BIG IDEAS

Design for the life cycle includes consideration of social and **environmental impacts**.	Personal design interests require the evaluation and refinement of skills.	Tools and technologies can be adapted for specific purposes.

Learning Standards

Curricular Competencies	Content
Students are expected to be able to do the following: **Applied Design** ***Understanding context*** • Engage in a period of **user-centred research** and **empathetic observation** to understand design opportunities ***Defining*** • Establish a point of view for a chosen design opportunity • Identify potential users, intended impact, and possible unintended negative consequences • Make decisions about premises and **constraints** that define the design space, and develop criteria for success • Determine whether activity is collaborative or self-directed ***Ideating*** • Critically analyze how competing social, ethical, and sustainability considerations impact design • Generate ideas and add to others' ideas to create possibilities, and prioritize them for prototyping • Evaluate suitability of possibilities according to success criteria and constraints • Work with users throughout the design process ***Prototyping*** • Identify, critique, and use a variety of **sources of inspiration** • Choose an appropriate form, scale, and level of detail for prototyping, and plan procedures • Analyze the design for the life cycle and evaluate its **impacts**	*Students are expected to know the following:* • specialized techniques and design related to furniture and cabinetry construction • **components** specific to cabinet construction • incorporation of **non-wood materials** • **hardware** selection for specific purposes • **standard sizing** for specific applications • preparation of a working drawing complete with a set of procedures and steps • use of a cutting list to minimize waste • **wood material** selection • **machine set-ups** • types, purposes, and application of **finishes** • preparation of materials for machining, assembly, and finishing • traditional **decorative techniques** • **reclamation** of used materials

Learning Standards (continued)

Curricular Competencies	Content
• Visualize and construct prototypes, making changes to tools, materials, and procedures as needed • Record **iterations** of prototyping ***Testing*** • Identify and communicate with **sources of feedback** • Develop an appropriate test of the prototype, conduct the test, and collect and compile data • Evaluate design according to critiques, testing results, and success criteria to make changes ***Making*** • Identify appropriate tools, technologies, materials, processes, cost implications, and time needed • Create design, incorporating feedback from self, others, and testing prototypes • Use materials in ways that minimize waste ***Sharing*** • Decide how and with whom to **share** or promote design, creativity, and processes • Share the product with users and critically evaluate its success • Critically reflect on their design thinking and processes, and identify new design goals • Identify and analyze new design possibilities, including how they or others might build on their concept **Applied Skills** • Apply safety procedures for themselves, co-workers, and users in both physical and digital environments • Identify and assess skills needed for design interests, and develop specific plans to learn or refine them over time • Demonstrate competency and proficiency in skills at various levels involving manual dexterity and furniture and cabinetry construction techniques **Applied Technologies** • Explore existing, new, and emerging tools, **technologies**, and systems to evaluate suitability for their design interests • Evaluate impacts, including unintended negative consequences, of choices made about technology use • Examine and analyze the role that changing technologies play in furniture and carpentry construction	• **design for the life cycle** • ethics of **cultural appropriation** in design process • future career options and opportunities in furniture and cabinetry construction • **interpersonal and consultation skills** to interact with clients

Big Ideas – Elaborations	APPLIED DESIGN, SKILLS, AND TECHNOLOGIES – Furniture and Cabinetry Grade 12

- **environmental impacts:** including manufacturing, packaging, disposal, and recycling considerations

Curricular Competencies – Elaborations	APPLIED DESIGN, SKILLS, AND TECHNOLOGIES – Furniture and Cabinetry Grade 12

- **user-centred research:** research done directly with potential users to understand how they do things and why, their physical and emotional needs, how they think about the world, and what is meaningful to them
- **empathetic observation:** aimed at understanding the values and beliefs of other cultures and the diverse motivations and needs of different people; may be informed by experiences of people involved; traditional cultural knowledge and approaches; First Peoples worldviews, perspectives, knowledge, and practices; places, including the land and its natural resources and analogous settings; experts and thought leaders
- **constraints:** limiting factors, such as task or user requirements, materials, expense, environmental impact
- **sources of inspiration:** may include personal experiences, First Peoples perspectives and knowledge, the natural environment, places, cultural influences, social media, and professionals
- **impacts:** including the social and environmental impacts of extraction and transportation of raw materials; manufacturing, packaging, transportation to markets; servicing or providing replacement parts; expected usable lifetime; and reuse or recycling of component materials
- **iterations:** repetitions of a process with the aim of approaching a desired result
- **sources of feedback:** may include peers; users; First Nations, Métis, or Inuit community experts; other experts and professionals both online and offline
- **share:** may include showing to others, use by others, giving away, or marketing and selling
- **technologies:** tools that extend human capabilities

Content – Elaborations

- **components:** for example, drawers, doors, slides, pull-outs
- **non-wood materials:** for example, glass, plastic, metal, upholstery, accents
- **hardware:** for example, hinges, handles, stops, slides, locks, latches
- **standard sizing:** for example, heights, widths, depths, standards for tables, cabinets, and other products
- **wood material:** different types of wood or wood products
- **machine set-ups:** for example, guard positions, blade and bit types, heights, stops and locks
- **finishes:** for example, oil, stain, clear coat, wax to prevent warping or protect surface
- **decorative techniques:** for example, hand-carving, stencilling, sculpting
- **reclamation:** for example, restoration, repurposing hardware, recycling materials
- **design for the life cycle:** taking into account economic costs, and social and environmental impacts of the product, from the extraction of raw materials to eventual reuse or recycling of component materials
- **cultural appropriation:** using or sharing a cultural motif, theme, "voice," image, knowledge, story, or practices without permission or without appropriate context or in a way that may misrepresent the real experience of the people from whose culture it is drawn
- **interpersonal and consultation skills:** for example, professional communications, collaboration, follow-ups, courtesies, record keeping, ways to present visuals