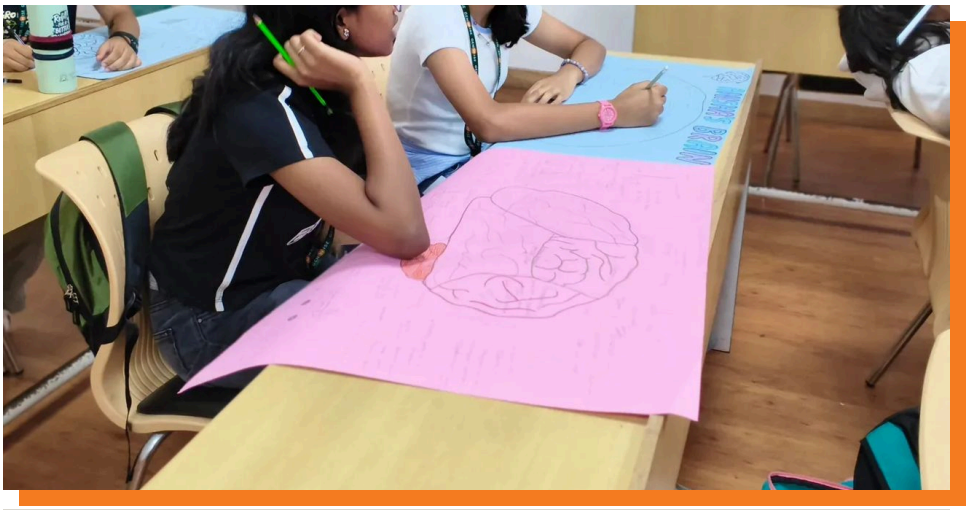
08

BIOLOGY & MEDICINE

Inside the Helix: The Genetics Behind Medicine and Biotech

Find the mutation hiding in a patient's DNA, trace what it breaks, and make the case for a treatment.

Build DNA with your hands and translate a mystery gene into the protein it makes. Work patient cases as a genetic disease detective. Compare the new treatments head to head, gene editing with CRISPR, gene replacement and RNA medicines, and debate whether we should edit human genes at all. A few of these treatments are already in hospitals; some cost crores per patient, so who gets them is part of the science too. It starts from zero: school science is enough.



Taught by Berty Ashley, Senior Scientist, DART Bangalore · Quiz columnist, The Hindu · TEDx speaker.

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

Week by week

01
The language of life

How cells, DNA, RNA and proteins actually work, built and decoded with your own hands.

- From microscopes to the double helix
- Build DNA
- How cells make proteins
- Translate a mystery gene

02
When genes go wrong

How mutations cause disease, and the tools scientists use to read, copy and edit DNA.

- How a mutation causes a disease
- Genetic disease detective
- PCR, sequencing and CRISPR
- Debate: should we edit genes?

03
From genome to patient

The newest treatments, and how to tell real progress from hype.

- Gene editing, gene replacement and RNA medicines
- Stem cells: what's real and what's hype
- The treatment comparison challenge
- The Molecular Medicine Symposium

How does this course help your child?

Innovative pedagogy

Every few hours the lesson turns into something you do: an experiment, a role-play, a patient case or a debate.

Academic acceleration

Molecular biology and biotechnology well beyond the school syllabus, from first principles to the treatments in today's news.

Cognitive skillsets

- Tracing cause and effect
- Reasoning from evidence
- Weighing ethics
- Explaining science clearly

Peer networks

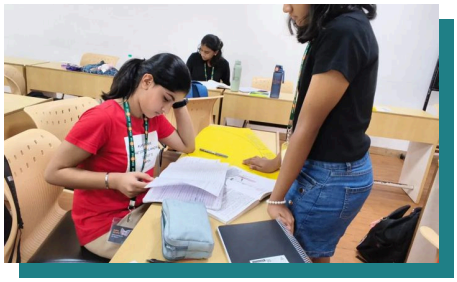
Teams present patient cases and defend them before a review board.

Questions to wrestle with

- **If almost every cell in your body has the same DNA, why is a brain cell not a skin cell?**
- **Can you fix a broken gene without touching the DNA at all?**
- **Just because we can edit a human gene, should we?**







It ends with

The Molecular Medicine Symposium at the open day. Each team takes a patient case, finds the gene and the mutation, writes a case report, proposes a treatment, and defends it, ethics included, before a review board.

May program · 9–29 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. The course starts from zero.

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

Watch the course in a minute

youtube.com/shorts/QpoXUu4BWVM