

# Principles of Engineering (PLTW)

## September/October

- Definition and Types of Engineers
  - Engineers as problem solvers
    - Project—Careers in Engineering paper/powerpoint presentation
- Communication and Documentation
  - Sketching
- Design Process
  - Product development



## November/December/January

- Engineering Systems
  - Mechanisms
    - Project—Simple Machines
  - Thermodynamics
    - Project—Heat engines
  - Fluid Systems
    - Project--Pneumatics/Hydraulics
  - Electrical Systems
    - Project—DC motor
  - Control Systems
    - Project--Marble sorter

## Key Ideas / Concepts

- Technical Writing
- Data Representation/Presentation
- Engineering Team
- Careers in Engineering
- Presentations
- Course Goals
  - Students will know whether they will pursue engineering careers or not
  - Students will gain a general understanding of the duties and responsibilities of various engineering fields
  - Students will work through complex problems/projects individually or as a group
  - Local manufacturing fieldtrip
  - Students who earn an 85% or higher class average and successfully pass the RIT final exam will qualify for RIT elective credit

## May/June

- Engineering for reliability
  - Reliability
  - Case Study—Engineering Failure
- Introduction to Dynamics/Kinematics
  - Linear Motion
  - Trajectory Motion



## February/March/April

- Statics and Strength Materials
  - Statics
  - Strength of Materials
    - Project—Bridge building/MD Solids
- Materials and Materials Testing
  - Categories of Materials
  - Properties of Materials
    - Project—Materials Display
  - Production Processes
    - Project--Tencil test sample
  - Quality
    - Project--Precision measurement/stats
  - Material Testing Processes
    - Project--Analyze/break tencil test sample