Beyond STEM
Partner School/Organization Offerings

Introducing engineering in middle school, is crucial in ensuring the next generation of technologists matches it consumers. Our approach is exposure through entirely hands-on sessions that can be selected to create a unique experience.

Key Components of Each Session

A combination of the components below are woven together to create an experience that ensures each student can:

(1) Identify at least one application of the engineering discipline in their daily life
(2) Associate community problems with the engineering discipline that may develop solutions
(3) Work with a team of peers to solve a problem
(4) Confidently share their ideas and thoughts

Beyond Tech	Discovering the Discipline		Reflection
	Impact on Today	Key Principles	
Teamwork and communication form the basis of technology development in a world where engineers tackle increasingly challenging problems.	Engineering makes our day-to-day possible, recognizing that work is the first step to sparking curiosity. We spend time highlighting the everyday applications of engineering.	Hands-on projects or competitions that are an opportunity to apply the engineering design process to solve a problem.	Instrumental in building critical thinking skills, our sessions end with a bit of time for the students reflect.

Session Offerings

Our session offerings fall into three categories: foundational, recent trends or coding. The foundational sessions feature the essential concepts of the core engineering disciplines. The recent trends sessions focus on modern implementations of the engineering discipline. The

coding sessions focus on building the fundamental skill of computational thinking through block-based coding. Our coding sessions are intended to be structured as consecutive sessions.

Each session is designed to be delivered within a 1-hour time frame.

Foundational	Recent Trends*	Coding*	Cost	Capacity
What is Engineering?	Electrical Engineering: **Light Dark Circuits**	Principles of Coding: **Innovation In a Digital World**		
The Engineering Design Process	Electrical Engineering: **Circuits and Sound**	Principles of Coding: **Code + Algorithms**		
Design Thinking	Mechanical Engineering: **Hydraulic Power**	Principles of Coding: **Conditionals**		
Innovation and Entrepreneurship	Biomedical Engineering: **Heart Rate Monitors**	Principles of Coding: **Events**		
Mechanical Engineering: **Simple Machines**	Biomedical Engineering: **Measuring Muscle Activity**	Principles of Coding: **Data Mining**	$300	Up to 20 Students
Electrical Engineering: **Circuits and Motors**	Aerospace Engineering: **Aerodynamics and Paper Airplanes**	Principles of Coding: **Robotics**		
Civil Engineering: **Bridges**	Aerospace Engineering: **Launching Rockets**	Principles of Coding: **Artificial Intelligence**		
Civil Engineering: **Estimating to Build**	Electrical Engineering: **Circuit Jewelry**	Principles of Coding: **Physical Computing**		
Biomedical Engineering: **Measuring Grip Strength**				

**We are always developing new sessions*

Example Session Series

Each programming experience is tailored to the needs of the school or organization. We highly suggest that the selection include "What is Engineering" and "The Engineering Design Process." A sample series is presented below. The coding sessions should be scheduled consecutively in the order presented in the chart above.

	Session Description
1	What is Engineering?
2	The Engineering Design Process
3	Mechanical Engineering: Simple Machines
4	Electrical Engineering: Electricity and Circuits
5	Construction Engineering: Estimating to Build
6	Biomedical Engineering: Valve Replacement