

## 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
<p><i>Students are expected to be able to do the following:</i></p> <p><b>Applied Design</b></p> <p><i>Understanding context</i></p> <ul style="list-style-type: none"> <li>Engage in a period of <b>user-centred research</b> and <b>empathetic observation</b> to understand design opportunities</li> </ul> <p><i>Defining</i></p> <ul style="list-style-type: none"> <li>Establish a point of view for a chosen design opportunity</li> <li>Identify potential users, intended impact, and possible unintended negative consequences</li> <li>Make decisions about premises and <b>constraints</b> that define the design space, and identify criteria for success</li> <li>Determine whether activity is collaborative or self-directed</li> </ul> <p><i>Ideating</i></p> <ul style="list-style-type: none"> <li>Generate ideas and add to others' ideas to create possibilities, and prioritize them for prototyping</li> <li>Critically analyze how competing social, ethical, and sustainability considerations impact design</li> <li>Choose an idea to pursue based on success criteria and maintain an open mind about potentially viable ideas</li> </ul> <p><i>Prototyping</i></p> <ul style="list-style-type: none"> <li>Identify and apply <b>sources of inspiration</b></li> <li>Choose a form for prototyping and develop a <b>plan</b> that includes key stages and resources</li> <li>Analyze the design for life cycle and evaluate its <b>impacts</b></li> <li>Visualize and construct prototypes, making changes to tools, materials, and procedures as needed</li> <li>Record <b>iterations</b> of prototyping</li> </ul>	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> <li>simple woodworking and design</li> <li>orthographic and pictorial drawings</li> <li>preparation of a bill of materials and a cutting list</li> <li><b>measuring instruments</b></li> <li>problem-solving techniques using ratio, proportion, and geometry</li> <li>selection and identification of wood species appropriate for a given purpose</li> <li>material conservation and sustainability</li> <li>operation of <b>stationary power equipment</b> in the processing of material</li> <li>hand-tool processes in the creation of a product</li> <li>machine and equipment set up, change, and adjustment</li> <li>project <b>finishing methods</b></li> <li><b>design for the life cycle</b></li> <li>ethics of <b>cultural appropriation</b> in design process</li> </ul>

Learning Standards (continued)

Curricular Competencies	Content
<p><b>Testing</b></p> <ul style="list-style-type: none"> <li>• Identify and communicate with <b>sources of feedback</b></li> <li>• Develop an appropriate test of the prototype, conduct the test, and collect and compile data</li> <li>• Apply information from critiques, testing results, and success criteria to make changes</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Identify appropriate tools, <b>technologies</b>, materials, processes, cost implications, and time needed for production</li> <li>• Create design, incorporating feedback from self, others, and testing prototypes</li> <li>• Use materials in ways that minimize waste</li> </ul> <p><b>Sharing</b></p> <ul style="list-style-type: none"> <li>• Determine how and with whom to <b>share</b> product and processes for feedback</li> <li>• Share the product to evaluate its success</li> <li>• Critically reflect on their design thinking and processes, and identify new design goals</li> <li>• Identify and analyze new design possibilities, including how they or others might build on their concept</li> </ul> <p><b>Applied Skills</b></p> <ul style="list-style-type: none"> <li>• Apply safety procedures for themselves, co-workers, and users in both physical and digital environments</li> <li>• Identify and assess the skills needed for design interests, individually or collaboratively, and develop specific plans to learn or refine them over time</li> <li>• Develop competency and proficiency in skills at various levels involving manual dexterity and woodworking techniques</li> </ul> <p><b>Applied Technologies</b></p> <ul style="list-style-type: none"> <li>• Explore existing, new, and emerging tools, technologies, and systems to evaluate suitability for design interests</li> <li>• Evaluate impacts, including unintended negative consequences, of choices made about technology use</li> <li>• Examine the role that advancing technologies play in woodworking contexts</li> </ul>	