



STEM Education



What is STEM Education



*STEM Education is a curriculum based on the idea of educating students in four specific disciplines — **Science**, **Technology**, **Engineering** and **Mathematics** — in an interdisciplinary and applied approach.*

When the barriers between **Science**, **Technology**, **Engineering** and **Mathematics** are removed to promote interdisciplinary understanding and application of these deeply intertwined subjects amongst students thereby enabling them to extrapolate from what they have learned and apply that knowledge and skills to accomplish large scale tasks in the real world.



Science refers to a body of knowledge that can be rationally explained and reliably applied. Science is everywhere in the world around us.



Technology is a capability given by the practical use of scientific knowledge. Technology is continuously expanding into every aspect of our lives.



Engineering is the application of scientific knowledge to create new tools, devices and processes for solving discrete problems. Engineering relates to everything we do every day in our lives.



Mathematics is the study of numbers, shapes and arrangements. Mathematics is in every occupation, every activity we do in our lives.



Urgent need of STEM in India ?

- ✓ India produces the highest number of scientists and engineers
- ✓ STEM jobs are growing at a fast pace and currently outstripping the number of STEM graduates.
- ✓ According to the National Science Foundation, it is predicted that 80% of the jobs created in the next decade will require STEM skills.
- ✓ Research shows that children develop interest in STEM fields at an average age of eight.
- ✓ The Govt. of India has become sensitive to the Urgent Occupational Demand and through a mission called "Atal Innovation Mission" is funding schools to setup STEM Labs with more engaging learning assets and management tools, assessment systems etc.
- ✓ Being the second most populated country with unmatched talent and culture, now India receives a combined support from the Government and other education societies.
- ✓ Now, with the Govt. of India also focussing on campaigns such as 'Make in India' Innovation Mission, there is focus on developing innovation and manufacturing right from schools.
- ✓ The Wall Street Journal reported in 2011 that 75% of India's tech grads aren't qualified for jobs in the very high-tech global industries India has become famous for.



Global Job Demand Scenario



- ✓ United States has historically been a leader in the field of STEM Education
- ✓ Obama administration announced the 2009 "Educate to Innovate" campaign to motivate and inspire students to excel in STEM subjects.
- ✓ According to a report by the website in 2018, projections estimate the need for 8.65 million workers in STEM-related jobs.
- ✓ The manufacturing sector faces an alarmingly large shortage of employees with the necessary skills — nearly 600,000
- ✓ The field of cloud computing alone will have created 1.7 million jobs between 2011 and 2015, according to the report
- ✓ The **U.S. Bureau of Labor Statistics** projects that by 2018, the bulk of STEM careers will be:

• Computing	71%
• Traditional Engineering	16%
• Physical sciences	7%
• Life sciences	4%
• Mathematics	2%
- ✓ In the **United Kingdom, the Royal Academy of Engineering** reports that the Brits will have to graduate 100,000 STEM majors every year until 2020 just to meet demand
- ✓ **Germany has a shortage of 210,000** workers in the mathematics, computer science, natural science and technology disciplines



Few vitals of the Govt. bodies involved



NITI Aayog – BODY (Govt.)

- ✓ The **NITI Aayog** (Hindi for Policy Commission), also **National Institution for Transforming India**, is a policy think-tank of the Govt. of India
- ✓ It was established in 2015, by the **NDA (National Democratic Alliance)** government, to replace the **Planning Commission**. The Prime Minister is the **Ex-officio** chairman. The permanent members of the governing council are all the state **Chief Ministers**

Atal Innovation Mission (AIM) – MISSION

- ✓ Its objective is to serve as a platform for promotion of world-class Innovation Hubs, Grand Challenges, Start-up businesses and other self-employment activities, particularly in technology driven areas.
- ✓ **Reinventing India as Innovation Nation**

Atal Tinkering Lab (ATL) – IDEA

- ✓ **Atal Innovation Mission** is establishing **Atal Tinkering Laboratories (ATLs)** in schools across India.
- ✓ ATL is a work space where young minds can give shape to their ideas through hands on **DIY** mode
- ✓ Objective of this scheme is to foster **Curiosity, Creativity** and **Imagination** in young minds
- ✓ Inculcate skills such as **Design Mindset, Computational Thinking, Adaptive Learning, Physical Computing** etc.



STEM Assessment



- ✓ A common educational vision and mission have brought *Orange Education* and *NeoRobos* together to work towards achieving the desired educational impact.
- ✓ We have collaboratively designed a STEM Assessment, which aims to foster inquisitive minds, logical reasoning, and analytical skills in students, in addition to subject specific learning.



STEM Assessment



Salient Features

- **Age-appropriate** Assessment
- **Relevant curriculum** addressing Science, Engineering and Computational Thinking
- Single intervention for grades 3 to 8
- Approximately a one hour test
- **20 Audio-visual** MCQ's based on working models
- Multiple Choice Questions based on **Bloom's Taxonomy**
- **Real life experiments/applications** based questions
- **Diagnostic reports** for students (SAAR) and schools (SPAR)

Awards & Certificates

- Medals and Rank Certificates for grade toppers
- Grade toppers **MUST score 60% and above** to qualify for medals & certificates
- **Distinction Certificates** for students scoring 75% and above
- Rest all students are awarded **Participation Certificates**

Exam Date:
January, 2019

Registration Fee:
₹ 140
per student



Sales Team – Great News



- ✓ AIM has already selected **5441 schools** PAN India to setup Atal Tinkering Labs
 - **941 schools** from ATL Application round 1
 - **1500 schools** from ATL Application round 2
 - **3000 schools** from ATL Application round 3 (Most recently published)

- ✓ AIM strongly envisages to setup Atal Tinkering Labs in **30,000** schools across India

- ✓ Due to **Governmental indulgence** of School Funding, seeking meetings with management becomes easy

- ✓ We are the **1st organisation** in India to introduce **Audio-Video based Assessment**

- ✓ We are the **1st organisation** in India to combine an assessment including both **Real Life Connect scenarios** and **Model based videos**

- ✓ The concept has been liked and endorsed by the famous astronaut

- ✓ To avail funds, the ATL – Guidelines include a clause for schools of conducting competitions on STEM at State/District/National Level
 - **Page 11: Clause 23**



STEM Assessment Demo



- 10 Video based Questions – Real Life Connect
- 10 Video based Questions – Model Based

- 12 Video based Questions – Real Life Connect
- 8 Video based Questions – Model Based



Thank you!