Multiple Category Scope and Sequence: Scope and Sequence Report For Course Standards and Objectives, Content, Skills, Vocabulary

Wednesday, August 20, 2014, 1:32PM

	Unit	Course Standards and Objectives	Content	Skills	Vocabulary
District Advanced **Cabinet Making and Millwork (48.0703)** **(District)** 2014-2015 **Collaboration**	**Safety** (Week 2, 3 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 3 Students will be able to understand and demonstrate safe practices. ▪ Objective 0301 Demonstrate the ability to work safely in a cabinet shop following general safety rules. ▪ Objective 0302 Demonstrate the safe use of woodworking tools and machines. ▪ Objective 0303 Demonstrate how to handle and store materials according to the MSDS sheets. ▪ Objective 0304 Pass a written safety test with a score of 100 percent. Standard 4 Students will be able to understand and demonstrate the safe use of hand tools. ▪ Objective 0401 Describe the purpose and demonstrate the proper use of measuring and layout tools. a. Measuring Tape b. Scratch awl c. Combination square d. Try Square e. Framing Square f. Sliding T-bevel g. Tammel points	How to safely and efficiently operate each hand and power tool in the shop. We want them to understand that if they have any question of how to use a tool properly, they will not proceed with that operation without getting instruction from the teacher. **Safe and Proper Use of Hand Tools, Power Tools and Machines** ▪ Safe use of all tools and machines ▪ Safe shop behavior ▪ Identification of hand and power tools ▪ How to choose the proper tool for the job ▪ Basic tool and machine setup	Demonstrate safe and proper use of each tool and power machine. Pass the safety tests with 100 % correct. ▪ Pass safety test at 100% ▪ Identify basic woodworking hand tools ▪ Identify basic woodworking power hand tools ▪ Identify basic stationary woodworking machines ▪ Use basic working tools and machines safely	Ripping cross cutting jointing miter MSDS grain direction VOC'S Table Saw Power Miter Saw Radial Arm Saw Band Saw (and all other tools and power machines in the objectives listed above.)

h. Compass
i. Stud finder
j. Scribe

- Objective 0402
  Describe the purpose and demonstrate the proper use of shaping tools.
  a. Utility knife
  b. Back saw
  c. Block plane
  d. Wood chisel
  e. Wood file/rasp
  f. Hand saw
  g. Jack plane
  h. Glue scraper
  i. Putty knife
- Objective 0403
  Describe the purpose and demonstrate the proper use of striking tools.
  a. Claw hammer
  b. Nail set
  c. Rubber mallet
  d. Dead-blow hammer
- Objective 0404
  Describe the purpose and demonstrate the proper use of drill bits.
  a. Twist
  b. Forstner
  c. Spade
  d. Countersink
  e. Hole saw
  f. Multi spur bit
  g. Hogging tool
  h. Driver bits: Phillips, Square, slotted

Standard 5
Students will be able to understand and demonstrate the safe of use portable power tools.

- Objective 0501
  Describe the purpose and demonstrate the proper use of routers.
- Objective 0502
  Describe the purpose and demonstrate the proper use of reciprocal or circular saws.

- Objective 0503
  Describe the purpose and demonstrate the proper use of a biscuit jointer.
- Objective 0504
  Describe the purpose and demonstrate the proper use of a power plane.
- Objective 0505
  Describe the purpose and demonstrate the proper use of power drills and drivers.
- Objective 0506
  Describe the purpose and demonstrate the proper use of pneumatic tools.
- Objective 0507
  Describe the purpose and demonstrate the proper use of the following portable power tools:
  a. Pneumatic nailer
  b. Power drills
  c. Router
  d. Finish sander
  e. Belt sander
  f. Orbital sander
  g. Biscuit jointer
  h. Hand jig saw
  i. Power plane
  j. Circular saw
  k. Reciprocal saw

Standard 6
Students will be able to understand and demonstrate the safe of use power machines.

- Objective 0601
  Describe the purpose and demonstrate the proper use of the following sawing machines:
  a. Table saw
  b. Power miter saw
  c. Radial arm saw
  d. Band saw
- Objective 0602
  Describe the purpose and demonstrate the proper use of the following

	surfacing machines: a. Surface planer b. Jointer ▪ Objective 0603 Describe the purpose and demonstrate the proper use of the following sanding machines: a. Disc sander b. Surface sander c. Spindle sander ▪ Objective 0604 Describe the purpose and demonstrate the proper use of the following shaping machines: a. Router table b. Shaper			
Tools and Machines (Week 2, 4 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 4 Students will be able to understand and demonstrate the safe use of hand tools. ▪ Objective 0401 Describe the purpose and demonstrate the proper use of measuring and layout tools. a. Measuring Tape b. Scratch awl c. Combination square d. Try Square e. Framing Square f. Sliding T-bevel g. Tammel points h. Compass i. Stud finder j. Scribe ▪ Objective 0402 Describe the purpose and demonstrate the proper use of shaping tools. a. Utility knife b. Back saw c. Block plane d. Wood chisel e. Wood file/rasp f. Hand saw	▪ How to properly operate and safely use the machinery in the shop. ▪ Identify common tools used in the woodshop. ▪ Students should be able to properly adjust and or setup common machines?	▪ Operate machines safely. ▪ Right tool for right job. ▪	Power Machinery ▪ Table Saw ▪ Up-cut Saw ▪ Power Miter Saw ▪ Radial Arm Saw ▪ Band Saw ▪ Surface planer ▪ Jointer ▪ Disc Sander ▪ Surface Sander ▪ Spindle Sander ▪ Edge Sander ▪ Disc Sander ▪ Router table ▪ Shaper ▪ Lathe ▪ Panel Saw ▪ Drill Press Power Hand Tools ▪ Router ▪ Belt Sander ▪ Saber Saw ▪ Hand Drill ▪ Finsh Sander ▪ Biscuit Jointer/Plate Jointer ▪ Orbital Sander

g. Jack plane
h. Glue scraper
i. Putty knife

- Objective 0403
  Describe the purpose and demonstrate the proper use of striking tools.
  a. Claw hammer
  b. Nail set
  c. Rubber mallet
  d. Dead-blow hammer
- Objective 0404
  Describe the purpose and demonstrate the proper use of drill bits.
  a. Twist
  b. Forstner
  c. Spade
  d. Countersink
  e. Hole saw
  f. Multi spur bit
  g. Hogging tool
  h. Driver bits: Phillips, Square, slotted

Standard 5
Students will be able to understand and demonstrate the safe of use portable power tools.

- Objective 0501
  Describe the purpose and demonstrate the proper use of routers.
- Objective 0502
  Describe the purpose and demonstrate the proper use of reciprocal or circular saws.
- Objective 0503
  Describe the purpose and demonstrate the proper use of a biscuit jointer.
- Objective 0504
  Describe the purpose and demonstrate the proper use of a power plane.
- Objective 0505
  Describe the purpose and demonstrate the proper use of power drills and drivers.

- Objective 0506
  Describe the purpose and demonstrate the proper use of pneumatic tools.
- Objective 0507
  Describe the purpose and demonstrate the proper use of the following portable power tools:
  a. Pneumatic nailer
  b. Power drills
  c. Router
  d. Finish sander
  e. Belt sander
  f. Orbital sander
  g. Biscuit jointer
  h. Hand jig saw
  i. Power plane
  j. Circular saw
  k. Reciprocal saw

Standard 6
Students will be able to understand and demonstrate the safe of use power machines.

- Objective 0601
  Describe the purpose and demonstrate the proper use of the following sawing machines:
  a. Table saw
  b. Power miter saw
  c. Radial arm saw
  d. Band saw
- Objective 0602
  Describe the purpose and demonstrate the proper use of the following surfacing machines:
  a. Surface planer
  b. Jointer
- Objective 0603
  Describe the purpose and demonstrate the proper use of the following sanding machines:
  a. Disc sander
  b. Surface sander
  c. Spindle sander
- Objective 0604
  Describe the purpose and

	demonstrate the proper use of the following shaping machines: a. Router table b. Shaper ▪ Objective 0605 Describe the purpose and demonstrate the proper use of the following drilling and turning machines: a. Drill press b. Lathe c. Line boring machine			
Wood composition and characteristics (Week 6, 4 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 7 Students will be able to understand wood products, characteristics, and procedures. ▪ Objective 0701 Describe the parts of a tree and the significance that is has in cabinet construction. a. Bark b. Sap wood c. Pith d. Annual (growth) rings ▪ Objective 0702 Describe and know how natural defects. a. Warp b. Cracks c. Bark inclusions d. Knots ▪ Objective 0703 Demonstrate a knowledge of the seasoning and drying of lumber. ▪ Objective 0704 Distinguish between softwoods and hardwoods. ▪ Objective 0705 Identify the differences between solid wood and manmade goods and describe the use of each. ▪ Objective 0706 Identify wood species and list the species most suited	Differences in Hardwood and Softwood How trees grow How wood is harvested Process from log to usable lumber Process of grading lumber Common hardwood and softwood grades Wood defects Man-made materials Wood characteristics	Identify a variety of wood species Identify wood defects Calculate Board footage Calculate Square footage Identify and compare man made vrs Natural wood components	Hardwood Softwood Coniferous Deciduous FAS Selects Commons Plywood Particle Board MDF Hardboard Veneer Cambium Pith Annual Rings Early Wood

	for cabinet construction. ▪ Objective 0707 Identify the common grades of lumber and sheet goods. a. FAS b. Select c. #1COM ▪ Objective 0708 Properly store material.			Late Wood Heartwood Sapwood Dimensioned Lumber RWL S4S Crook Bow Twist Kiln dried Air Dried Moisture content Defects checks/checking Expansion Construction
Measurement and Layout (Week 8, 4 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 04 Students will be able to understand and demonstrate the safe use of hand tools. ▪ Objective 0401 Describe the purpose and demonstrate the proper use of the following measuring and layout tools: a. Measuring tape b. Scratch awl	▪ Standard and metric measuring systems. ▪ measuring and layout tools: sliding t-bevel, tri-square, combination square, measuring tape, scratch awl, trammel points, compass	▪ Measure to an accuracy of 1/16" ▪ Properly use layout tools to layout common joints,cuts,and machine setup	Standard measuring system Metric measuring system Feet ' Inches " Fractions Numerator

c. Combination square
d. Try square
e. Framing square
f. Sliding T-bevel
g. Tammel points
h. Compass

Standard 08
Students will be able to understand and demonstrate basic math and measuring concepts.

- Objective 0801
  Add two- and three-digit numbers.
- Objective 0802
  Subtract two-, three-, and four-digit numbers.
- Objective 0803
  Solve two-digit divisor numbers.
- Objective 0804
  Multiply a two-digit factor.
- Objective 0805
  Add, subtract, multiply, and divide fractions and mixed numbers.
- Objective 0806
  Convert fractions to decimals.
- Objective 0807
  Reduce fractions.
- Objective 0808
  Add, subtract, multiply, and divide decimal numbers.
- Objective 0809
  Calculate percentages and basic ratios.
- Objective 0810
  Add and subtract linear measurement in feet and inches.
- Objective 0811
  Use a ruler or measuring tape to measure within a sixteenth (1/16) of an inch.
- Objective 0812
  Calculate board feet and square feet.
- Objective 0813
  Demonstrate the

Denomenator

Measuring tape

Ruler

Centimeters

Millimeters

Square

Dividers

Awl

Sliding T-Bevel

Dimension

Measurement

Accuracy

Compass

Trammel points

optimization of materials.

Gluing, Clamping and Fastening (Week 12, 4 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 09 Students will be able to understand and demonstrate the use of fasteners and adhesives. ▪ Objective 0901 Identify the various woodworking fasteners and the application of each. a. Nails b. Screws c. Staples d. Pins e. Bolts ▪ Objective 0902 Identify the different adhesives and preferred use of each. a. Yellow glue b. Polyurethane glue c. Cyanoacrylate d. Epoxy ▪ Objective 0903 Identify the different types of clamps. a. Bar b. “C” c. Spring d. Band e. Handscrew	▪ Strengths and weaknesses of joinery and gluing. ▪ how to choose the appropriate clamp and use it correctly ▪ how does the wood grain affect the strength of gluing ▪ Different types of glue and application ▪ Different types of clamps ▪ clamp application ▪ Different types of fasteners and application ▪	▪ Student will be able to join wood using glue, clamps and or fasteners to achieve a quality joint. ▪ use appropriate glue ▪ use appropriate clamps properly	Glue Scraper Epoxy Yellow Wood Glue (poly vinyl) Cyanoacrylate glue Polyurethane glue Catalyst Bar clamp Spring clamp band clamp C-clamp Hand-screw Clamp Nails Screws Bolts Dowels Edge grain Face grain End grain Butt joint Glue joint pressure

				drying time cured Biscuit alternate Growth rings
Kitchen Cabinet Design (Week 15, 2 Weeks) ▪ Objective 0201 Identify elements and principles of design as they apply to kitchen cabinets. a. U-shape b. Peninsula c. Corridor d. L-shape e. Work triangle ▪ Objective 0202 Draw the necessary views of a selected project. ▪ Objective 0203 Create a material list for the selected project and determine the project cost. ▪ Objective 0204 Create a procedure list for construction of a cabinet. ▪ Objective 0205 Extract pertinent cabinet information and specifications from house plans. ▪ Objective 0206 Identify cabinet standards relating to kitchen, vanity, and commercial type cabinets (quality standards, dimension standards, etc.).	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 2 Students will be able to understand the design, planning and estimation process.	▪ different kitchen design options: U-shape, peninsula, corridor, L-shape ▪ the specifications of face frame cabinets ▪ the specifications of European cabinets ▪ how to reading kitchen plans or "blue prints" ▪ How to estimate the cost of building kitchen cabinets ▪ project management (building cabinets)	▪ Design a simple kitchen. ▪ Analyze a kitchen plan(flow,use of space, and clearances). ▪ Build a kitchen cabinet.	▪ U-shape ▪ Peninsula ▪ Corridor ▪ L-shape ▪ Work triangle
Joinery (Week	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12,	Different joint types as listed above	▪ Identify different types of joints (butt joint, miter	Level 1

17, 3 Weeks)	Furniture Design and Manufacturing Standard 10 Students will be able to understand and demonstrate the use of joinery. ▪ Objective 1001 Identify the basic wood joints used in furniture making. a. Butt b. Miter c. Rabbet d. Dado e. Spline f. Mortise and tenon g. Dovetail h. Groove (plough) i. Lap j. Pocket k. Dowel l. Biscuit m. Blind dado ▪ Objective 1002 Construct the basic wood joints used in cabinetmaking/millwork.	The strengths and weaknesses of each joint listed above How to construct each of the joints listed above	joint, rabbet joint, dado joint) ▪ Construct a basic project using the joints	Joint <u>Level 2</u> Butt joint Miter joint Joinery Spline Dovetail Lap Dowel Miter saw Miter box <u>Level 3</u> Rabbet joint Dado joint Mortise and tenon Groove (plough) Pocket Biscuit Mortising machine Blind dado
Kitchen Cabinet Components (Week 20, 3 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 11 Students will be able to understand and demonstrate the use of cabinet	▪ Identify cabinet components. ▪ standard appliance sizes ▪ Cabinet standards ▪ Base and wall cabinets ▪ drawers	▪ Assemble cabinets using proper components. ▪ Assemble doors ▪ Assemble drawers and rollouts ▪ Install Hardware	▪ . Stile ▪ b. Rail ▪ Mullion ▪ Base ▪ Toe kick ▪ Side

components and hardware.

- Objective 1101
  Identify the parts of traditional and European cabinets.
  a. Stile
  b. Rail
  c. Mullion
  d. Base
  e. Toe kick
  f. Side
  g. Skin
  h. Shelf
  i. Web frame
  j. Kicker
  k. Drawer guide/glide
  l. Molding
  m. Nailer
  n. Filler strip
  o. Edge banding
  p. Bottom
  q. Back
- Objective 1102
  Identify basic construction methods.
- Objective 1103
  Identify the door options in cabinetmaking.
- Objective 1104
  Identify the components of a drawer.
- Objective 1105
  Identify and properly install common cabinet/furniture hardware such as:
  a. Hinges - offset, overlay, European, butt, lip
  b. Drawer guides
  c. Pulls and knobs
  d. Shelf supports
- Objective 1106
  Assemble a cabinet with the proper adhesive and fasteners.
- Objective 1107
  Layout and construct cabinet doors.
- Objective 1108
  Cut out and construct drawers.
- Objective 1109
  Install door and drawer.
  - Doors
  - Rollouts
  - Pantry
  - Counter tops
-
  - Skin
  - Shelf
  - Web frame
  - Kicker
  - Drawer guide/glide
  - Molding
  - Nailer
  - Filler strip
  - Edge banding
  - Bottom
  - Back

	▪ Objective 1110 Identify basic construction methods. a. Frame and panel b. Casework construction			
Finishing Processes (Week 22, 3 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 12 Students will be able to understand and demonstrate finishing techniques. ▪ Objective 1201 Understand and properly apply the basic rules of sanding. ▪ Objective 1202 Select and correctly use each specified grit size. ▪ Objective 1203 Properly prepare a surface for finishing. ▪ Objective 1204 Properly apply stain, penetrating oil, and/or a clear finish. ▪ Objective 1205 Properly spray a clear coat.	▪ the three main classifications of finish? ▪ Which type of finish is best for different applications? ▪ the preparation needed for each type of finish? ▪ The general techniques for applying each of the different types of finish? ▪ The two main categories of stain. ▪ How to sand properly ▪ How to use wood filler or putty	▪ Properly prepare a project for finishing (wood filler, sanding, etc) ▪ properly apply a finish using one of the three finishing methods Demonstrate an understanding of finishing techniques by either completing a project or in writting explain what finish would be best for a given project. (Ex. piano, end table, out door chair, kitchen cabinet.	▪ Sanding ▪ Evaporate/Evaporative ▪ Reactive ▪ Coalescing ▪ Wax ▪ Shellac ▪ Lacquer ▪ Finishing Oils ▪ Waterbase ▪ Epoxies ▪ Polyurethane ▪ Stain ▪ Conversion varnish ▪ Grit, grit sizing ▪ Cross-grain scratches **Finishes and Proceedures**
Hardware (Week 24, 2 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 08 Students will be able to understand and demonstrate basic math and measuring concepts. ▪ Objective 0805 Add, subtract, multiply, and divide fractions and mixed numbers. ▪ Objective 0810 Add and subtract linear measurement in feet and inches. ▪ Objective 0811 Use a ruler or measuring tape to measure within a	▪ Idifferent different types of hinges: offset, inset, butt, concealed (european), continuous ▪ Identify Different types of drawer guides: metal, wood, full extention, bottom-mount, side-mount ▪ Identify other various hardware: knobs, pulls, shelf pins and supports ▪ Addition, subtraction and division of mixed numbers	▪ Choose the correct hinges and hardware ▪ Mount hardware ▪ Identify different hinges and door guides ▪ Use math to center the hardware on drawers and doors	**Tier 2** ▪ knobs ▪ pull ▪ hinges ▪ overlay ▪ European ▪ butt hinge ▪ inset hinge ▪ drawer guides ▪ flush ▪ concealed hinge ▪ continuous hinge

	sixteenth (1/16) of an inch. Standard 11 Students will be able to understand and demonstrate the use of cabinet components and hardware. ▪ Objective 1105 Identify and properly install common cabinet/furniture hardware such as: a. Hinges - offset, overlay, European, butt, lip b. Drawer guides c. Pulls and knobs d. Shelf supports ▪ Objective 1109 Install lid or door and drawer.			
Door & Drawer construction (Week 26, 2 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 10 Students will be able to understand and demonstrate the use of joinery. ▪ Objective 1001 Identify the basic wood joints used in furniture making. a. Butt b. Miter c. Rabbet d. Dado e. Spline f. Mortise and tenon g. Dovetail h. Groove (plough) i. Lap j. Pocket k. Dowel l. Biscuit m. Blind dado ▪ Objective 1002 Construct the basic wood joints used in cabinetmaking/millwork. Standard 11 Students will be able to understand	▪ door and drawer joinery ▪ the parts of a door and drawer ▪ how to mill, glue, and assemble the parts of a door and drawer ▪ different types of doors and drawer designs and fronts	▪ construct a door and a drawer using proper joinery and milling techniques ▪ operate tools and equipment properly and safely	▪ plough ▪ groove ▪ dado ▪ offset ▪ tambour door ▪ flush door ▪ overlay door ▪ lip door ▪ reveal ▪ dovetail ▪ drawer runner ▪ drawer guide/glide ▪ stile ▪ rail ▪ panel ▪ mullion ▪ expansion ▪ frame and panel construction ▪

	and demonstrate the use of cabinet components and hardware. ▪ Objective 1101 Identify the cabinet components of a face frame and cabinet box. a. Stile b. Rail c. Mullion d. Side e. Skin f. Base g. Shelf h. Web frame i. Kicker j. Drawer runner/glide k. Toe kick l. Back ▪ Objective 1103 Identify the door options in cabinetmaking: a. Flush b. Overlay c. Lip d. Tambour ▪ Objective 1104 Identify the components of a drawer. ▪ Objective 1106 Assemble a project with the proper adhesive and fasteners. ▪ Objective 1107 Use frame and panel construction in a project. ▪ Objective 1108 Contruct a drawer. ▪ Objective 1109 Install lid or door and drawer.			
Project house cabinets (Week 20, 16 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Cabinetmaking Standard 12 Students will be able to understand and demonstrate finishing, installation, and transportation techniques. ▪ Objective 1206	▪ how to properly install a kitchen and/or bathroom cabinet ▪ how to "scribe" a cabinet or piece of molding for installation.	▪ install kitchen or bathroom cabinets ▪ install cabinet molding ▪ install cabinet toe kicks ▪ install cabinet hardware	▪ plumb ▪ level ▪ square ▪ Scribe ▪ shim ▪ molding ▪ compound angle

	Understand basic cabinet installation techniques such as scribing, leveling, and shimming. Professional Development			
Frame and Panel Construction (Week 27, 3 Weeks)	UT: CTE: Skilled and Technical Sciences, UT: Grades 9-12, Furniture Design and Manufacturing Standard 11 Students will be able to understand and demonstrate the use of cabinet components and hardware. - ▪ Objective 1110 Identify basic construction methods. a. Frame and panel b. Casework construction c. Post and rail	▪ frame and panel parts ▪ frame and panel joinery ▪ how to calculate the part dimensions for a frame and panel door or component.	▪ construct a door or cabinet component using the frame and panel construction method ▪ calculate the part dimensions for a frame and panel door or cabinet component	Tier 1 ▪ expansion ▪ contraction ▪ square (verb) Tier 2 ▪ stile ▪ rail ▪ panel Tier 3 ▪ mullion ▪