02

BUILD & MAKE

Squishy Circuits

Electronics you can squash: real circuits built from conductive play dough.

Circuit fundamentals through dough, LEDs, buzzers and motors, then paper circuits in light-up cards, sculptures and origami animals. The fastest route we know from "electricity is a bit scary" to "I built that".



Taught by Muralidhar K, Senior mentor & course designer · BTech, IIT Madras · 20+ years in the social sector.

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

The plan

01
Squash and light

Conductive and insulating dough, an LED and a battery: the first circuit is one children can hold.

- Conductive vs insulating dough
- Closing the loop
- Short circuits made visible
- LEDs, buzzers and motors

02
Control the current

Potentiometers dim an LED, an RGB light blinks on a 555 oscillator, and digits appear on a seven-segment display.

- Potentiometers and brightness
- The 555 oscillator
- Seven-segment displays
- Reading a circuit diagram

03
Paper that glows

Copper tape and LEDs turn cards, sculptures and origami animals into circuits of their own design.

- Paper circuits
- Light-up cards
- Origami that lights up
- Your own glowing build

How does this course help your child?

Innovative pedagogy

Dough makes electricity touchable: children see a short circuit happen in their hands before they ever draw one.

Academic acceleration

Series, parallel, resistance and timing circuits, met through working builds years before the physics chapter.

Cognitive skillsets

- Following a circuit
- Debugging what won't light
- Careful hands
- Designing a build

Peer networks

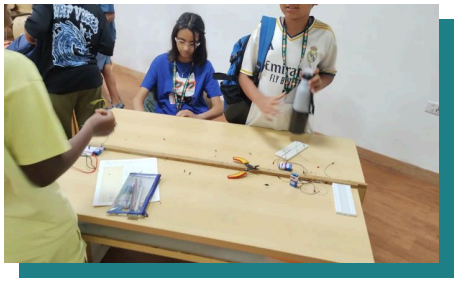
Circuits are built in pairs and small teams, so every fix is talked through out loud.

Questions to wrestle with

- **Why does the bulb light here, but not two centimetres to the left?**
- **What is a short circuit — and why does dough make it obvious?**
- **Can you build something that lights up only when it's folded?**







It ends with

At the open day, each child shows a light-up build of their own design and explains how its circuit works.

June program · 20 June–3 July 2027 · MAHE Bengaluru

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