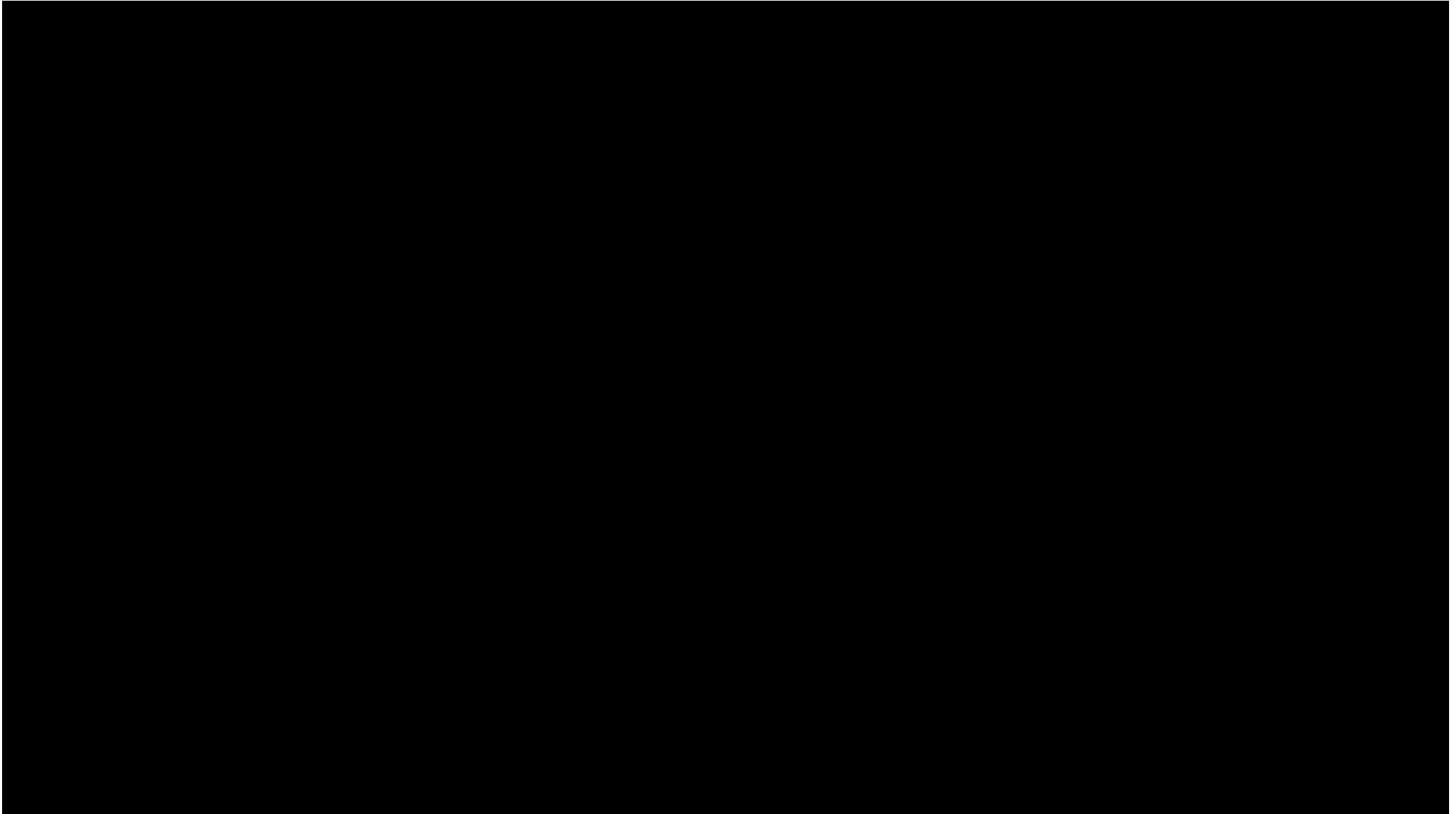


Project Lead The Way

Introduction to Engineering Design

Project Lead The Way Make a National Impact



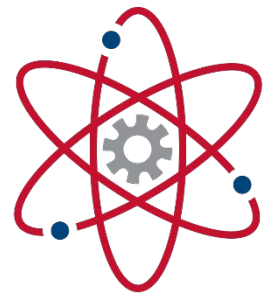
JTHS Course Sequence

Introduction to
Engineering
Design

Principles of
Engineering

Specialized
Engineering
Courses

Capstone Course-
Engineering
Design and
Development



PROJECT LEAD THE WAY
PLTW

PLTW Introduction to Engineering Design (IED)

- Course overview

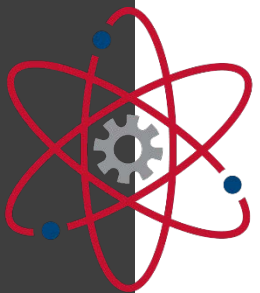
- Design process
- Technical Sketching and Drawing
- Measurement and Statistics
- Modeling Skills
- Geometry of Design
- Reverse Engineering
- Documentation
- Advanced Computer Modeling
- Design Team
- Design Challenges

- Recommendations

Pre-requisites:

- Completion of Algebra 1 with a C or better
- OR
- Math Explore 8 score of 15 or better

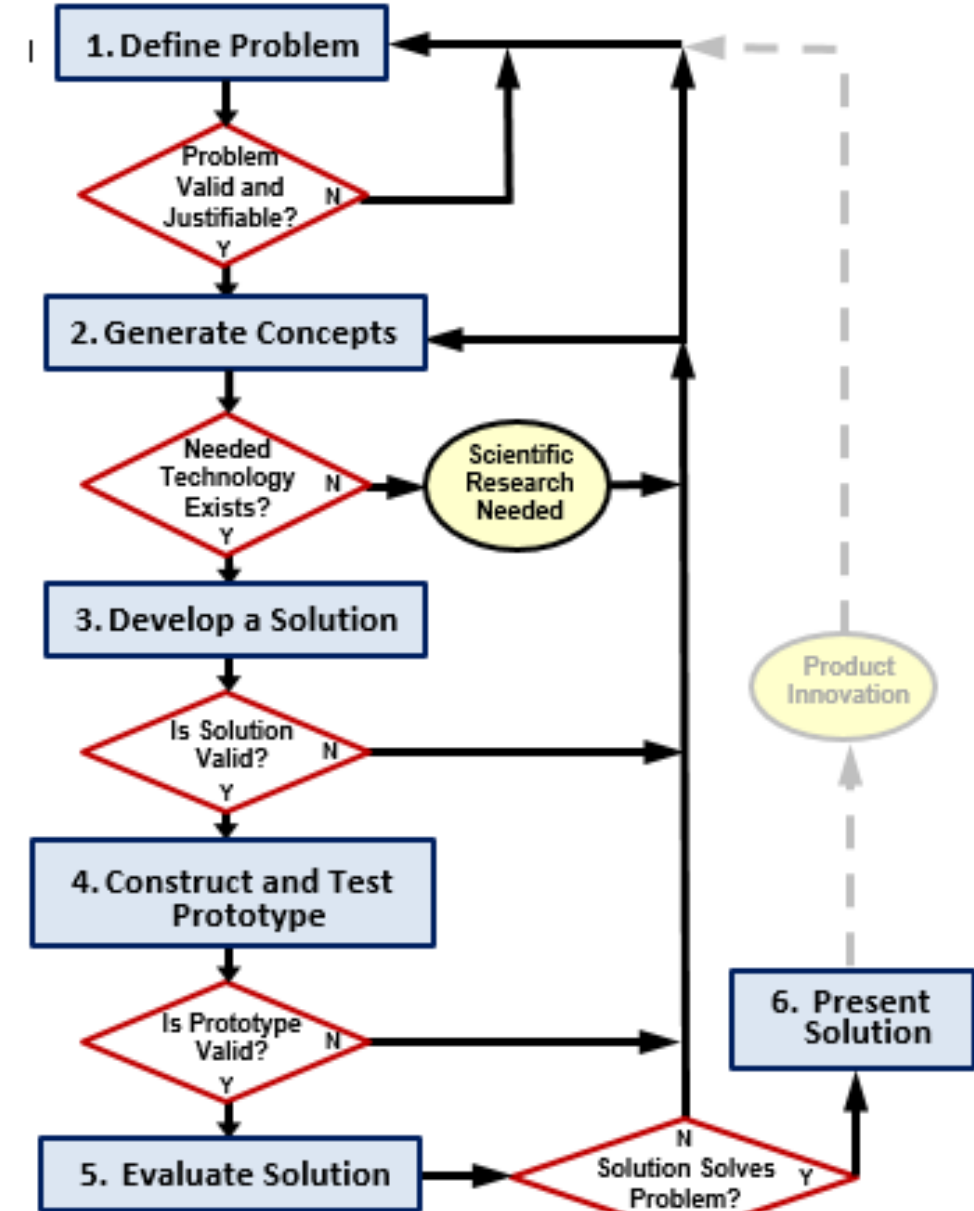
Available Grade levels 9-12
Weighted GPA 1.2



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A Design Process



Unit 1: Design Process

Best Practice Journal Entries

PLTW PROJECT - AXLE 99

1st Idea Linear Motion Allowance

5th (continued) I added a slotted hole to the design which will allow a shaft to connect to the wheel and axle. As the wheel and axle spins, the shaft (which is held in place by a pin) will also spin. A spring inside the slotted hole will allow the pin (which attaches to a screw on the other end) to move linearly hence the reason for the slot. I drew up the necessary models in CADD and assembled them to make sure they will work (in theory). I then created a dimensioned drawing of the new wheel and axle design and fabricated it on the metal lathe.

SECTION A-A

Aluminum Axle Scale 1:1

CADD Printouts of Assembled Sub-System and Technical Drawing of Wheel and Axle

DESIGNED BY: Bill Pltew DATE: May 15, 2012

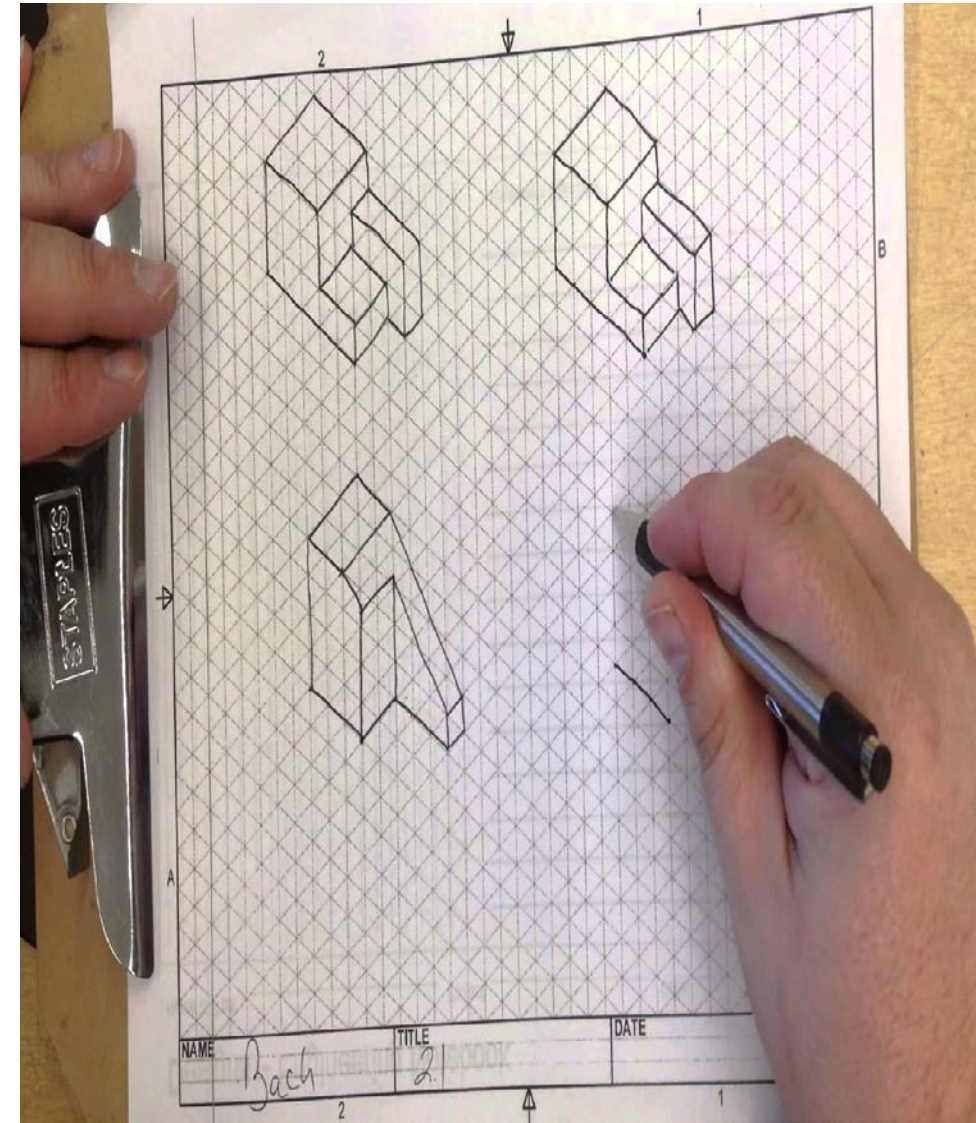
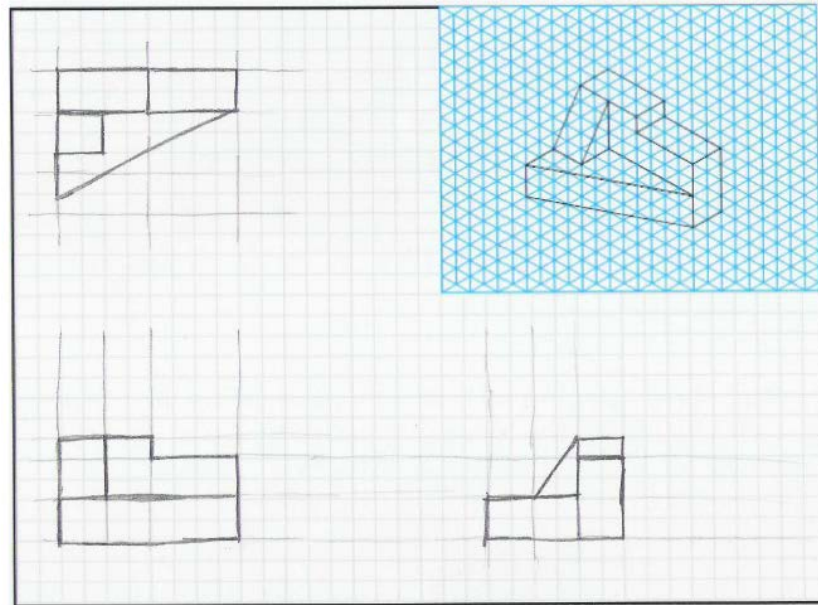
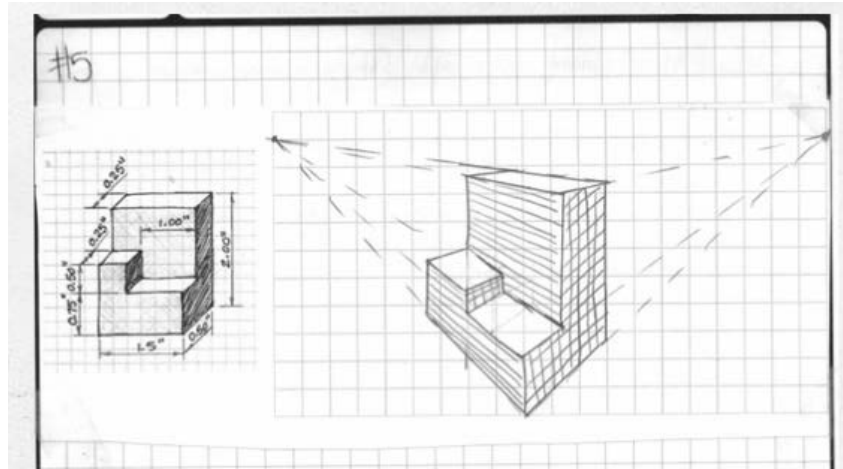
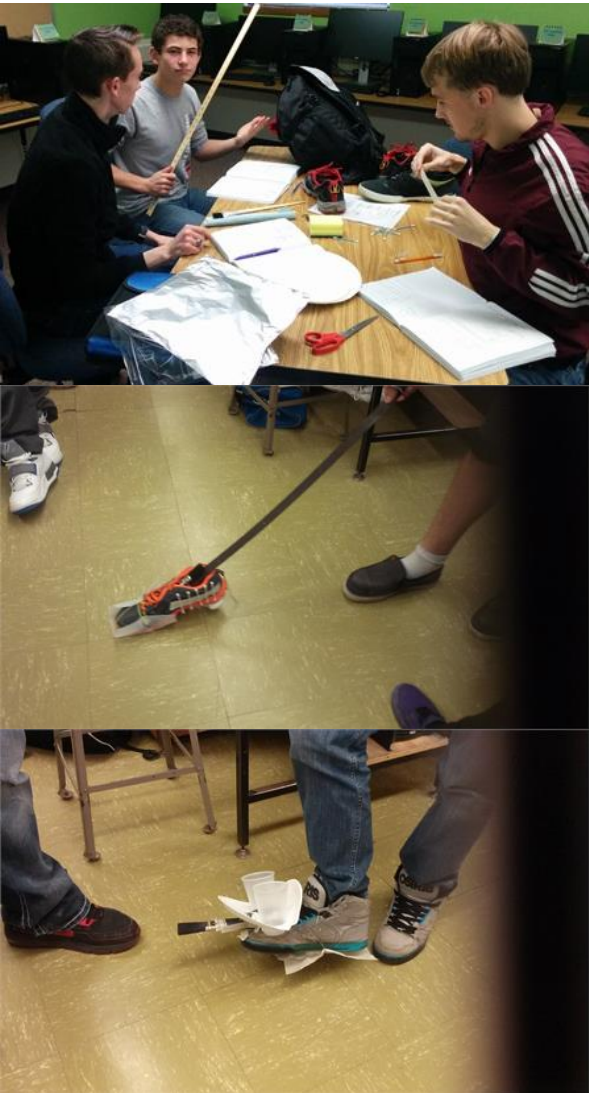
WITNESSED BY: Jill Pltew DATE: May 15, 2012

PROPRIETARY INFORMATION

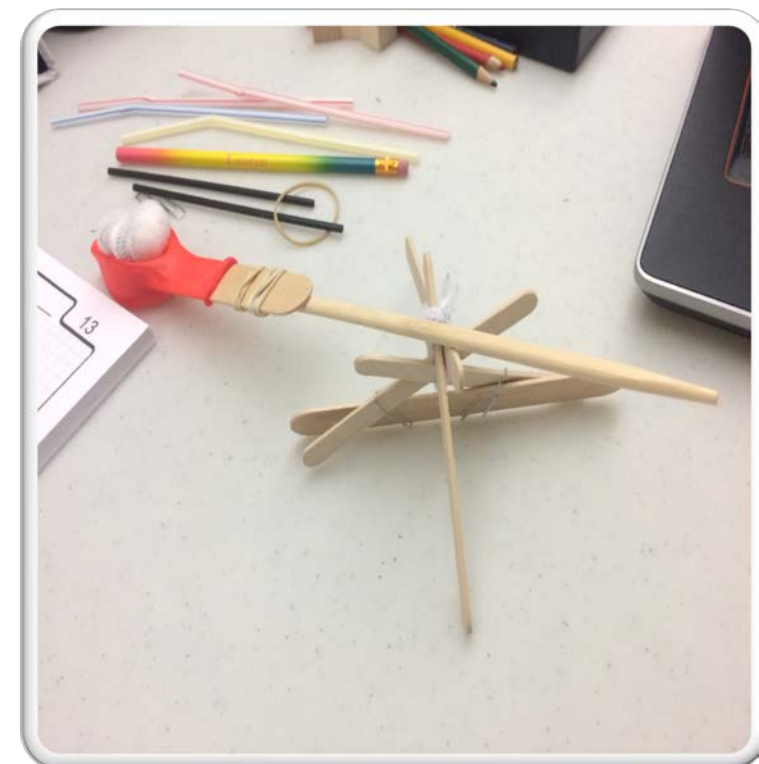
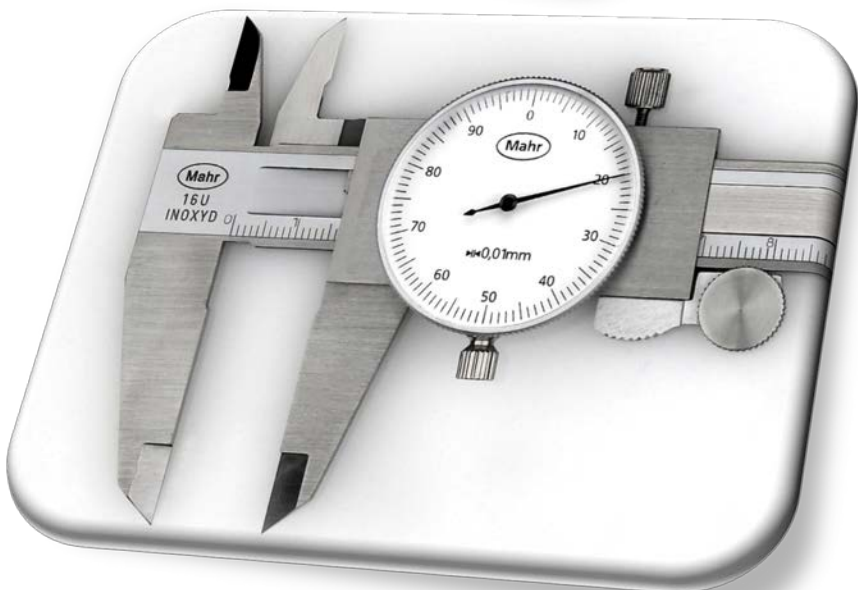
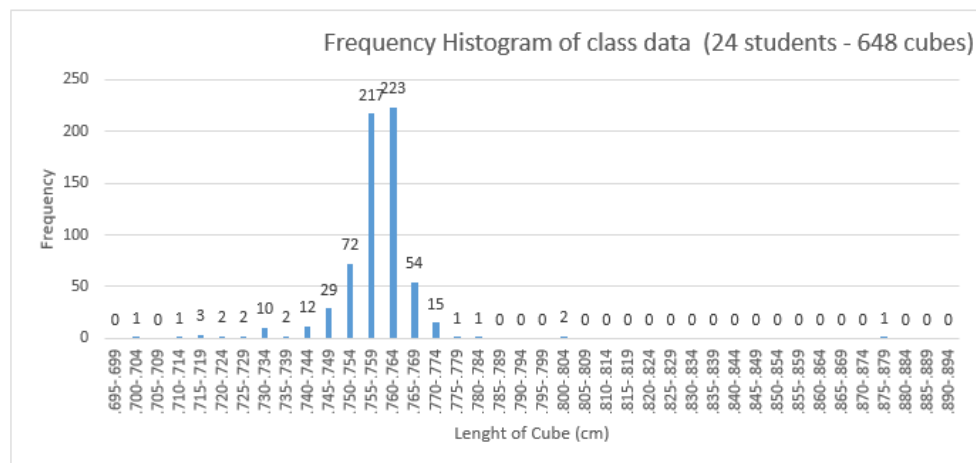
All information is the property of, and solely owned by the Designer.

For Best Practice, be sure to periodically review the above Journal Entries

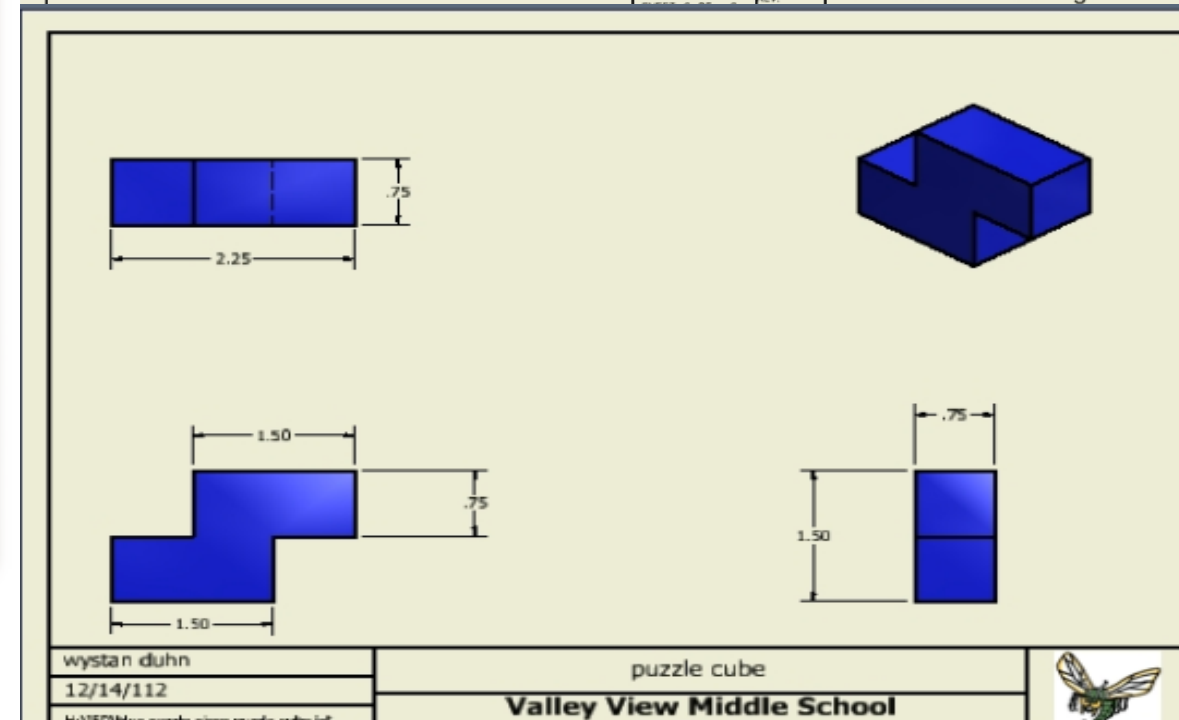
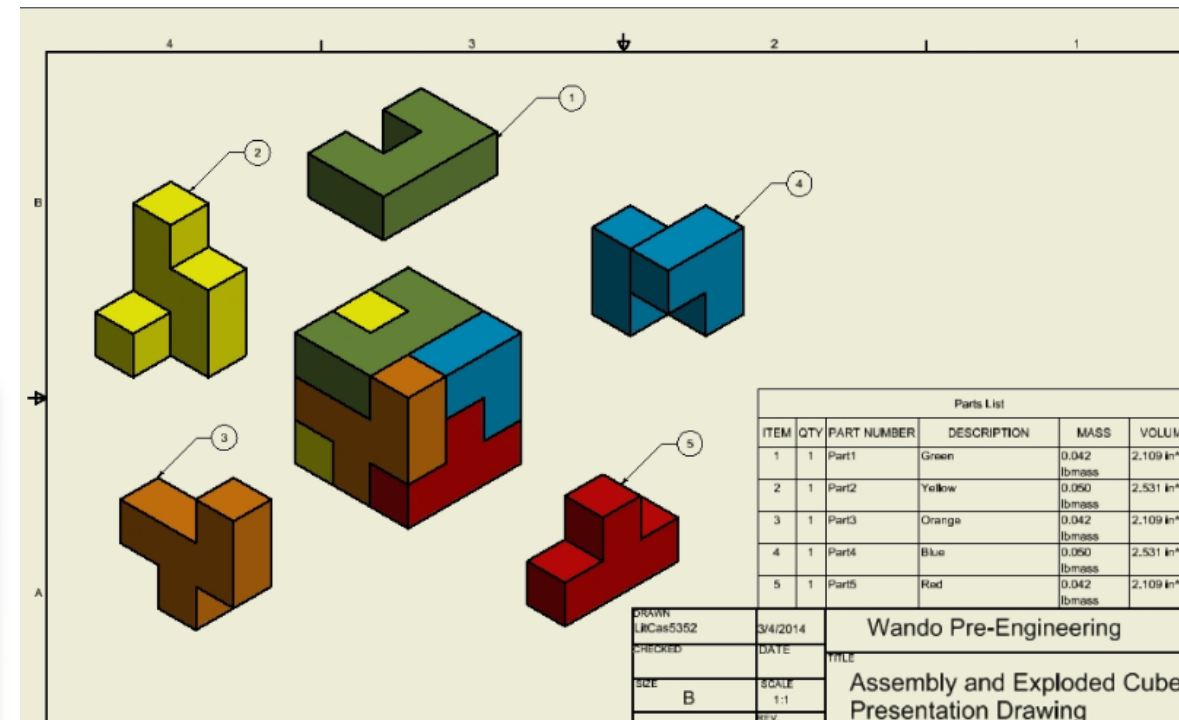
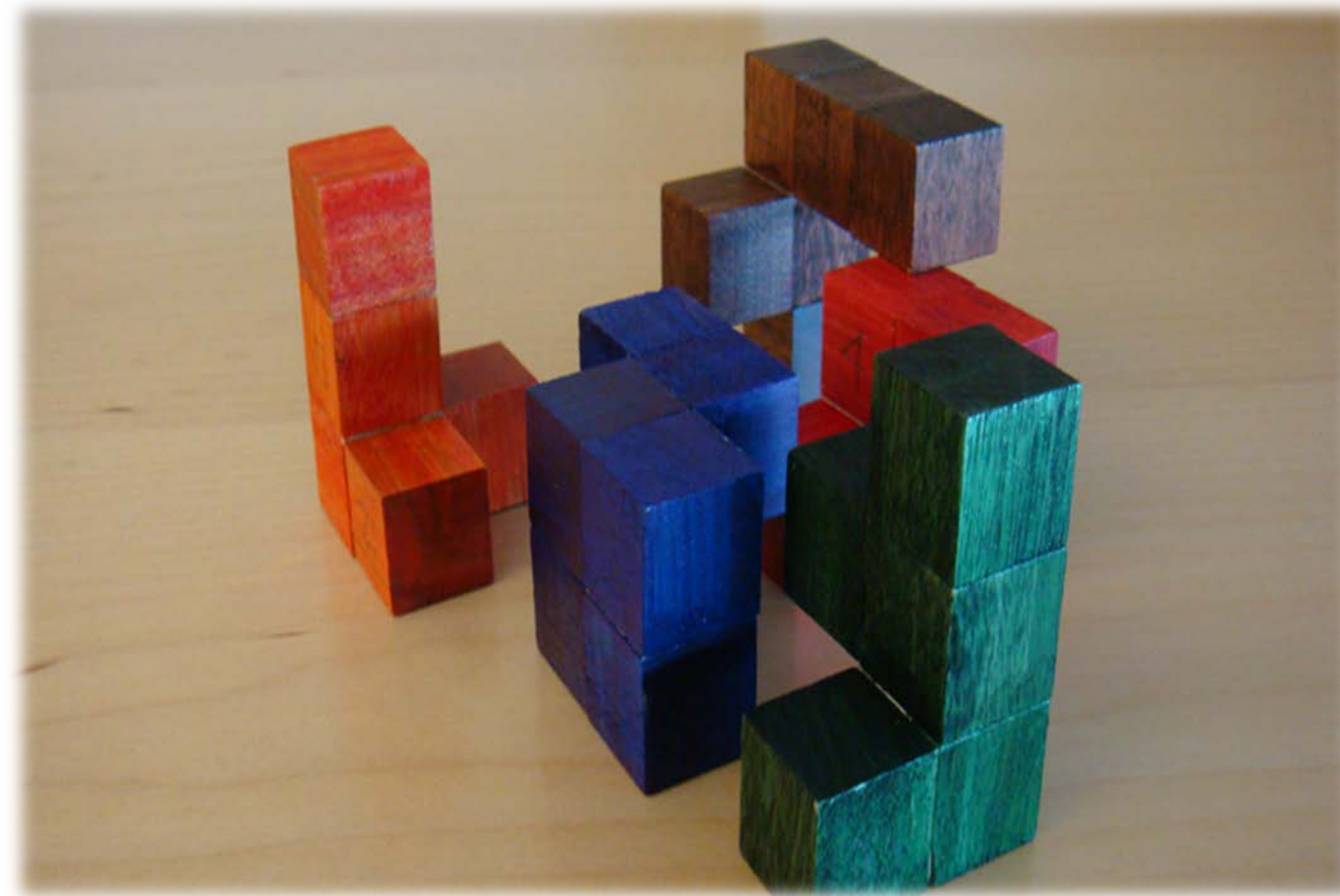
Unit 2: Technical Sketching and Drawing



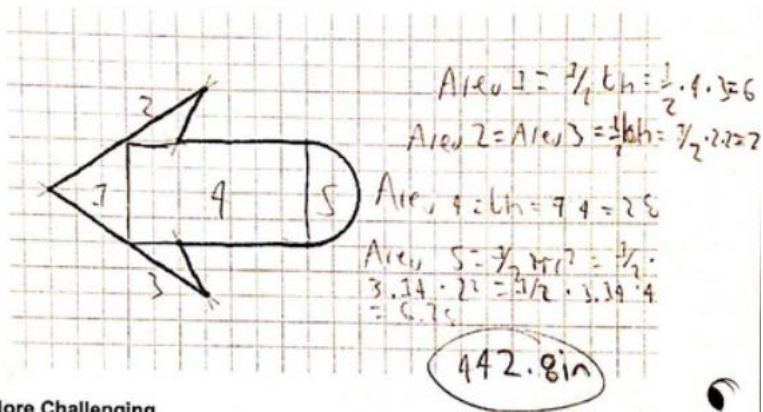
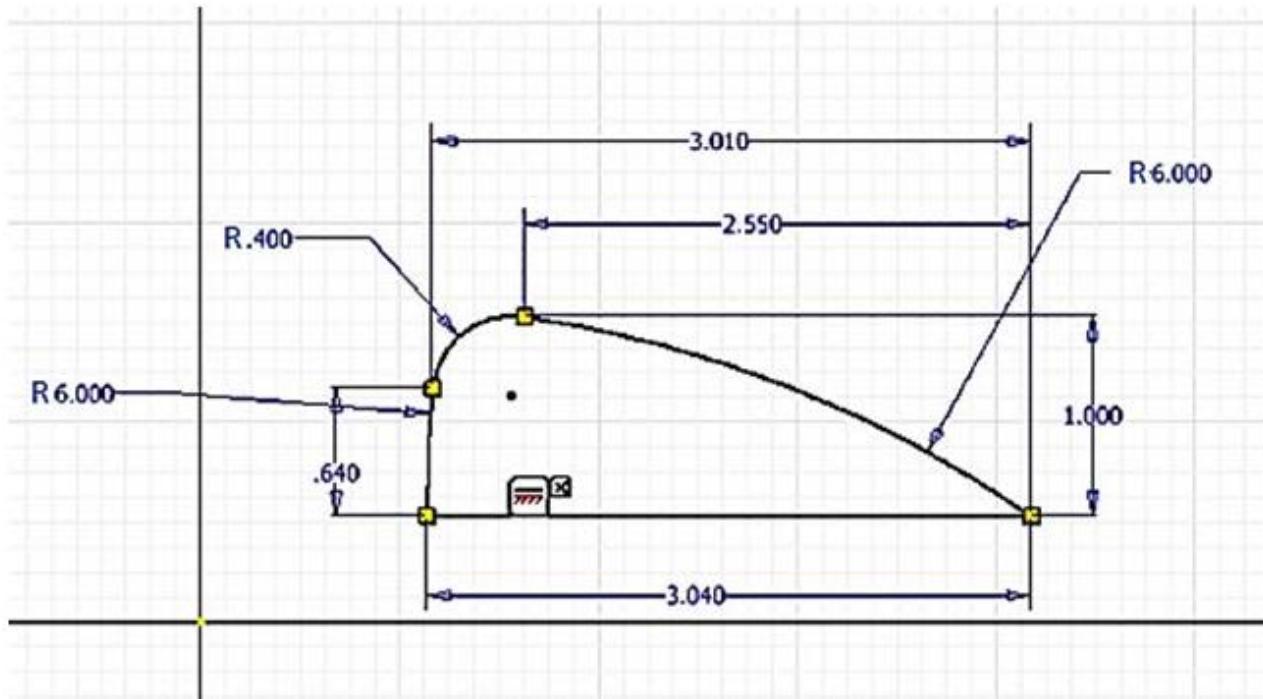
Unit 3: Measurement & Statistics



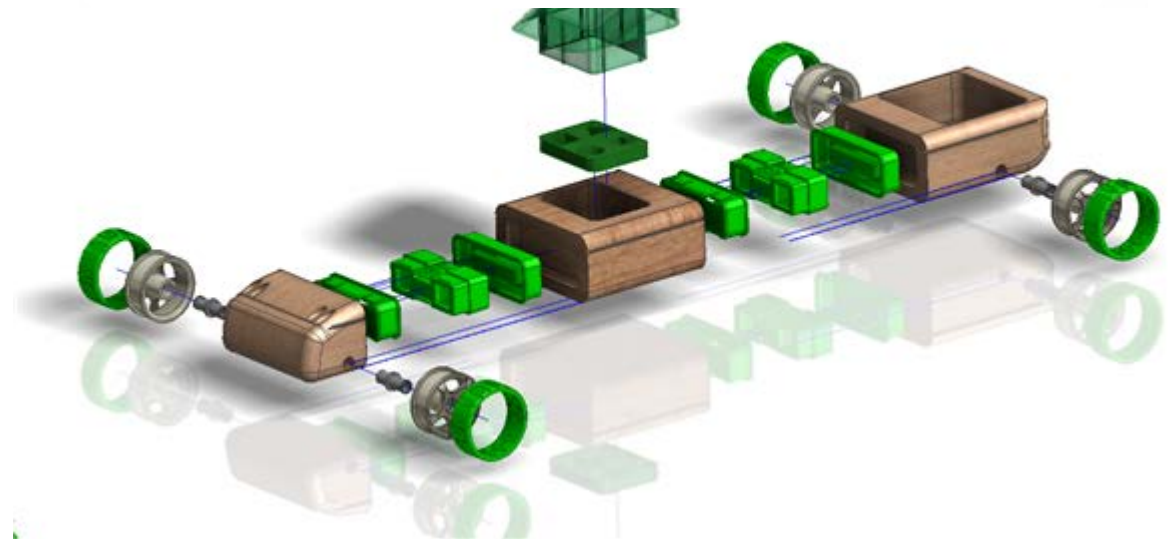
Unit 4: Modeling Skills

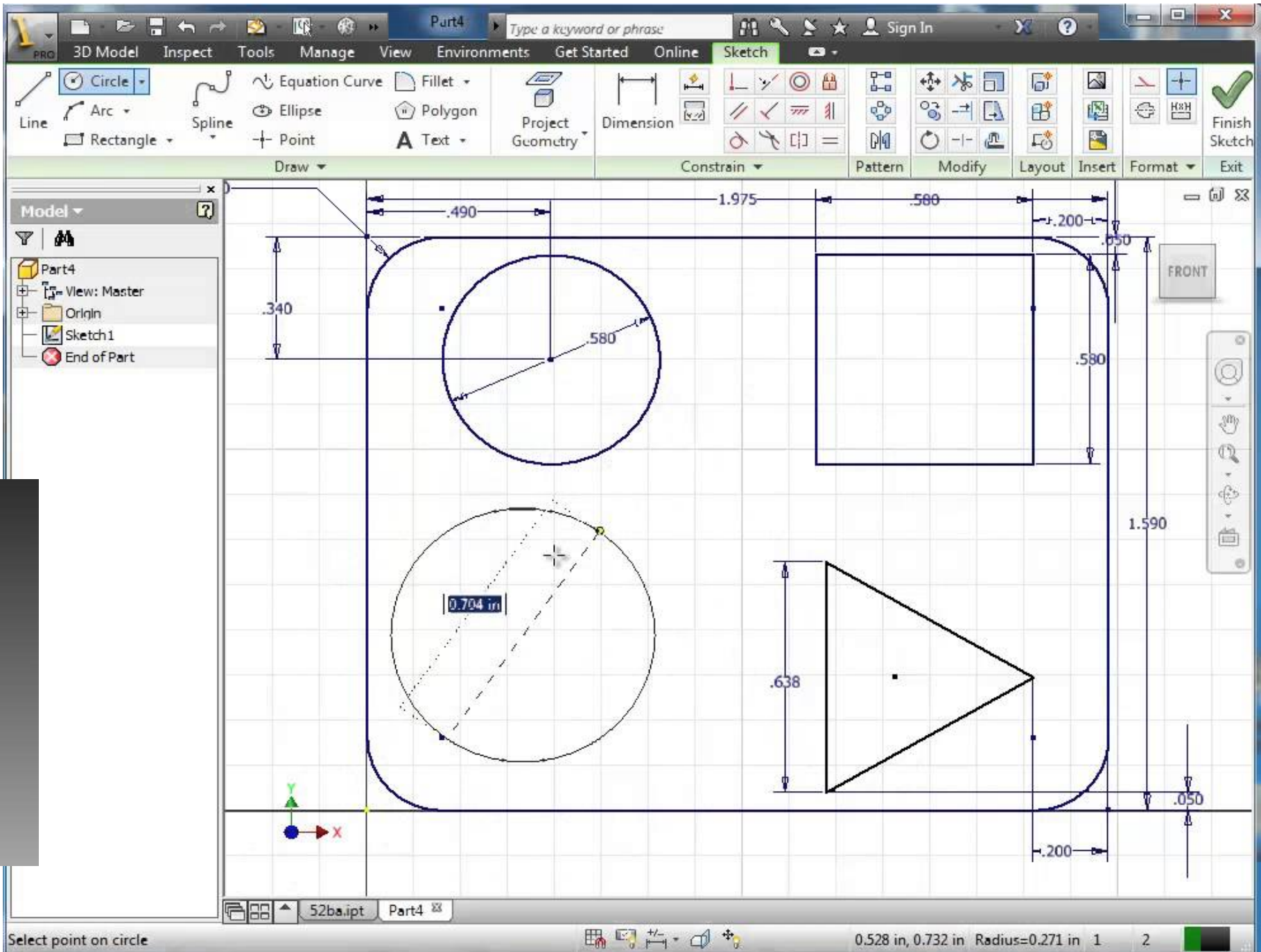
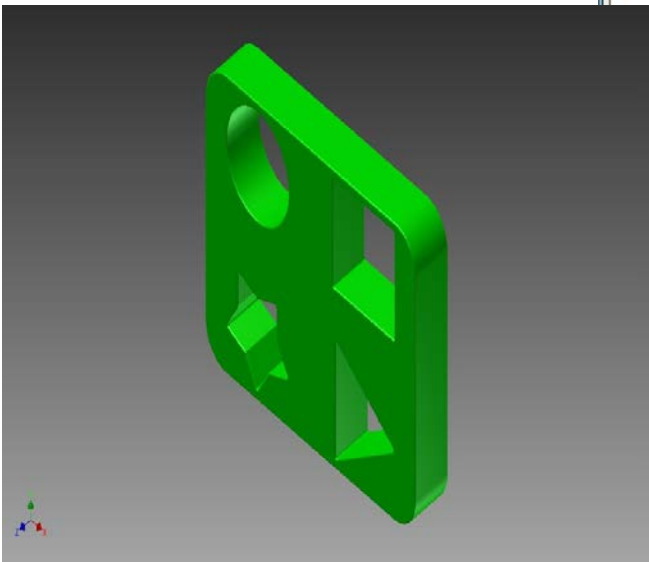


Unit 5: Geometry of Design

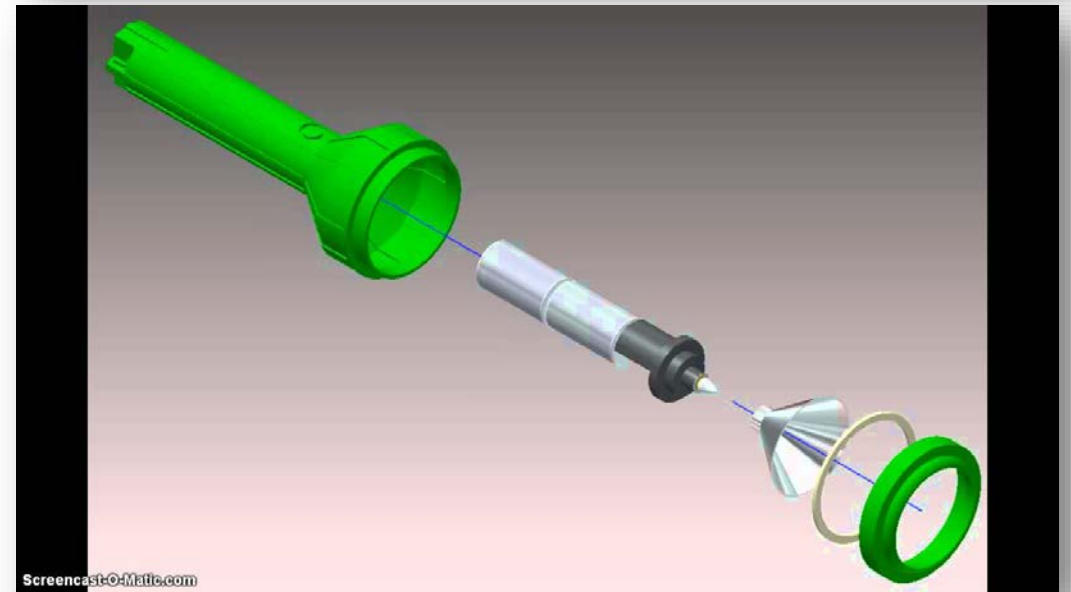
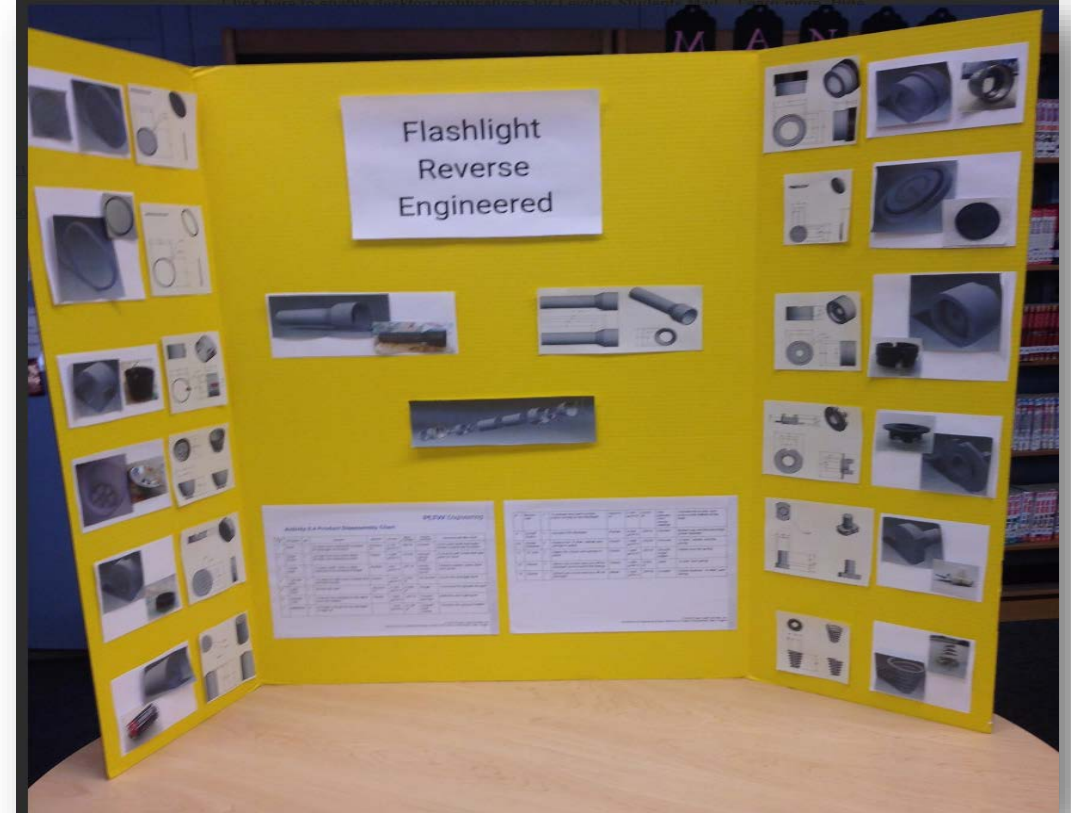
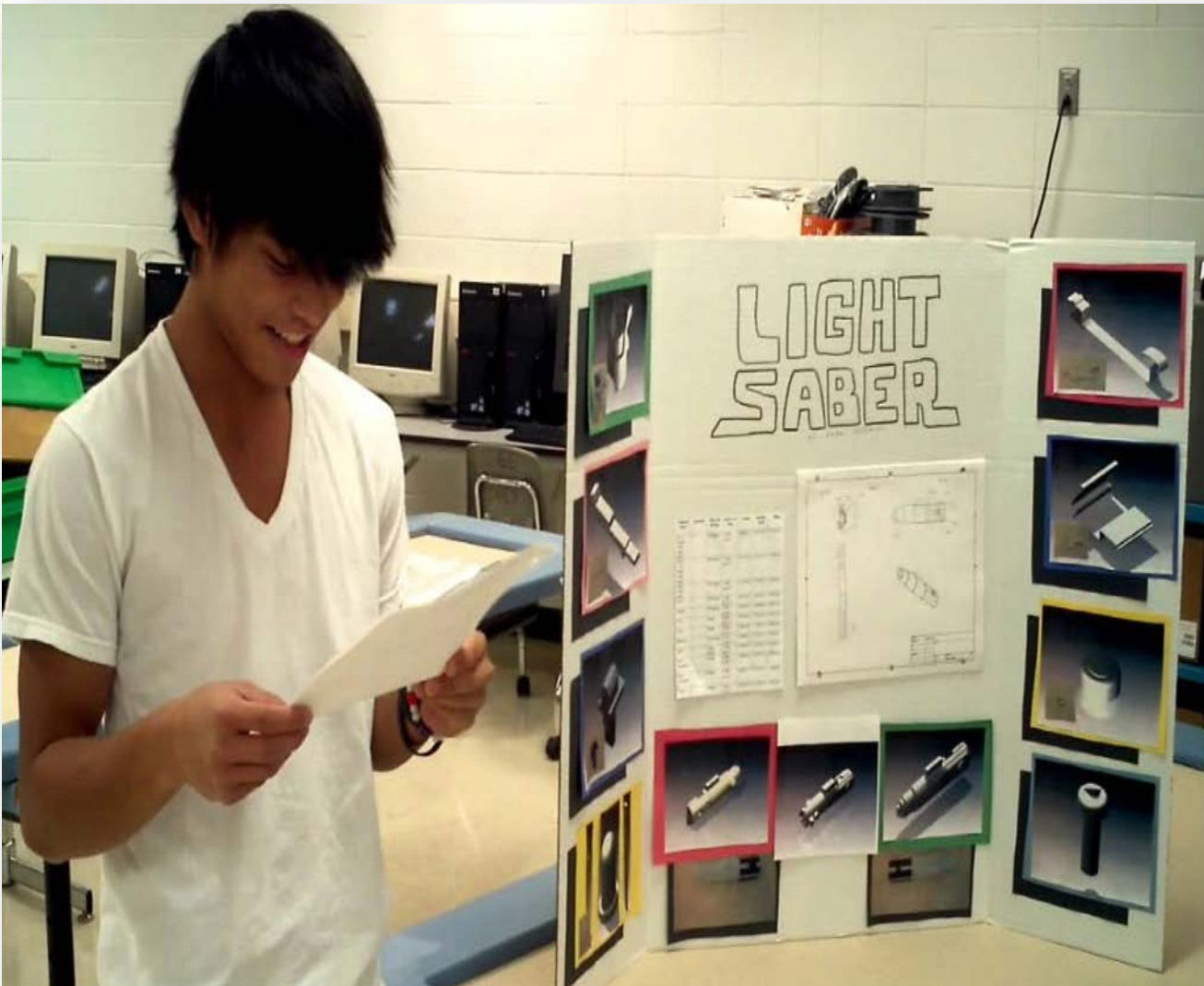


More Challenging

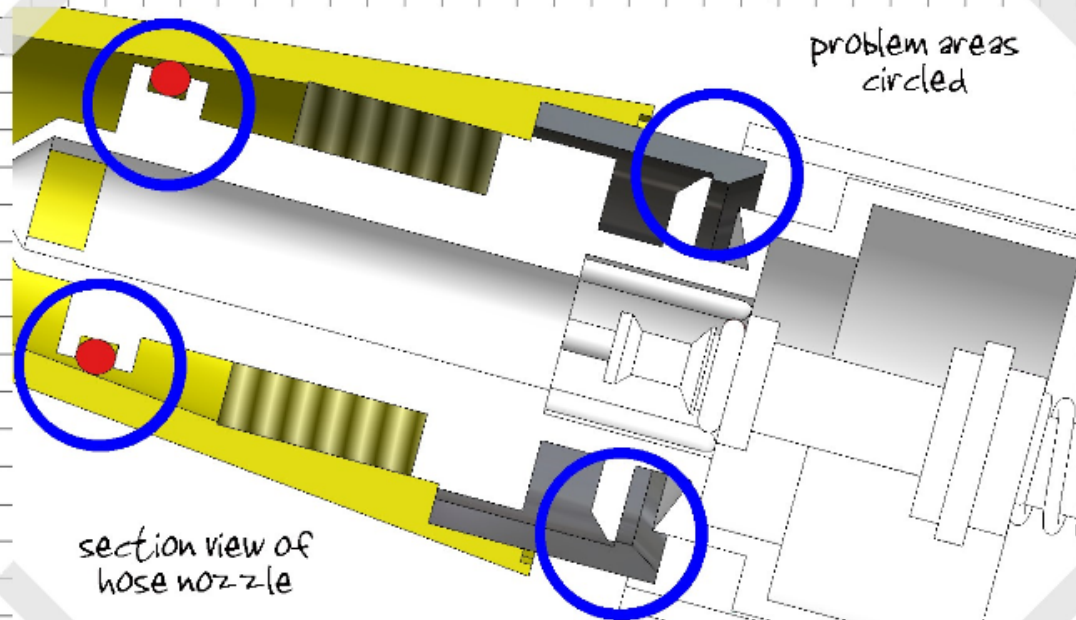
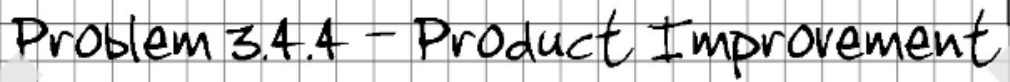




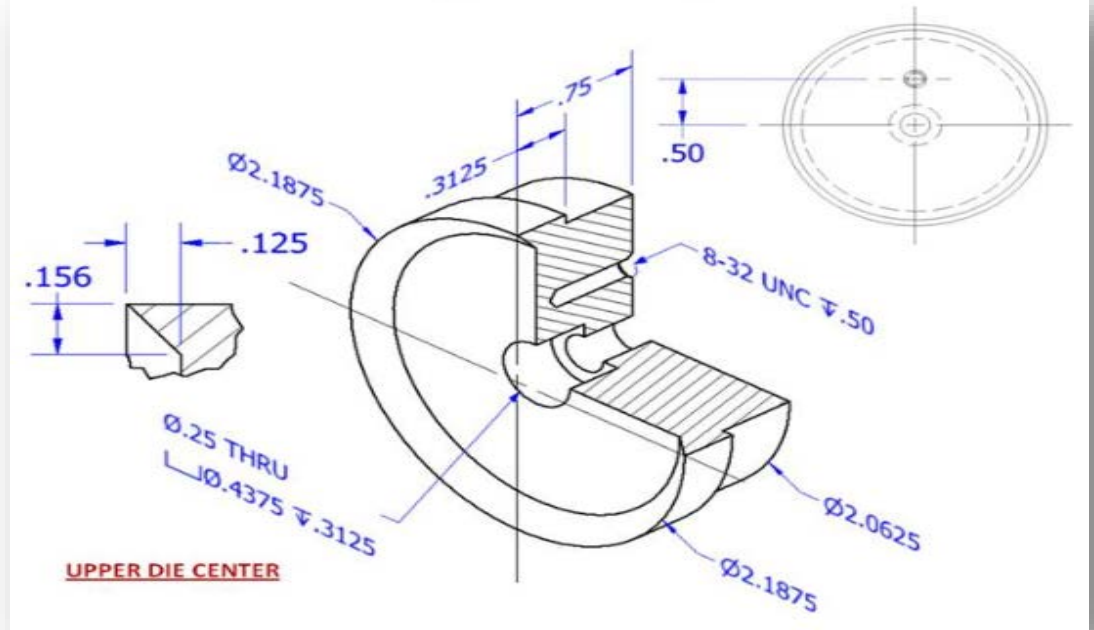
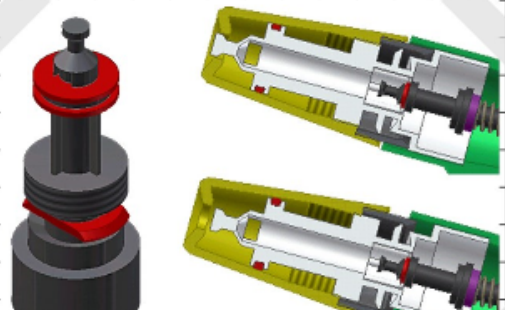
Unit 6: Reverse Engineering



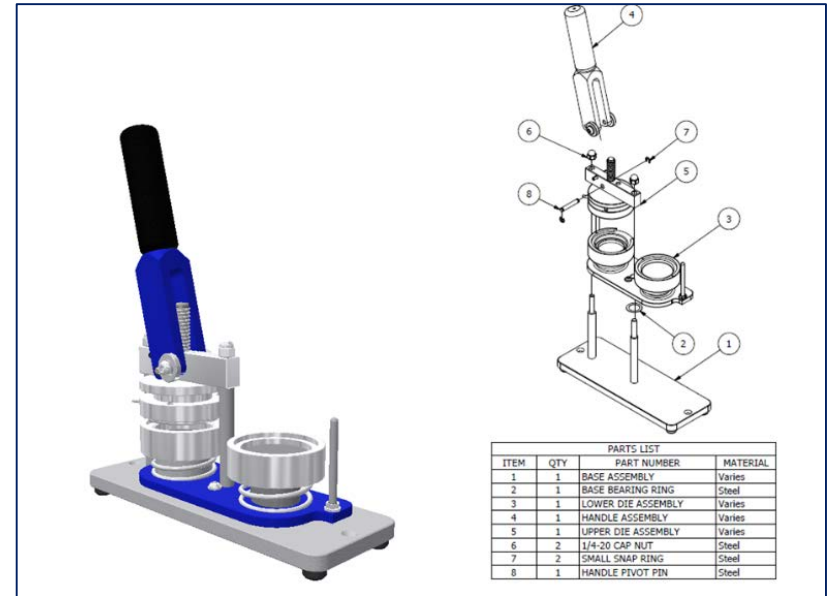
Unit 7: Documentation



5/15 As my partner and I were dismantling the garden hose, we noticed that the flanges, shown in red at the bottom of the stream diverter, would shear off if too much effort was made to dismantle the parts. It



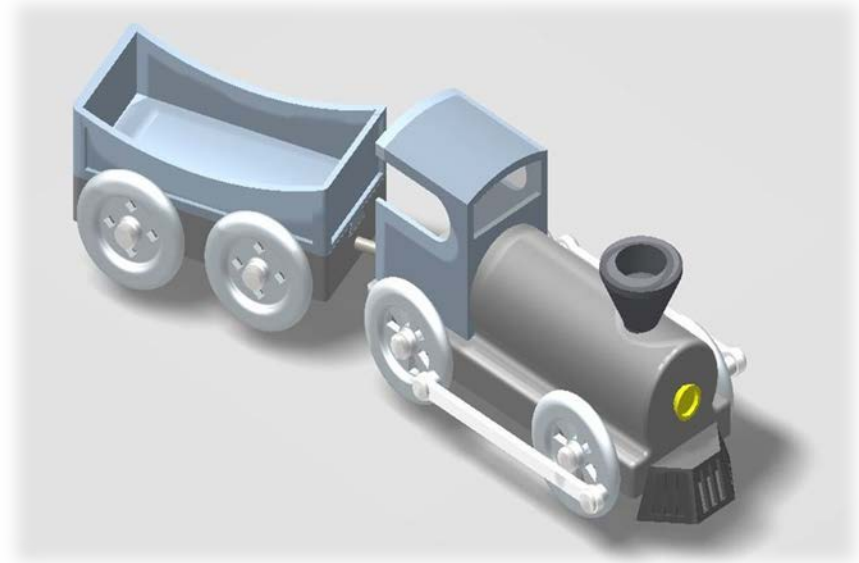
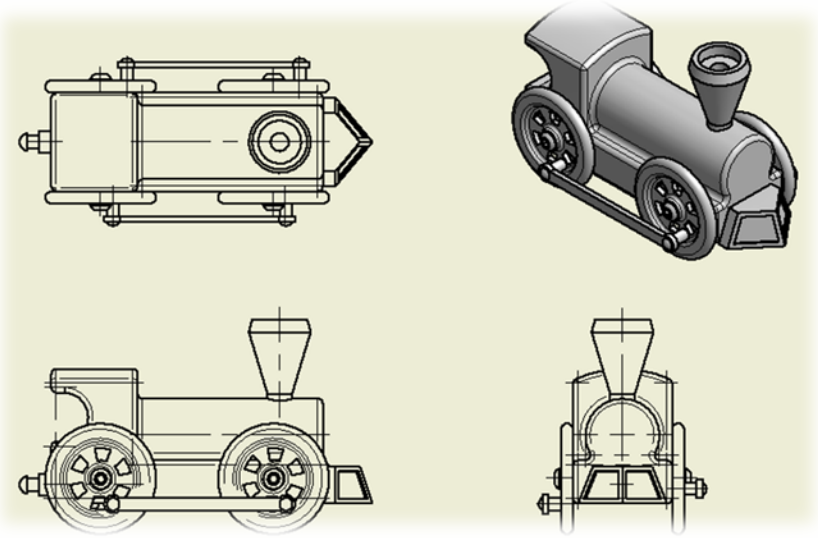
Unit 8: Advanced Computer Modeling



Unit 9: Design Team



Unit 10: Design Challenges



Partnerships

- Exxon Mobil
- Herald News
- NIU STEM Outreach



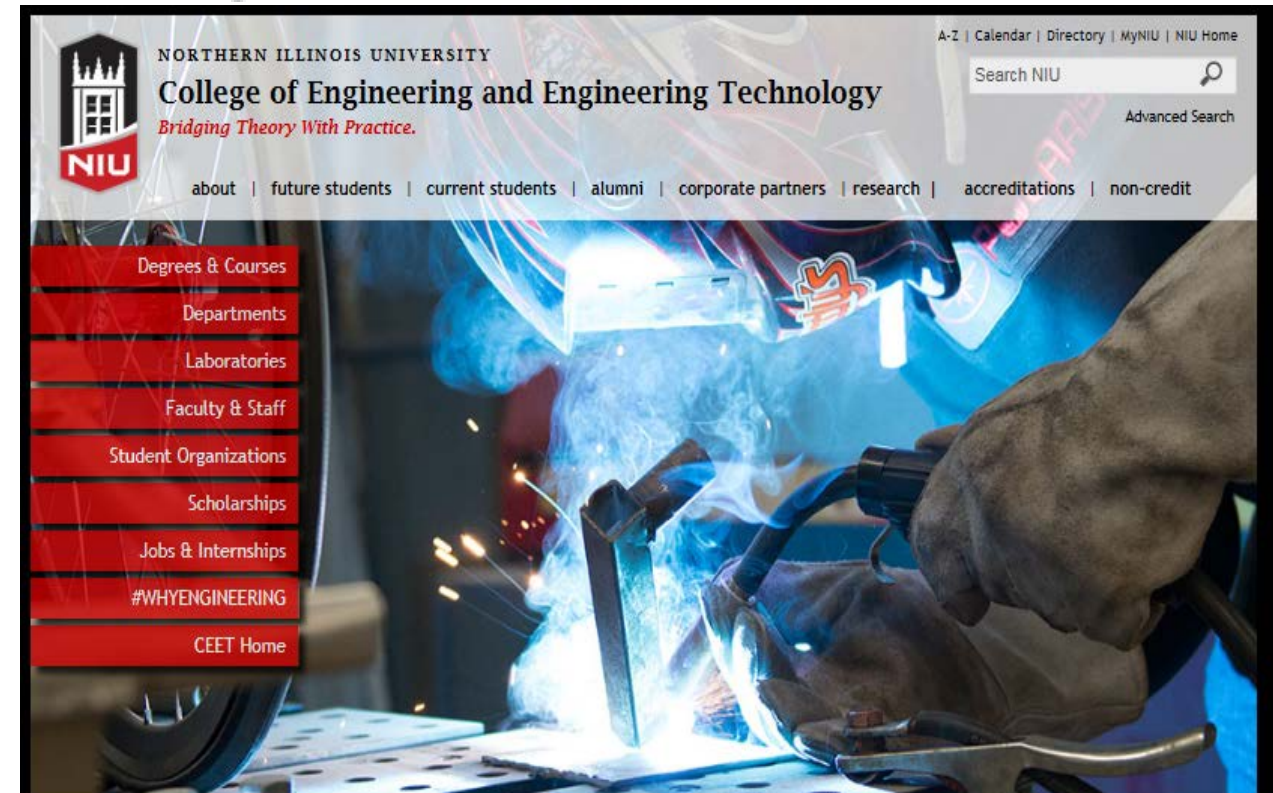
Possible College Credit



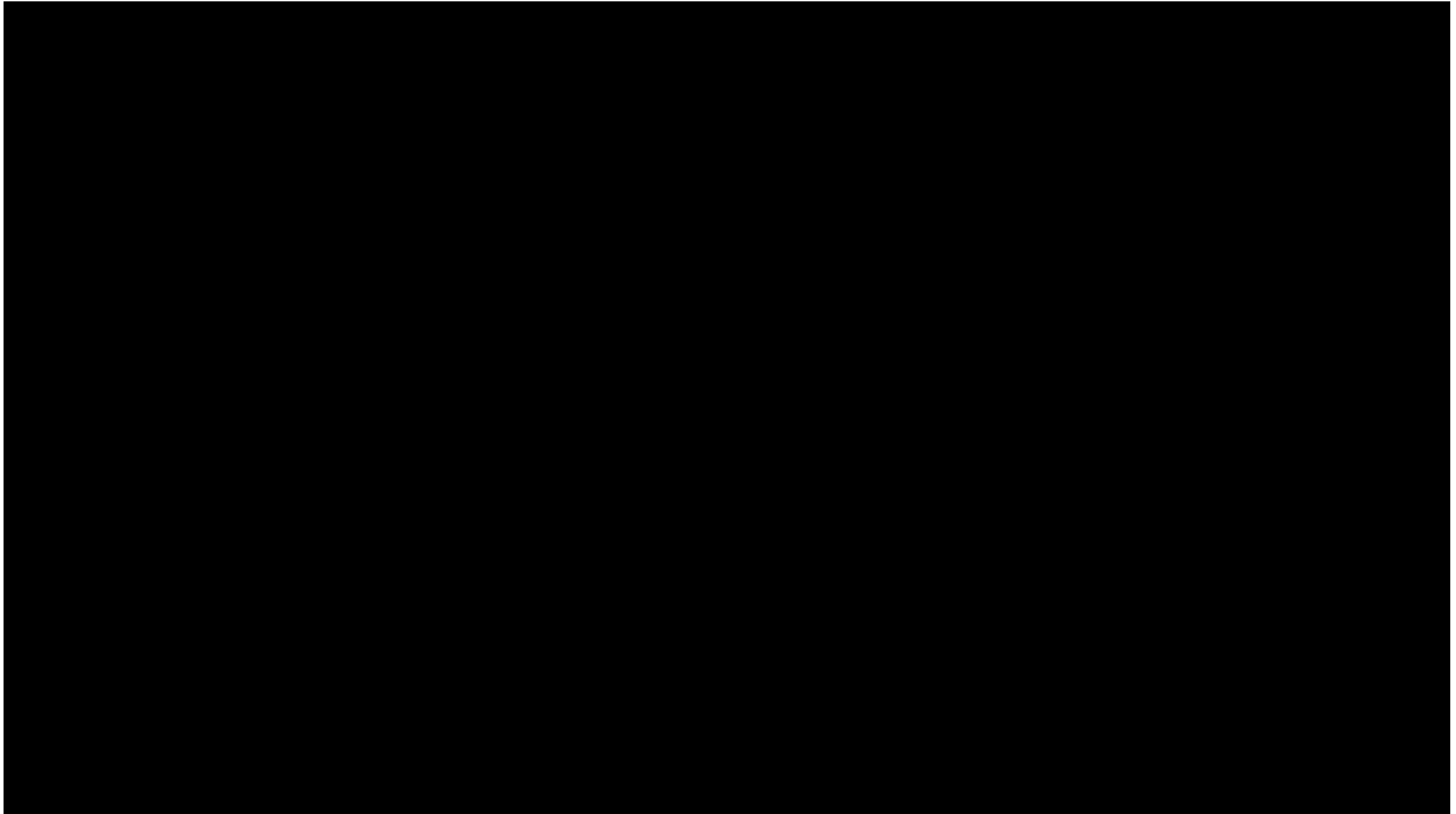
NORTHERN ILLINOIS UNIVERSITY

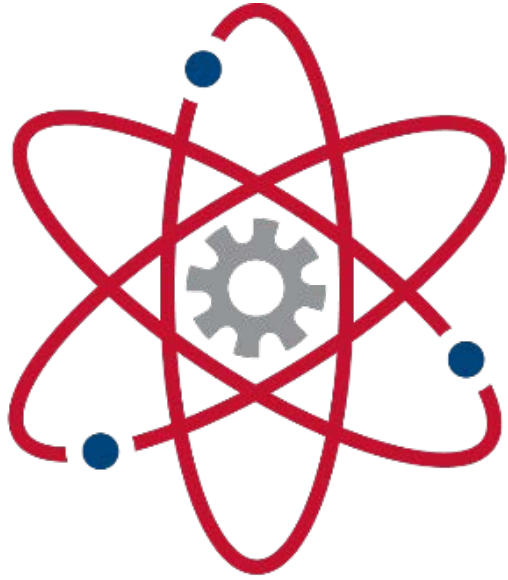
**College of Engineering
and Engineering Technology**

Bridging Theory with Practice



PLTW Engineering





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Q & A

THANK YOU