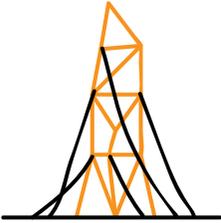


TEACHING STEM WITH FUN

The subjects of Science, Technology, Engineering and Math are becoming less popular among students and do not draw a diverse crowd. Teaching these subjects in a more fun and practical way can help cultivate interest in careers in these fields.

Quest Alliance is a non-profit trust working to bridge the education and skills divide by enabling self-learning for young people 10-35 years old.

Quest is fuelled by research, strengthened by partnerships and driven by innovation and technology.



Why is there a need for making STEM more interesting?

Globally, there's a widening gap between students passing out from STEM courses and vacancies in STEM fields. For instance, Germany currently has a shortage of 210,000 workers in the fields of Math, Computer Science, and Technology. The US and UK have both been facing similar crippling shortages of STEM students, with only about 16% of students in the US saying they were interested in studying these subjects in 2009.

There are also the challenges of quality among STEM teachers. Demographic diversity, especially in terms of gender, is very limited in the field.

Thus, there is an urgent need to upgrade the curricula in this field and upskill teachers in newer ways of delivering these subjects.

What are some examples of activities that can be incorporated in our STEM curriculum?

There are different levels of engagement that we can introduce as educators in our contexts. Here are a few examples:

Classroom-based activities:

- **Building a parachute.**
The learners are given the task of designing and constructing a parachute and then test and refine their product. Finally, they are expected to communicate their design process and results to their peers. This activity helps students grasp concepts of Physics like drag and weight in a real sense and experience first-hand how the scientific process works.
- **The tall tower challenge.**
The task here is to design the tallest structure the learners can and share their results with their peers. This activity involves researching existing tall structures and reasons behind their successful design. It also encourages learners to be creative and collaborative in their work.

Outside-the-class activities:

- **Using a platform like Scratch.**
Scratch is a free programming language and online community created by MIT's Media Lab. It allows learners to explore programming and create simulations and visual projects on the platform. Learners can grasp basic programming principles in a fun and hands-on manner.
- **Visiting technological museums.**
A day trip to industrial and technological museums for students can be a great way to promote curiosity about the STEM subjects and allow learners to autonomously explore these subjects.
- **Creating apps.**
A host of online courses and platforms allow learners to create their own apps. This is a great way to inculcate curiosity among learners as well as actually contribute to the growing body of useful apps and knowledge that can benefit the larger community.

Is there an example of educators being taught to facilitate STEM in this manner?

Feeling the urgent need for equipping STEM teachers and educators with the skills necessary to teach STEM in a fun manner, the non-profit organization IEEE Bangalore organized a series of presentations with teachers known as the Teacher In-Service Program (TISP) reaching over 4100 educators. The training focused on addressing specific educator needs and enabling them to upgrade their technological literacy.

At the end of the training session, over 94% of educators agreed that the hands-on activities would increase their students' interest and abilities in STEM, and over 168 presentations were created and shared at the end of the program.

The STEM approach has to be blended, it has to talk about everyday things, and you should be able to apply it and say, “I understand what’s going on.”

- Ravikiran Annaswamy,
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