01

SCIENCE

Build It, Break It: Bridges, Pulleys and Floating Tables

Make a paper bridge hold a weight, a table float on strings, and a pulley system lift a load you couldn't lift by hand.

Day one, children build a paper bridge and load it until it gives way: breaking it is the point. Then they meet the forces behind it, tension, gravity and friction, felt in their hands before they are named. They rig pulleys that trade distance for force, build a table that seems to float on strings, and end the week with a build of their team's own design, made with real tools under close adult supervision.

Last May: children load-tested paper bridges and built a tensegrity table that seems to float.



Taught by Amit Deshwal, Founder, A Little Grove · IIT Madras graduate.

Facilitator	Amit Deshwal
Duration	1 week
Teaching hours	30
Grade	Grades 6–7 (as of 2027–28)

The plan

01
Build, break, look closely

A paper bridge tested until it breaks, and the forces that decided when.

- Paper bridges under weight
- Forces all around us
- Newton's laws, felt first
- The pattern in the bridge that held

02
Forces you can feel

Pulleys and force diagrams, then a tensegrity table built in teams.

- Tension, gravity, friction
- Pulleys and force diagrams
- Working with real tools
- The floating table

03
Build your own

Teams design and build a project of their own choosing.

- Choose your own build
- Plan as a team
- Build, test, fix
- What broke, what we changed

How does this course help your child?

Innovative pedagogy

Every idea is felt before it's named: children load a bridge, pull a pulley and balance a table, then learn the law behind what happened.

Academic acceleration

Forces, Newton's laws and structures, met years before the textbook, through things they build themselves.

Cognitive skillsets

- Observing closely
- Testing ideas
- Planning a build
- Fixing what fails

Peer networks

Every structure is built in a team, so children learn to share tools, ideas and the credit.

Questions to wrestle with

- **How can a bridge made of paper hold up a weight?**
- **How does a table stand when its top is held up only by strings?**
- **Why does a pulley that moves with the load make it feel lighter, and what do you pay for that?**







It ends with

Each team's own structure or machine, tested at the open day, where they show what broke along the way and what they changed because of it.

May program · 16–29 May 2027 · MAHE Manipal

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.

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

Read the course online

summer.genwise.in/summer-program/courses/build-it-break-it