

## 2016-17 New PLC Science Class Proposal: Engineering and Technology

Prerequisite: None

One quarter: .5 Credit

Students apply processes to solve real engineering problems; develop the knowledge and skills to design, modify, use and apply technology; and will design, build, and test prototypes and working models. Topics include the design processes, problem solving, working as a team, reading/creating technical drawings, career exploration, and historical examples of the engineering cycle.

### Proposed Outline of Engineering and Technology Class

The process of engineering is the main focus of the class. Students will design, build, test, and redesign as they learn about the development of everyday products. Along with practicing the engineering cycle, students will gain everyday skills such as measurement, problem solving, teamwork, calculating materials and following assembly instructions. The following areas will be covered in this course:

1. Unit 1: What is Engineering/Technology
  - a. What is/isn't engineering/technology
  - b. Career exploration
  - c. Teamwork in engineering
  - d. Historical use of the engineering cycle in everyday products
  - e. Engineering Fails
2. Unit 2: The Practice of Engineering
  - a. Design, build, test, and evaluate (Toothpick Bridges)
  - b. Earthquake Tower Project
  - c. Considerations when designing products (environmental, cost, social, etc)
3. Unit 3: Creating Technical Drawings
  - a. Measurement
  - b. Balsa Wood Towers
  - c. Hand Drawing
  - d. CAD
4. Unit 4: Reading and Following Technical Drawings
  - a. Building Project (Gratitude Booth f/ Bounce Back Project, shed for garden project, etc.)

### Instructional Resources/Materials:

- Computer Hardware: 15 mouses for the laptops
- Scale Rulers