



Dhātu

Nurturing Deep Conceptual
Understanding of Math



Background

A strong foundation in school-level mathematics is key to **building analytical thinking and problem-solving skills**, preparing students for real-world challenges and future success.

The **right tools and technologies** will further enhance these skills, building competence and confidence to excel in higher education and an evolving global workforce.

- ❏ Traditional methods often make math intimidating, leaving gaps in students' understanding and problem-solving skills.
- ❏ Students need a math program that makes learning engaging, builds confidence, and strengthens analytical skills.
- ❏ Teachers need support in identifying learning gaps, tracking progress and offering personalised support for student learning.

Imagine a learning system where math feels supportive, not threatening — where mistakes are met with guidance, not judgment. Such an approach can transform the experience, building clarity, logical reasoning, and confidence in every student.

Prayoga aims to provide **effective and supportive learning experiences of Mathematics** to students in the Indian schooling system, from across the socio-cultural segments of the society.

Dhātu

Dhātu is a **technology-enabled mathematics learning platform** designed to enhance mathematical learning and problem-solving skills in students. It features comprehensive mathematics content built on the Root Question Framework which will be **made available to schools, students and teachers across the country at no cost.**



NCERT-Aligned Curriculum

Comprehensive Question Bank for grades 9 to 12 with practical applications.



Learner-Centric

Non-threatening, guiding students to learn from mistakes and engage in self-assessment for continuous improvement.



Layered Approach

Levels with progressive difficulty to support preparations for competitive exams and Olympiads.



Enhanced Learning Solution

Learning enhanced by digital tools, customizable assignments, tracking progress, and support to schools and teachers.

Education Research

As an education research institute, Prayoga intends to conduct rigorous longitudinal experimental research to **study the competencies and abilities of mathematics learning of students across the socio-cultural spectrum of Indian society.**

Understanding learning behaviours in students is crucial for designing interventions that make math learning more inclusive, efficient, and impactful.



From identifying mathematical competencies demonstrated by students to analysing their patterns across India, the **research insights from Dhātu will improve the mathematics curriculum for the Indian education system.**

Prayoga's team of researchers and educators have crafted mathematics questions that address key concepts. Anticipating common errors in the process, Dhātu **provides tailored hints for every possibility, guiding students** through their learning journey.

The Root Question Method

The Root Question Method is a research-driven learning approach conceptualized by Turing Award winner Prof. Jeffrey D. Ullman to help students master complex concepts through structured practice.

The method uses sets of multiple-choice questions—each with several correct and many incorrect options—designed to reveal common misconceptions. Students receive immediate feedback explaining the reasoning behind wrong choices and are encouraged to reattempt with shuffled options.

This trial-and-error process, guided by feedback, promotes deep understanding, critical thinking, and long-term retention.

Dhātu @School

Dhātu promotes better learning of mathematics, reduces teacher workload, and nurtures a culture of mastery and critical thinking—aligning perfectly with the goals of progressive, student-centred education.

In its implementation and development, **Prayoga's Mathematics Excellence Team will actively collaborate with mathematics teachers, academic researchers, and education researchers**, creating quality content and analysing learning and performance data for continuous improvement.



Tracking Progress

Insightful dashboards to monitor performance and provide focused support. **Shift from grading to personalised mentoring.**



Enrichment, Not Replacement

Strengthen existing syllabus, deepening engagement through **questions that emphasise reasoning over rote learning.**



Teacher Training and Support

Comprehensive mentoring and resources to identify learning gaps for targeted remediation. **Year-round support to use Dhātu insights in classrooms.**



Fully Digital, Zero-Cost

No-cost enrollment for schools, with quality math education enabled for every student.

Prayoga invites schools to enrol in Dhātu and integrate the Root Question Method into their teaching-learning process, **empowering students to master math and develop essential problem-solving skills** through an engaging, learner-focused approach.

Dhātu Advisory Team



Prof. Jeffrey D. Ullman

Turing Awardee | Professor Emeritus,
Stanford University

Prof. Jeffrey Ullman is a globally acclaimed computer scientist and Turing Award winner, known for his pioneering work in algorithms, databases, and automata theory. He has authored 16 influential textbooks and co-founded the Gradiance platform to transform education through research-backed learning and critical thinking.



Dr. Ramana Yerneni

Co-Founder, Gradiance

Dr. Ramana Yerneni, a Stanford PhD, has held leadership roles at Oracle, Yahoo, Microsoft, Google, and Amazon. As co-founder of Gradiance, he brings cutting-edge technology to education, designing interactive platforms that enhance learning in science and mathematics.



Shri D. N. Prahlad

Founder, Surya Software

Shri D. N. Prahlad is a tech entrepreneur and advisor, known for his leadership in financial systems and AI services. A key contributor to Infosys's growth, he now mentors institutions like IISc and Sathya Sai University, earning IISc's Distinguished Alumnus Award.

Partner for Dhātu

Dhātu has the potential to transform how mathematics is learned in schools across India. To scale this vision, we seek committed partners who can enable reach through technology, funding, and strategic networks.

Your support can help take Dhātu to numerous schools, impacting millions of learners. Partner with us to drive systemic change in education—grounded in research and equity. Whether you're a funder, a tech enabler, or a connector, your contribution is critical to this mission.



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