

Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Technical Education	Course:	Design and Manufacturing	Unit Title:	Design	Grade Level(s):	8
Assessed Trimester:		Pacing:		Date Created:	2/28/2013	Last Revision Date:	6/28/2013

- Course Understandings:** *Students will understand that:*
- A technologically literate person understands the significance of technology in everyday life
 - The use of technology has impacts and consequences both desirable and undesirable
 - Inventions and innovations from various times in history effect technological development in society and history
 - Manufacturing requires safe and responsible use of technology
 - That the attributes of design are necessary components to the development of a product
 - Learning about design and manufacturing technologies will introduce students to career opportunities
 - Manufacturing requires safe and responsible use of technology
 - Scientific and mathematical concepts increase an individuals technological literacy

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

Established Goals
<p>Standard and Benchmark Mastery</p> <ul style="list-style-type: none">• Standard STL #12 Students will develop the abilities to use and maintain technological products and systems.• Standard STL #19 Students will develop an understanding of and be able to select and use manufacturing technologies.• Standard STL #8 Students will develop an understanding of the attributes of design.• Standard STL #11 Students will develop abilities to apply the design process <ul style="list-style-type: none">• High Priority – Students must know:<ul style="list-style-type: none">12-I Students will understand that tools, materials, and machines are to be used safely.19-F Students will understand that manufacturing systems and processes change the form of materials.19-H Students will understand that manufacturing will include the designing, developing, and producing products and systems.11-H Students will understand that the design process is used to solve problems.8-G Students will understand that requirements for design are made up of criteria and constraints.8-F Students will understand that there is no perfect design11-J Students will understand that a model, sketch, or drawing are representations of the designed solution11-K Students will understand that tests and evaluations improve the design solution • Medium Priority – Students should know:<ul style="list-style-type: none">19-G Students will understand that manufactured goods may be classified as durable and non-durable11-L Students will understand that documentation of the solution is needed in order to make a product or system8-E Students will understand that creative planning leads to useful products and systems. • Low Priority – It is nice for students to know:<ul style="list-style-type: none">12-H Students will understand that information is provided in manuals or experienced individuals to understand how things work.

Transfer	
Students will be able to independently use their learning to: (product, high order reasoning) <ul style="list-style-type: none">● 8-D Produce a product from that design● 11-D Develop a set of working drawings● 19-D Students will be able to produce a product or system through design, developing and manufacturing	
Meaning	
Unit Understanding(s): Students will understand that: <ul style="list-style-type: none">● There is no perfect design● There is a design loop● Made up of criteria and constraints● Technical reading will be used	Essential Question(s): Students will keep considering: <ul style="list-style-type: none">● I can tell you why there is no perfect design● I can describe the design cycle● I can tell you what criteria and constraints are● I can read my project plans
Acquisition	
Knowledge - Students will: <ul style="list-style-type: none">● 8-D,M Understand written and verbal instructions /constraints● 11-D Understand design principles● 11-D Identify different types of drawings● 11-D Recognize that designs need to be tested and evaluated● 11-D Justify project design● 12-D Understand information obtained from manuals or experienced people● 12-D Know how to use a computer and calculation in various applications Reasoning - Students will: <ul style="list-style-type: none">● 8-D Assess and improve their design● 11-D Analyze design justify project design● 11- D Interpret a design or drawing● 19- D Organize manufacturing through design, developing and producing products and systems● 12-D Interpret information required from manuals and experienced people● 12-D Analyze information through the use of a computer or calculator	Skills - Students will: <ul style="list-style-type: none">● 8-D Improve a design● 8-D Apply design process● 11-D Work with a set of working drawings● 11-D Apply design process● 11-D Apply design measurements to the appropriate material● 12-D Utilize information read from manuals
Common Misunderstandings <ul style="list-style-type: none">● “I know what I want to do” so I don't have to draw thumbnails and make working plans● Accuracy	Essential new vocabulary <ul style="list-style-type: none">● Criteria● Constraints● Durable and non-durable● Technical reading