# Unit 7: Furniture and Cabinet Construction

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **2-3 Days**
Status: **Published**

## Brief Summary of Unit

Students will learn about the many types of furniture. They will learn about carcass construction as it pertains to cabinetry. They will explore drawer and door construction techniques. Students will learn how to deal with moisture issues and how to divide furniture construction into a series of small manageable assemblies. They will learn how to create table legs, shelves, and tops. Students will learn how to combine various assemblies to create a finished piece of furniture. Students will learn about the many careers in the furniture industry and learn how to recognize a well-done piece of furniture.

## Standards

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| HS-ETS1-2 | Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. |
| HS-ETS1-3 | Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts. |
| LA.RST.11-12.2 | Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. |
| LA.RST.11-12.4 | Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics. |
| LA.RST.11-12.7 | Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. |
| HS-ESS3-4 | Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. |
| LA.11-12.CCSS.ELA-Literacy.CCRA.RL.1 | Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. |
| TECH.8.1.12 | Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |
| TECH.8.2.12 | Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. |

## Transfer

- • When making future purchases in furniture and cabinets students will apply knowledge of

various construction methods, types of construction used during production, assemblies and how to create a master layout.

## Essential Questions

- • How are drawers constructed?
- • How does creating assemblies make a large project more manageable?
- • How does wood movement affect the construction of large solid wood furniture?
- • Once you have all of the parts, how are the assembled?
- • What affect does moisture have on a piece of furniture?
- • What are the relationships between style and function?
- • What is meant by the term “carcass construction”?
- • What is a “furniture style”?
- • What is a “raised panel”? How is it constructed?
- • What is a “tapered leg” and why is it used?
- • What methods of construction are used in modern furniture?

## Essential Understandings

- • how to assemble all assemblies into a finished work.
- • how to break down a furniture piece into subassemblies
- • how to construct raised panels and why they are used so widely in the furniture industry.
- • how to create a carcass upon which to build a piece of furniture.
- • the effect moisture plays in the construction of furniture and how to allow for wood movement.
- . • how to choose an appropriate set of legs for a style and construct them.
- • how to construct and attach drawers to a project.
- • how to recognize a particular furniture style.

## Students Will Know

- • all furniture has a main unit that is built upon to create the finished piece of work.
- • breaking a project into smaller sub-assemblies makes a project easier to manage.
- • special care must be given for properly fitting a raised panel into its frame.
- • the altering of one part of a furniture design often changes both the look and feel of a piece.
- • the final assembly of all of the sub-assemblies should form one harmonious piece of furniture.
- • when designing furniture, style is as important as function.
- . • by creating a raised panel many wood movement problems can be easily overcome.
- • all parts of the furniture piece must be constructed to allow for the woods continuous movement.
- • all tools are inherently dangerous.

- • there is no substitute for quality craftsmanship

## Students Will Be Skilled At

- • how to construct and attach drawers to a project.
- • how to assemble all assemblies into a finished work
- • how to break down a furniture piece into subassemblies
- • how to construct raised panels and why they are used so widely in the furniture industry.
- • the effect moisture plays in the construction of furniture and how to allow for wood movement.
- . • how to choose an appropriate set of legs for a style and construct them.
- . • how to create a carcass upon which to build a piece of furniture.
- • how to recognize a particular furniture style

## Evidence/Performance Tasks

- • actively and meaningfully participate in all classroom activities and discussions.
- • be able to distinguish between a well-made piece of furniture and a low quality mass produced piece of furniture.
- • be able to explain the importance of a raised panel in the design of a door.
- • be able to incorporate raised panel construction in their project and be able to explain why they are used.
- • be able to take the safety lessons learned from all of the previous lessons and relate them to the final assembly phase of their project.
- • complete a self—assessment rubric.
- • know the proper safety precautions to take before using any power tool.
- • use the Internet to identify various furniture styles and match them to periods in history.
- . • demonstrate knowledge and understanding of shop safety procedures at all times.
- • answer the essential questions.
- • be able to demonstrate how to break down a piece of furniture in to individual assemblies.
- • be able to explain the impact that poor quality (particle board/plastic) furniture has on the environment
- • complete writing prompt related furniture and cabinet construction techniques.

## Learning Plan

- • Allow students to work independently to apply finishes to their project.
- • Demonstrate how to operate the dust collection system with the stationary sanders.
- • Demonstrate the proper procedures for attaching doors, drawers and tops to a furniture piece..
- • Demonstrate the proper procedures for sanding both edge and end grain on the vertical belt sander.
- • Have student’s use the Internet to research and show examples of the kind of furniture available to consumers today. Using a spreadsheet, list the materials used as well as the cost of each.

- • Have students self – evaluate their finished work using rubric.
- • Introduce new vocabulary.
- • Present lesson on period furniture.
- • Present the lesson on drawer construction; show examples of several acceptable methods for creating drawers.
- • Read and discuss the relevant selections in the woodworking textbook pertaining to Drawer & Door construction.
- • Present the lesson on Carcass construction.
- • Preview the essential questions and connect to learning throughout the unit.
- • Read and discuss the relevant selections in the woodworking textbook.
- • Utilizing several pieces of furniture, explain how each can be broken into sub-assemblies.
- • With the use of the Internet, have students find examples of the various furniture styles. Present the findings to the class..
- • Writing prompts as homework, sharing and evaluation in class.14

## Materials

- different period furniture ,
- DVD ,
- raised panel jig ,
- table top cutting jig .
- Text book  Modern Cabinet Making Goodheart-Wilcox  ,
- various drawer assemblies ,

## Suggested Strategies for Modifications

- • alternative outcome options
- • audio tape of instruction
- • cooperative learning groups
- • handouts of notes, procedures, processes, diagrams, etc
- • images and visual aids
- • one-to-one instruction and assistance
- • revised techniques, use of tools and media in hands-on activity
- • testing materials appropriate to student level
- . • preferential seating
- • additional time on task
- • assessment based on individual development in the area of study
- • reading material modified to student level
- • study partners