Trinity Area School District
Template for Curriculum Mapping

Course: Advanced Woodworking **Grade:11-12** **Designer(s): Todd Crissman**	**Overview of Course**: The third and final level of Woodworking course offered at Trinity Area High School focuses upon previously learned knowledge in the *Woodworking* course and expands to use advanced power tools, advanced joinery techniques, cost estimation, machine maintenance, and product design and implementation. Students will review safety procedures that were learned in the previous course and will learn new safety procedures based on the new tools and applications he/she will be learning about in this course.

Overarching Big Ideas, Enduring Understandings, and Essential Questions
(These "spiral" throughout the entire curriculum.)

Big Idea (A Big Idea is typically a noun and always transferable within and among content areas.)	**Standard(s) Addressed** (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)	**Enduring Understanding(s)** (SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. Eus will link Big Ideas together. Consider having only one or two Eus per Big Idea.)	**Essential Question(s)** (Essential Questions are broad and open ended. Sometimes, Eqs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two Eqs per Enduring Understanding.)
Advanced Woodworking.			
DESIGN	3.4.10.C1: Apply the components of the technological design process.	Components of designs fulfill specific needs.	How can specific needs of a product affect the design and function of a product?
ENGINEERING	3.4.10.C2: Analyze a prototype and/or create a working model to test a design concept by making actual observations and necessary adjustments.	Working models are necessary to use in order to test a design concept.	How can the product be modified to fit the design requirements? Give an example of how a working model can be used to test a design concept.
HANDS-ON LEARNING	3.4.10.C3: Illustrate the concept that not all problems are technological and not every problem can be solved using	Not all problems are technological and not every problem can be solved using technology.	How can kinesthetic learning be an advantage over technological approach?

	technology.		
PROTOTYPES	3.4.10.D1: Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of a final product.	Prototypes are used to ensure quality of a final product.	What is the role of a prototype when fabricating a product?
FORM/FUNCTION	3.4.10.E7: Evaluate structure design as related to function, considering such factors as style, convenience, safety, and efficiency.	Factors such as style, convenience, safety, and efficiency should be considered when evaluating structure design.	How do factors such as style, convenience, safety, and efficiency affect structure design?
MEASURING	2.3.5.B: Select and use appropriate instruments and units for measuring quantities to a specified level of accuracy.	Appropriate tools are needed in order to measure accuracy.	What measuring tools should be used for appropriate measuring situations?
ACCURACY	2.3.11.C: Use properties of geometric figures and measurement formulas to solve for a missing quantity (e.g., the measure of a specific angle created by parallel lines and a transversal).	Precise measurements need to be used to ensure an accurate product.	How does precision affect quality control of a product?
SCALING	2.3.8.E: Describe how a change in linear dimension of an object affects its perimeter, area, and volume.	A change in linear dimension of an object affects its perimeter, area, and volume.	How are perimeter, area, and volume related to linear dimensions?
RESEARCH	1.8.8.B: Conduct inquiry and research on self-selected or assigned topics, issues, or problems using a variety of appropriate media sources and strategies.	Appropriate search tools are needed to locate information for research.	How can search tools be used to locate information about safety and products?
PHYSICAL PATTERNS	**S11.A.3.3.2:** Compare stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.	Physical properties of certain species of wood have different physical characteristics.	Why do different types of wood behave differently in different applications?

SAFETY	3.4.7.D2: Select and safely use appropriate tools, products and systems for specific tasks.	Knowing how to use the proper tool to complete a task will ensure safety.	How do people get hurt when using a machine they are not trained with?
DESIGN PROCESS	S.11.A.2.1.2: Critique the elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate and communicate results) applicable to a specific technological design.	The Design Process is used for research, development, and implementation of a product.	How do you go about making a product from a need or want to a finished result?

Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study (These do NOT "spiral" throughout the entire curriculum, but are specific to each unit.)							
Month of Instruction	**Title of Unit**	**Big Idea(s)** (A Big Idea is	**Standard(s) Addressed** (What Common Core	**Enduring Understanding(s)**	**Essential Question(s)** (Essential Questions	**Common Assessment(s)***	**Common Resource(s)***

(In what month(s) will you teach this unit?)		typically a noun and always transferable within and among content areas.)	Standard(s) and/or PA Standard(s) addresses this Big Idea?)	(SAS refers to Enduring Understandings as "Big Ideas." EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)	are broad and open ended. Sometimes, EQs can be debated. A student's answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)	(What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?)	**Used** (What resources will all teachers of this unit use to help students understand the Big Ideas?)
Month(s) 1-2	PROJECT DESIGN	DESIGN PROCESS	**S.11.A.2.1.2**: Critique the elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate and communicate results) applicable to a specific technological design.	Projects and products are made using the design process. Before we can make a project, we need to understand that there must be a need or a want that the product needs to fulfill.	What are the different steps of the design process and why are they needed?	Teacher observation, worksheets.	PPT, handouts.
Month(s) 1-2	PROJECT DESIGN (CONTINUED)	RESEARCH	1.8.8.B: Conduct inquiry and research on self-selected or assigned topics, issues, or problems using a variety of appropriate media sources and strategies.	Appropriate search tools are needed to locate information for research.	How can search tools be used to locate information about safety, products, and project design?	Teacher observation, worksheets	Magazine articles, websites.
Month(s) 1-2	PROJECT DESIGN (CONTINUED)	SCALING	**2.3.8.C**: Calculate volume, surface area, and degrees of angles; calculate circumference and area of circles, and use a measurement formula to solve for a	A change in linear dimension of an object affects its perimeter, area, and volume.	How are perimeter, area, and volume related to linear dimensions?	Exams, worksheets, teacher observation.	Handouts, websites, PPT.

			missing quantity.				
Month(s) 2-6	PROJECT FABRICATION	SAFETY	3.4.7.D2: Select and safely use appropriate tools, products and systems for specific tasks.	Using tools and machines in a safe and proper manner greatly affects a projects	Why is using tools safely important?	Safety Test	Handouts, lecture.
Month(s) 2-6	PROJECT FABCRICATION (CONTINUED)	FORM/FUNCTION	3.4.10.E7: Evaluate structure design as related to function, considering such factors as style, convenience, safety, and efficiency.	The project we're making needs to be functionally sound while being safe and efficient.	Why do we not want to "over-engineer" or "under-engineer" our project?	Teacher observation, worksheets	Handouts, lecture
Month(s) 2-6	PROJECT FABCRICATION (CONTINUED)	ACCURACY	2.3.11.C: Use properties of geometric figures and measurement formulas to solve for a missing quantity (e.g., the measure of a specific angle created by parallel lines and a transversal).	Generally, accuracy with woodworking needs to be within 1/16" of an inch. This margin of error is multiplied depending on the piece that we're making.	Why do we need to be accurate to within 1/16" of an inch? What will happen if it's over 1/16"?	Teacher observation, shop project	Lecture/Demonstration
Month(s) 2-6	PROJECT FABCRICATION (CONTINUED)	MEASURING	2.3.5.B: Select and use appropriate instruments and units for measuring quantities to a specified level of accuracy.	Different measuring tools are needed to make accurate measurements.	Why can't we use one type of measuring device every different part of the project? Why are some measuring devices more accurate than others?	Teacher observation	Lecture/Demonstration

***** Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the "Common Assessments" and "Common Resources Used" columns. However, you may use them if you wish.