

## CABINET MAKING 20L/30L

### Purpose and Areas of Focus for Cabinetmaking

The purpose of the cabinetmaking 20L, 30L curriculum is to have students construct knowledge and acquire skills used in the cabinet making industry and to become familiar with careers in cabinetmaking.

Areas of focus identify the key components of what students are expected to know, understand, and be able to do upon completion of the learning in the Practical and Applied arts (PAA) curriculum. Because the PAA curricula generally contain more learning than one course (1 credit), the Areas of Focus are not meant to be fully attainable after 100 hours of learning. The Areas of Focus for cabinetmaking 20L 30L are:

- Develop understandings and skills using tools and equipment necessary to cut and shape wood to manufacture furniture projects.
- Provide experiences and information regarding possible career pathways including post-secondary education and training in the cabinetmaking industries.
- Develop safe work habits and attitude of working safely with tools around others to prevent unintentional injuries.
- Develop communication skills and apply mathematical understanding used in the cabinetmaking industry.

# Teaching Cabinetmaking

Cabinetmaking is both an art and a craft. The cabinetmaker must have an eye for beauty and good design as well as wood working skill. From the chairs you sit on, to the cabinets in your kitchen, cabinetmakers' work is all around you in your daily life. From fine works of art to cupboards in a hospital, there are wide ranging applications of the products created by cabinetmakers.

Look at the description of what cabinetmakers must be able to do: they perform hand and machine operations necessary to lay out, cut, shape, and assemble prepared parts of high-quality products for furniture, cabinets, store fixtures, office equipment, and home furniture. They study drawings of products to be made and lay out an outline or dimension of the parts on the stock to certain specifications. They also operate woodworking machines such as a panel saw, table saw, band saw, jointer, mortise, planer and others to cut and shape, as well as use a variety of joinery and fasteners such as biscuits, dowels, nails, screws and glue.

Cleanliness in the shop will help to increase the longevity of equipment and tools. Regular maintenance of machines and tools also contributes to their longevity. This is also a costly part of running a quality program and needs budget consideration. The investment pays off, however, in creating a safe and healthy environment. Good housekeeping can also reduce the number of unintentional injuries to students and teachers.

Skills develop over time with quality instruction and practice. Students in post-secondary programs, such as the pre-employment program at SIAST, and apprentices learn and refine skills over time with practice. Many of these programs are also available through the regional colleges in the province. Skills development in construction also includes activities such as measurement and document use. Document use refers to being able to read symbols and diagrams in the construction industry.

Measurement involves calculations and computations, which reinforce the relevance of skills learned in math classes.

Safety is of the utmost concern in the cabinetmaking shop. Developing a safe environment includes the establishment of an inquiring and safe attitude. "If you don't know, ask!" should be the motto of everyone in the shop. Responsibility for safety in the shop rests with each individual working there, but teachers shoulder the ultimate responsibility of instituting safe work practices. Protecting sight and hearing should be a known skill before anyone enters the shop. High quantities of dust are created in a cabinetmaking shop, affecting air quality and needs to be addressed with regard to the health of everyone in the shop.

Safe Saskatchewan exists to create an injury-free province wherever citizens live, work, or play. As the province currently has one of the highest injury rates in Canada, Safe Saskatchewan works to inform all people of their core beliefs. One of those beliefs is that all injuries are predictable and preventable. That is why users of this curriculum will not see the word accident; rather, the term "unintentional injuries" is used to describe situations where individuals are harmed both in and away from the workplace.

This course has been developed within the scope of the Practical and Applied Arts courses of study and following the Locally Developed Course of Study guidelines.

The development team reviewed the key structures of Core curriculum. The application and integration of the structures (Outcome based, First Nations and Metis Perspectives, Gender Equity and Multicultural Education, Resource Based Learning) is an integral component of the **Cabinet Making 20L/30L** course.

As always, students enrolling in this course will do so only after consultation with staff (teachers, counselors, administration) and parents and only after students become fully aware of the course implications and requirements.

### **COURSE RATIONALE**

- The writers recognize the diversity of student needs, strengths, and interests. In seeking to accommodate these diversities, students are presented with the opportunity to participate in a program that recognizes the art, craft, and science of **Cabinet Making** while meeting credit requirements for graduation. These students can be included in two groups:
  - Students, whose primary interests include the development of employability skills, abilities, and attitudes within the school setting, will have the option of exploring career opportunities in the area of Cabinet Making.
  - Students, who while in their secondary program, wish to explore and develop skills that will enhance their personal lives, will have an opportunity to learn basic cabinet making skills.

### **DETAILED DESCRIPTION**

#### **Rationale:**

As previously indicated, the course is intended to meet the diverse needs, strengths, and interests of students in Saskatchewan Rivers School Division. The current trend of “school-to-work bridging” is quickly becoming an integral part of secondary programming. Recent brain research emphasizes the importance of learning within a safe non-threatening environment and courses such as Cabinet Making are lifelines to some students. Finally, assisting students in developing skills with life-long applicability are popular with secondary students.

The major component of the program is to facilitate shifting students from being predominantly teacher directed in Cabinet Making 20L to predominantly self-directed in 30L.

## Modules: Outcomes and Indicators

### Module 1: Safety (Core)

Suggested Time: 3-5 hours

Level: 20L and 30L

Prerequisite: None

#### Outcome

Demonstrate safe work habits and an attitude of working safely with tools around others to prevent unintentional injuries.

#### Indicators

- a. Demonstrate an attitude of acting for working safely for the benefit of self and others.
- b. Integrate high standards of safety practice into personal work habits including use of personal protective equipment (PPE).
- c. Act consistently to focus on personal tasks while maintaining a consciousness of other working in proximity.
- d. Analyze shop and workplace situations to identify hazards and seek solutions.
- e. Discuss and assess fire and injury procedures in the shop and/or worksite.
- f. Complete 'SCOT' safety course provided by the Saskatchewan Construction Safety Association.

**Note:** While a single safety module has been included, safety must be a primary focus for students each day.

### Module 2: Project Estimating (Core)

Suggested Time: 2-3 hours

Level: 20L and 30L

#### Outcome

Demonstrate how to calculate square feet/board feet to arrive at a project cost.

#### Indicators

- a. Describe the difference between the nominal size and the actual size of lumber.
- b. Utilize the appropriate formula to calculate the number of board feet in a given project.
- c. Calculate the cost of a project given a material list and the cost of the lumber and hardware.

**Note:** Work in this module supports outcomes WA10.4 and WA10.5 of the grade 10 Workplace and Apprenticeship Math.

### Module 3: Alternate Building Materials (Core)

Suggested Time: 2-3 hours

Level: 20L and 30L

#### Outcome

Investigate various building materials and their relative advantages or disadvantages over wood and wood products.

**Indicators**

a. Examine the various uses and applications of various alternative building materials including but not limited to: MDF, solid, plywood, OSB, laminate, arborite

**Module 4: Measuring and Layout (Core)**

Suggested Time: 2-4 hours

Level: 20L and 30L

**Outcome**

Demonstrate proficiency and accuracy when measuring materials.

**Indicators**

- a. Demonstrate accurate measurement to 1/16" with a pocket tape measure.
- b. Demonstrate how to draw a line parallel to a board's side with a combination square.
- c. Calculate area and volume using simple formulas and a tape measure.
- d. Investigate a number of other measurement devices (e.g., sliding T-bevel, trammel points, dividers, drawer slide, gauge).

**Module 5: Hand Tools (Core)**

Suggested Time: 4-8 hours

Level: 20L and 30L

**Outcome**

Demonstrate proficiency with a variety of hand tools to accomplish cutting, shaping, smoothing, and boring of wood.

**Indicators**

- a. Identify the hand tools in the shop and describe their function.
- b. Assess a task and identify the hand tools best suited to accomplishing the task.
- c. Show the correct technique when provided a hand tool.
- d. Describe safety precautions for each hand tool used in the class including correct PPE.

**Module 6: Portable Power Tools (Core)**

Suggested Time: 5-10 hours

Level: 20L and 30L

**Outcome**

Develop proficiency using a variety of portable power tools.

**Indicators**

- a. Demonstrate the correct use of a jigsaw including cutting curves and replacing the blade.
- b. Demonstrate the proper use of a drill including selecting and changing bits, batteries and bit direction.
- c. Demonstrate the proper use of a router including changing a bit, setting the depth, and identifying a number of common bits and their cuts (e.g., rabbet, dado, cove, flush trim).

- d. Demonstrate the proper technique for marking stock and using a biscuit joiner including adjusting for the size of biscuit.
- e. Demonstrate the proper technique for using an electric sander including replacing the sandpaper.
- f. Demonstrate the proper use of a pneumatic nailer and/or stapler including loading the nails/staples and connecting and disconnecting the air hose (if applicable).

**Note:** The tools listed in Modules 8A and 8B can be interchanged depending on individual capability and the equipment available to complete a project.

### **Module 7: Stationary Power Tools (Core)**

Suggested Time: 5-8 hours

Level: 20L and 30L

#### **Outcome**

Develop proficiency with operating a variety of stationary power tools.

#### **Indicators**

- a. Demonstrate safe use of a table saw and/or panel saw including setting the fence, setting the depth of cut, and selecting and installing the correct blade.
- b. Demonstrate the safe use of a miter saw/compound sliding miter saw including adjusting the angle of the cut and changing the blade.
- c. Demonstrate the proper use of a band saw to make straight and irregular cuts as well as how to select and install the correct blade.
- d. Demonstrate the proper use of a drill press including how to adjust the depth of the hole, the tilt of the table, and the speed of the bit.
- e. Demonstrate the correct use of a jointer to dress the edge of a board.
- f. Demonstrate how to dress a board using a jointer, table saw and thickness planer (if all are available).
- g. Demonstrate how use a thickness planer to safely remove material from a board in a series of passes to achieve a desired thickness.
- h. Demonstrate the correct use of a shaper/router table including how to start and stop, direction of feed, depth adjustment and bit replacement.
- i. Demonstrate the correct use of a mortise and tenon machine, oscillating table sander, disc and belt sander and panel saw.

### **Module 8: Fasteners and Adhesives (Core)**

Suggested Time: 2-5 hours

Level: 20L and 30L

#### **Outcome**

Develop proficiency in using fasteners and adhesives effectively.

#### **Indicators**

- a. Identify a number of types of nails, screws, and bolts and determine the characteristics of each to select the best fasteners for the given task.
- b. Identify a number of connectors and hangers to determine the appropriate one for the given task.

c. Identify some common glues and mastics to determine the appropriate product for a given task.

### **Module 9: Wood Project (Core)**

Suggested Time: 60-80 hours

Level: 20L

#### **Outcome**

Demonstrate increasing proficiency of woodworking skills to complete and assess a project.

#### **Indicators**

- a. Identify the needed tools, skills, timelines, and safety practices associated with a given project.
- b. Transpose measurements from a plan to material.
- c. Cut lumber and/or sheet material.
- d. Demonstrate safe and efficient use of required tools.
- e. Assemble using the appropriate joinery and/or fasteners.
- f. Apply a finish to the project (if required).

### **Module 9A: Wood Project (Core)**

Suggested Time: 60-80 hours

Level: 30L

#### **Outcome**

Demonstrate increasing proficiency to complete a project of one's own choosing and assess personal skills.

#### **Indicators**

- a. Identify the most effective methods for completing the chosen project.
- b. Identify all safety considerations involved with working with others in a limited space and also identify strategies for cooperation.
- c. Demonstrate increasing proficiency and accuracy with selected layout tools.
- d. Create the required project components through cutting, shaping, and boring of material.
- e. Assemble and finish the project according to the specifications of the plan.
- f. Create and participate in an assessment of personal skills, attitudes, and work habits as well as the final product.

### **Module 10: Project Finishing (Core)**

Suggested Time: 5-10 hours

Level: 20L and 30L

#### **Outcome**

Investigate a variety of different methods and products to select an effective project finish.

#### **Indicators**

- a. Investigate and explain the advantages and disadvantages of oil-based and water-based as well as transparent and semi-transparent products.
- b. Choose the appropriate product for finishing a project (e.g., shellac, paint, stain, oil, wax).

- c. Investigate and create a plan for prepping the wood to the proper degree before applying a finish.
- d. Demonstrate the proper technique for applying and cleaning up the finish.

### **Module 11: Career Opportunities (Optional)**

Suggested Time: 1-2 hours

Level: 20L and 30L

#### **Outcome**

Explore and evaluate the career development and occupation opportunities in the field of construction and carpentry in Saskatchewan, Canada, and globally, including postsecondary education programs.

#### **Indicators**

- a. Identify specific examples of occupational skills and occupations required in the construction trades.
- b. Investigate programs offered by the Saskatchewan Apprenticeship and Trade Certification Commission and technical institutes in carpentry.
- c. Investigate the job opportunities for the construction trades.

### **Module 27A & B: Work Study Preparation (Optional)**

Suggested Time: 3-5 hours

Level: 20L and 30L

#### **Outcome**

Recognize how school based skills development will be used to meet work place expectations.

#### **Indicators**

- a. Obtain a list of roles and responsibilities of the workplace.
- b. Brainstorm a list of factors which may affect workplace performance
- c. Discuss effective and positive verbal and non-verbal communication in the workplace.
- d. Develop a résumé which can be forwarded to a potential employer.
- e. Practise effective interview techniques based on established guidelines (e.g., the greeting, the exchange, and the parting).

**Note:** Work Study is used to prepare students for employment through specific skill development within a workplace. The number of work study opportunities is equal to the number of courses available in the curriculum area at the 20 and 30 level.

### **Module 28A & B: Work Study Placement (Optional)**

Suggested Time: 25-50 hours

Level: 20L and 30L

Prerequisite: Module 27

#### **Outcome**

Gain experience in the world of work in the graphic arts industry to make more informed choices about careers by expanding the career research and exploration beyond the classroom.



**Indicators**

- a. Develop an awareness of career opportunities in Saskatchewan and beyond.
- b. Gain an opportunity for the development of entry level workplace skills that may lead to sustainable employment in the communication media industry.
- c. Establish standards of work performance acceptable to the student and employer.
- d. Identify and report on essential skills and employability skills as they relate to a work environment.

**Module 29A & B: Work Study Follow-up (Optional)**

Suggested Time: 2-4 hours

Level: 20L and 30L

Prerequisite: Module 28

**Outcome**

Reflect and report on the work experience including the bit not limited to hours of work, personal relationships, employer expectations, evaluation criteria, and overall personal performance.

**Indicators**

- a. Design and participate in an exit interview with the workplace.
- b. Prepare and present a report on the work study experience including aspects such as:
  - expected hours of work
  - dress code
  - job description
  - employer expectations
  - employer evaluation process
  - absent and late policies
  - personal relationships
  - problem solving
  - communication.

**Module 88: Apprenticeship in Saskatchewan (Optional)**

Suggested Time: 3-5 hours

Level: 20L and 30L

Prerequisite: Module 13

**Outcome**

Investigate the apprenticeship and trade certification process and the role of the Saskatchewan Apprenticeship and Trade Certification Commission (SATCC), opportunities that apprenticeship offers, and the relationship between secondary level courses and apprenticeship training.

**Indicators**

- a. Research to define what apprenticeship means and describe some of the benefits such as lifestyle, satisfaction, opportunities, wages, and respect.
- b. Use and understand the appropriate terminology related to apprenticeship including but not limited to:
  - Journey person
  - Indenture

- Pre-employment training
  - Designated trade and sub-trade
  - Advanced standing.
- c. Determine the steps involved in becoming an apprentice from the perspective of the specific trade, including length of apprenticeship, annual training requirements, and Red Seal certification.
- d. Develop an understanding of the programs available to help make the transition from secondary school to apprenticeship.
- e. Conduct research such as interviewing employers to identify the qualities of a successful apprentice.

### **Module 99A, B & C: Extended Study (Optional)**

Suggested Time: 10-25 hours

Level: 20L and 30L

Prerequisite: None

#### **Outcome**

#### **Indicators**

**Note:** The Extended Study module may be used only once in each 100 hour course. In the Student Data System, record 99A for the first Extended Study module offered in the course series, and, if needed, 99B for the second and 99C for the third.

#### **Module Overview:**

Evolving societal and personal needs, advances in technology, and demands to solve current problems require a flexible curriculum that can accommodate new ways and means to support learning in the future. The Extended Study module is designed to provide schools and teachers with an opportunity to meet current and future demands not provided for in current modules in the Construction and Carpentry curriculum. This flexibility allows a school or teacher to design one new module per credit to complement or extend the study of the core and optional modules to meet the specific needs of students or the community. The Extended Study module is designed to extend the content of the pure courses and to offer survey course modules beyond the scope of the available selection of the Construction and Carpentry modules. The list of possibilities for topics of study or projects for an extended study is as varied as the imagination of those involved in using the module. The optional Extended Study Module guidelines should be used to strengthen the knowledge, skills, and processes advocated in the Construction and Carpentry Curriculum. See the PAA handbook for more information.