communities come together around learning, STEM becomes a catalyst for confidence, aspiration, and collective growth.

Looking Ahead

As Shikshagrah and its partners prepare to expand the model to 1,000 villages across three states, this pilot has shown that meaningful educational change begins with trust, local leadership, and the belief that every child and every young volunteer has the potential to become a change maker.



• OUR IMPACT •





A volunteer brings the water cycle to life through learning.

Lighting Young Minds

How a Chatshalee Volunteer Helped Children Discover that Science Begins with Curiosity

***"Before I could teach science, I had to help children overcome their fear of learning."* - Rashmita Hembrom, STEM Volunteer**

The Village Classroom

In Bhandagaon, a Santhal village in Odisha's Mayurbhanj district, education does not happen only inside school classrooms. For years, children have gathered at the village Chatshalee, a community learning centre where they receive academic support, read stories, play educational games and build confidence beyond the formal school system. It was here that Rashmita Hembrom, a 29-year-old graduate from the village, first began working with children.

As a Chatshalee volunteer, she spent several years helping children with their studies, especially those who

struggled to keep pace in school. She witnessed first-hand how many first-generation learners hesitated to speak in class, feared making mistakes and believed that learning meant memorising textbooks rather than understanding the world around them.

When Jana Jagruti Manch (JJM) introduced the STEM Learning Programme in the village, Rashmita saw it as an opportunity to build on the trust she had already established through the Chatshalee. The children already knew her, not as a teacher who tested them, but as someone they could approach without fear.

That relationship became the programme's greatest strength. ***"The children were never afraid to tell me when they didn't understand something,"*** she says.

"That made it much easier to introduce new activities."

The Spark

The volunteer training introduced Rashmita to a different approach to education. Instead of asking children to memorise scientific concepts, it encouraged them to observe, experiment and ask questions. Everyday materials became learning tools. Batteries, wires, bowls of water and sheets of paper turned into opportunities to explore electricity, buoyancy and evaporation.

Among all the activities, she especially enjoyed conducting simple electrical circuit experiments.

"When the bulb lit up for the first time, the children couldn't believe they had done it themselves," she recalls with a smile.



Facilitation and mentoring make learning faster and more meaningful

Fear Gives Way

Yet the challenge extended beyond teaching science.

Many children, particularly those from Santhali families, were hesitant to participate. Years of classroom experiences had taught them that giving a wrong answer invited criticism. They preferred silence rather than risking a mistake. Drawing on her experience as a Chatshalee volunteer, Rashmita resisted the urge to begin with lessons. Instead, every session opened with songs, games and storytelling. Children laughed together before they experimented together. Gradually, the learning centre became a place where asking questions was not only accepted but actively encouraged.

Over the weeks, she watched a quiet transformation unfold.

Children who had once avoided speaking began volunteering to conduct experiments. They discussed

why water evaporates, explained electrical circuits to one another and confidently demonstrated activities before their peers. Science was no longer a subject to memorise. It had become something they could experience with their own hands.

Learning Comes Home

Parents noticed the change as well. During previous summer vacations, children spent most of their time playing outdoors. This time, they returned home eager to recreate experiments using household materials, explain what they had learnt to their siblings and talk about science around the dinner table. For Rashmita, the experience reaffirmed something she had begun to understand through her years at the Chatshalee. Children learn best when they feel respected, encouraged and heard.

The Volunteer Effect

The STEM programme also transformed her role within the

village. She no longer saw herself as someone who simply helped children complete their homework. She had become a facilitator of learning who nurtured curiosity, confidence and critical thinking.

She believes that rural communities need more opportunities for local youth to become educators and mentors. Young volunteers from the community understand children's language, culture and lived realities in ways that outsiders often cannot. With the right training and support, they can make learning more accessible, engaging and meaningful.

Curiosity Lives Here

For Rashmita, STEM is not just about science. **It is about helping children discover that learning begins not with the right answer, but with the courage to ask the first question.**



Beyond the Margins:

Rethinking Development
Through Indigenous
Landscapes

**SOCIAL
INNOVATIONS**
Journal

Rayagada's Indigenous communities harvest pineapples, often facing distress sales during the rainy season.

This issue of the Social Innovations Journal, curated by Atmashakti, is rooted in the learning journey of the Rayagada Challenge Lab, a place-based, community-led initiative that set out to understand why persistent development challenges continue to recur in Indigenous landscapes despite decades of interventions.

Rather than beginning with predefined solutions, the Challenge Lab adopted a diagnostic approach. Through deep engagement with communities, practitioners, researchers, and local institutions, it explored the underlying systems shaping everyday realities. As the inquiry unfolded, recurring patterns emerged across seemingly unrelated issues such as agriculture, water, nutrition, migration, market systems, and Indigenous livelihoods. These

were not isolated problems, but symptoms of deeper systemic disconnects between ecological realities, community knowledge, institutions, and public systems.

The six papers in this special issue examine these recurring themes through a place-based systems lens, drawing on evidence from Rayagada and comparative insights from other Indigenous and rural landscapes across India and Africa. Together, they challenge conventional deficit-based narratives and invite readers to rethink development by recognising Indigenous landscapes not as spaces of scarcity, but as places rich in knowledge, biodiversity, culture, and resilience.

This publication marks the first step in a broader knowledge journey.

Building on the insights emerging from the Rayagada Challenge Lab, Atmashakti Trust aims to develop a Global Playbook on Community-Led Systems Change—a collaborative knowledge resource that brings together case studies, research, lived experiences, and practical approaches from Indigenous and biodiversity-rich landscapes around the world. By connecting local learning with global dialogue, the initiative seeks to strengthen evidence, foster collaboration, and inspire more context-responsive approaches to development.

<https://socialinnovationsjournal.com/index.php/sij/issue/view/816>



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Seven days of learning through living.

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LIVE
with local families and experience everyday life.



EXPLORE
forests and discover uncultivated foods and local wisdom.



LISTEN
to elders and learn disappearing ecological knowledge.



VISIT
rural haats—spaces of seeds, food, stories and cultural exchange.



EXPERIENCE
local food, traditions and practices that connect people with nature.



REFLECT
with communities on knowledge, livelihoods, culture and ecology.

Some knowledge cannot be taught in a classroom.
It has to be lived.

A journey into community, culture, forests and the wisdom of the land



LOCATION
Odisha



DURATION
7 Days



WHO CAN JOIN?

Anyone passionate about community-led development, indigenous knowledge, ecology, rural livelihoods, food systems, education and place-based approaches.



STAY
Community-based homestays



FOOD
Local and community meals



REGISTRATION DETAILS
Will be announced soon on our website.



Stay tuned to our website for registration updates.



For queries write to: info@atmashakti.org

Atmashakti Trust acknowledges the contributions of our ground-level team members who document and share stories of children discovering, questioning, experimenting, and learning STEM through their everyday lives and communities

We also appreciate the contributions of Sikshagraha for writing “From Curiosity to Confidence...” and Kishore Chandra Dash, Retd. Headmaster, Udala, Mayurbhanj, for “Beyond the Textbook.”

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Atmashakti, meaning "**power of the soul**," reflects our belief that the strength of a community lies in its collective spirit. Registered in 1995 and actively working since 2009, we've been channeling this inner power to unite and empower marginalized communities, with a focus on reaching 10% of the rural poor, especially among Scheduled Tribes and Scheduled Castes. As a catalyst for change, we build/facilitate community's agency within these communities, enabling them to assert their rights, influence policy, and ensure their voices shape inclusive development. Through collective action and shared agency, Atmashakti transforms grassroots strength into powerful, transformative change.

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