

Emerging Engineers

Grades: 2 – 6

Day (s) of Week: Thursday

Time of Class: 11:00 am – 12:30 pm ET

Length of Class: 10 Weeks

Semester: Spring 2021

Tuition: \$250.00

Class Dates:

Week 1: April 8

Week 2: April 15

Week 3: April 22

Week 4: April 29

Week 5: May 6

Mid-Term Break/Eid Al Fitr: May 10 - 16

Week 6: May 20

Week 7: May 27

Week 8: June 3

Week 9: June 10

Week 10: June 17

Make Up Week: June 24

Instructor's Name: Brittany Robbins

Instructor's Email: RobbinsLife@gmail.com

Instructor's Phone: 239-292-4467

Description of Class:

Students will be introduced to the multi-faceted field of engineering and apply the engineering design process through project-based learning.

Class Approach:

Lessons are project- and inquiry-based, with a focus on interdisciplinary learning. The importance of play in a child's development is well documented; educating children from a STEAM perspective encourages them to play, ask questions, and pursue their passions and creativity from a young age. Students learn in a safe environment, where the value of failure as a learning exercise is taught. Because mistakes are viewed as part of the learning process, students develop confidence and resilience. The focus is on the journey, not simply on the outcome. Students are encouraged to display creativity and to put their own individual stamp on projects.

Goals:

The goal of this course is to pique a child's interest in the disciplines of science, technology, engineering, art, and math – disciplines that the child may wish to pursue in later life. Students will gain confidence in STEAM subjects and begin to develop the technical, creative, and critical thinking skills that they need to be part of an innovative future.

Supplies/Resources Needed:

In addition to an active imagination, students will need access to many common household supplies such as wooden blocks, dominoes, string, LEGO bricks, Hotwheel cars, bubble wrap, tape, cardboard boxes, egg cartons, etc. Students will learn to work within constraints, just like engineers do in the real world; they will be challenged to work with what they find at home. Students will need to print handouts and homework weekly.

Weekly Homework:

Students will complete a brief comprehension quiz weekly. Students will spend 1 – 3 hours on weekly homework assignments, which will consist of hands-on engineering projects.

Anticipated Weekly Course Schedule:

Week	Topic
Week 1	Introduction to Engineering: Who are they and what do they do?
Week 2	Civil Engineering: The Rube Goldberg Challenge. Focus: Forces (Push, Pull) and Simple Machines
Week 3	Civil Engineering: The Rube Goldberg Challenge. Focus: Newton's Laws of Motion, Law of Conservation of Energy, Kinetic & Potential Energy
Week 4	Software Engineering: PB&J Challenge. Focus: Coding is a Language.
Week 5	Software Engineering: Coding a LEGO Maze. Focus: Coding Commands.
Week 6	Aerospace Engineering: Exploring Earth's Moon. Focus: Lunar Phases, Space Travel
Week 7	Aerospace Engineering: Sink vs. Float. Focus: Gravity, Buoyancy, Density
Week 8	Materials/Mechanical Engineering: Upcycle Game Challenge. Focus: Sustainable Resource Use, Working Within Limitations.
Week 9	Materials/Mechanical Engineering: Egg Drop Challenge. Focus: Engineering Design Process, Gravity, Efficient Materials Use.
Week 10	Final Project Presentations / Course Terminology Review