Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Science and Technology Education	Course:	PLTW Gateway to Technology (DSF)	Unit 1 Title:	Design and Modeling What is Engineering?	Grade Level(s):	7-8
Assessed Trimester:	Trimester 1	Pacing:	5-8 Days	Date Created:	6-16-2014	Last Revision Date:	

Course Understandings: *Students will understand that:*
- Students will understand that engineers use a design process to create solutions to existing problems

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals

Science
- **Standard: 6.1.2.1:** Engineers create, develop and manufacture machines, structures, processes and systems that impact society and may make humans more productive.
  Benchmark:
    6.1.2.1.1: Impact of Engineered Systems Identify a common engineered system and evaluate its impact on the daily life of humans

ELA
Integration of Knowledge and Ideas
  6.13.7.7: Compare and integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, table, map)

Research to Build and Present Knowledge
  6.14.7.7: Conduct short research projects to answer a questions (including a self-generated question) drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

Technological Literacy
- **Standard:** Students will develop an understanding of the characteristics and scope of technology.
  Benchmark:
    L. Inventions and innovations are the results of the specific, goal-directed research. (1.9-12.L)
- **Standard:** Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.
  Benchmark:
    H. Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other fields. (3.9-12.H)
- **Standard:** Students will develop an understanding of the role of society in the development and use of technology.
  Benchmark:
    E. The use of inventions and innovations has led to changes in society and the creation of new needs and wants. (6.6-8.E)

Transfer

Students will be able to independently use their learning to: (product, high order reasoning)
- Students will create a engineering notebook and be evaluated on acceptable parts and layout.

Meaning

Unit Understanding(s):	Essential Question(s):
Students will understand that:	Students will keep considering:
• Utilize standard procedures to use and maintain an engineering notebook.	• What is the purpose of a portfolio for an engineer?

● Use guidelines for developing and maintaining an engineering notebook to evaluate and select pieces of one's own work for inclusion in a portfolio. ● Identify the differences between invention and innovation. ● Describe engineering and explain how engineers participate in or contribute to the invention and innovation of products.	● Why is it important for engineers to document their work in their engineering notebook? ● How are our lives impacted by engineers? ● What is the difference between an invention and innovation?

Acquisition

Knowledge - Students will: What facts and procedures students should know about the engineering notebook ● Proper engineering notebook layout ● Understand purpose of engineering notebook ● Properly document information into engineering notebook **Reasoning - Students will:** ● Engineering ● Organization ● Data collection	**Skills - Students will:** What skills and procedures students should know about the engineering notebook ● Set up engineering notebook table of contents ● How to probley document information, design, data, sketching and product information

Common Misunderstandings ● There is only one kind of an engineer ● Notebook is like any other notebook	**Essential new vocabulary** ● Engineer ● Invention ● Innovation ● Manufacturing ● Technology