



BIOMEDICAL ENGINEERING

BioMed Engineers of the Human Body

Inspiring the Future of STEM

BioMed: Engineers of the Human Body

Our Biomedical Engineering program shows middle school girls how engineers designed parts of a body cannot make for itself. Students work through the engineering design process to build and test working models of real medical devices — from replacement heart valves to prosthetic limbs.

Program Description

- **Engineering Design Process:** Define the problem, build, test, and improve the way engineers do.
- **Biomechanics:** How bones, joints and muscles create movement, and the forces on them.
- **Biomaterials:** What can safely be placed inside a body, and why the match matters.
- **Medical Devices:** Designing replacements — heart valves, prosthetics and supports.
- **Build and Measure:** Every session ends with a working model that gets tested.

Program Structure

- After-school Club (1.5-2 hrs)
- Women in STEM
- Self-paced module
- Competitions and Hackathons
- Capstone Project
- Field Trip
- Guest Speaker(s)

New Jersey Science Standards

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| <ul style="list-style-type: none"> • MS-LS1: Molecules to Organisms • MS-LS2: Ecosystems • MS-LS3: Genetics • MS-LS4: Biological Evolution | <ul style="list-style-type: none"> • MS-ESS3: Earth/Human Activity • MS-ETS1: Engineering Design • MS-PS2: Engineering Design |
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JerseySTEM | Bridging Gender, Innovation, and Opportunity Gaps for Middle School Girls in New Jersey

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