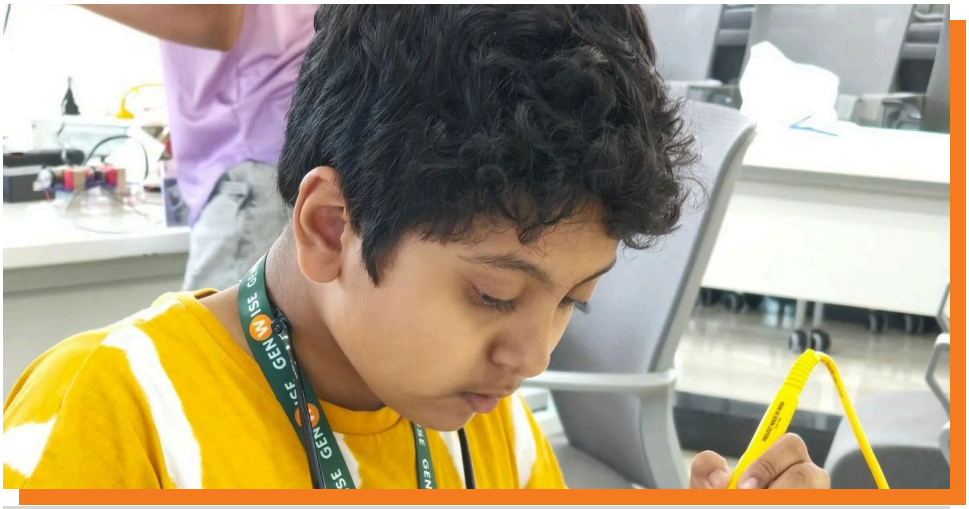
05

DESIGN & ENGINEERING

Fling Theory: Engineer a Launcher That Hits Its Target

Think like an engineer: design a catapult, trebuchet or spring launcher, prototype it, fire it, measure every shot, and iterate until it hits the target you set.

You decide what a perfect launch means, which is the engineer's first job: the furthest shot, the most accurate one, or the best launcher built from scrap. Week one is design: sketches, cardboard prototypes, and the physics of force, torque, tension and energy taught as you build. By week two you are fabricating in wood, 3D-printing your own parts and wiring a light-gate timer that clocks every launch. Every shot is measured, and the data, not opinion, decides the next iteration. By week three you calculate where each shot will land, then test how close the model got, and write up the design log like a working engineer.



Taught by Prasanth Sistla, Educator · Maker · 15 years designing hands-on learning.

Facilitator	Prasanth Sistla
Duration	3 weeks
Teaching hours	90+
Grade	Grades 8–11 (as of 2027–28)

Week by week

01
Investigate

How launchers store and release energy, and your own definition of a perfect launch.

- Levers, springs and stored energy
- Projectile motion and launch angle
- Sketch it, then a cardboard prototype
- Setting your own goal

02
Engineer

Build it properly, then let the measurements decide the next design.

- Wood and 3D-printed parts
- Wiring a light-gate timer
- Measured test shots
- Redesign from the data

03
Refine

Predict where it will land, then test the prediction.

- Final build and tuning
- Calculate the landing point, then check it
- Design review with your peers
- Open-day firing

How does this course help your child?

Innovative pedagogy

Students learn by building, breaking and rebuilding, and evidence decides each redesign.

Academic acceleration

The kinematics and energy of Class 9–11 physics, and the full engineering design cycle with real prototyping tools, including 3D printing.

Cognitive skillsets

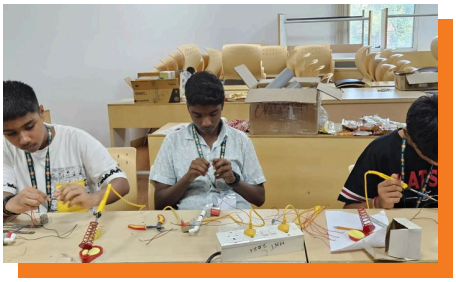
- Setting success criteria
- Measuring fairly
- Learning from failure
- Changing your mind with data

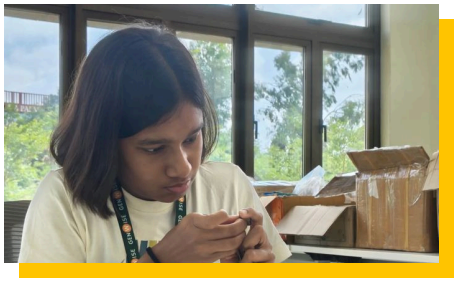
Peer networks

Students design in teams and critique each other's builds, the way real design studios work.

Questions to wrestle with

- **Is the launcher that goes furthest really the best one?**
- **Why does a design that works perfectly on paper miss with its first shot?**
- **What launch angle sends something furthest, and does the textbook answer hold up outside?**







It ends with

A launcher built to the goal each student set, fired at the open day, with a design log of every version and the test data that shaped it.

May program · 9–29 May 2027 · MAHE Manipal

June program · 13 June–3 July 2027 · MAHE Bengaluru

Like every GSP course: three hours each morning, hands-on afternoons, a real artifact at the closing showcase, and one residential coach or teaching assistant for every five students.

Prerequisites: None. School science is enough.

Apply and read more: summer.genwise.in · +91 81238 77635

Watch the course in a minute

youtube.com/shorts/p6fvab5zcDQ