

BIG IDEAS

Social, ethical, and sustainability considerations impact design.

Complex tasks require the sequencing of skills.

Complex tasks require different technologies and tools at different stages.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Applied Design</p> <p><i>Understanding context</i></p> <ul style="list-style-type: none"> Engage in a period of research and empathetic observation in order to understand design opportunities <p><i>Defining</i></p> <ul style="list-style-type: none"> Choose a design opportunity Identify potential users and relevant contextual factors Identify criteria for success, intended impact, and any constraints <p><i>Ideating</i></p> <ul style="list-style-type: none"> Take creative risks in generating ideas and add to others' ideas in ways that enhance them Screen ideas against criteria and constraints Critically analyze and prioritize competing factors, including social, ethical, and sustainability considerations, to meet community needs for preferred futures Choose an idea to pursue, keeping other potentially viable ideas open <p><i>Prototyping</i></p> <ul style="list-style-type: none"> Identify and use sources of inspiration and information Choose a form for prototyping and develop a plan that includes key stages and resources Evaluate a variety of materials for effective use and potential for reuse, recycling, and biodegradability Prototype, making changes to tools, materials, and procedures as needed Record iterations of prototyping 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> factors involved in defining the term “family,” including culture, societal influence, spirituality, roles, values, beliefs, language, and how those definitions change over time societal influences and impacts on families family and relationship dynamics, including roles and responsibilities of family members, factors that influence family dynamics, distribution and use of resources, and needs and wants of family members challenges families face, both locally and internationally, including strategies for taking action, special caregiving issues, and access to resources factors involved in interpersonal relationships in families, including communication, healthy/unhealthy relationships, and ending relationships role of children in families and society, including rights of children locally and globally variety of living arrangements and housing options for individuals and families

Learning Standards (continued)

Curricular Competencies	Content
<p><i>Testing</i></p> <ul style="list-style-type: none"> • Identify sources of feedback • Develop an appropriate test of the prototype • Conduct the test, collect and compile data, evaluate data, and decide on changes • Iterate the prototype or abandon the design idea <p><i>Making</i></p> <ul style="list-style-type: none"> • Identify and use appropriate tools, technologies, materials, and processes for production • Make a step-by-step plan for production and carry it out, making changes as needed • Use materials in ways that minimize waste <p><i>Sharing</i></p> <ul style="list-style-type: none"> • Decide on how and with whom to share their product and processes • Demonstrate their product to potential users, providing a rationale for the selected solution, modifications, and procedures, using appropriate terminology • Critically evaluate the success of their product, and explain how their design ideas contribute to the individual, family, community, and/or environment • Critically reflect on their design thinking and processes, and evaluate their ability to work effectively both as individuals and collaboratively in a group, including their ability to share and maintain an efficient co-operative work space • Identify new design issues <p>Applied Skills</p> <ul style="list-style-type: none"> • Demonstrate an awareness of precautionary and emergency safety procedures in both physical and digital environments • Identify the skills and skill levels needed, individually or as a group, in relation to specific projects, and develop and refine them as needed <p>Applied Technologies</p> <ul style="list-style-type: none"> • Choose, adapt, and if necessary learn about appropriate tools and technologies to use for tasks • Evaluate the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use • Evaluate how the land, natural resources, and culture influence the development and use of tools and technologies 	

Curricular Competencies – Elaborations

- **research:** seeking knowledge from other people as experts (e.g., First Peoples Elders), secondary sources, and collective pools of knowledge in communities and collaborative atmospheres
- **empathetic observation:** aimed at understanding the values and beliefs of other cultures and the diverse motivations and needs of different people
- **Defining:** setting parameters
- **constraints:** limiting factors such as task or user requirements, materials, expense, environmental impact, issues of appropriation, and knowledge that is considered sacred
- **Ideating:** forming ideas or concepts
- **sources of inspiration:** may include experiences; traditional cultural knowledge and approaches, including those of First Peoples; places, including the land and its natural resources and analogous settings; and people, including users, experts, and thought leaders
- **plan:** for example, pictorial drawings, sketches, flow charts
- **iterations:** repetitions of a process with the aim of approaching a desired result
- **sources of feedback:** may include peers; users; keepers of traditional cultural knowledge and approaches, including those of First Peoples; and other experts
- **appropriate test:** consider conditions, number of trials
- **technologies:** things that extend human capabilities
- **share:** may include showing to others, use by others, giving away, or marketing and selling
- **product:** for example, a physical product, a process, a system, a service, or a designed environment

Content – Elaborations

- **influences and impacts:** for example, residential schools, economics crises, war and displacement, migration
- **challenges:** for example, economic, social, displacement, health, emotional challenges
- **interpersonal relationships:** including family, romantic, workplace, and community
- **rights:** for example, United Nations Convention on the Rights of the Child
- **living arrangements:** for example, with immediate or multi-generational family/families, alone, foster home, with friends, homeless, with partner
- **housing options:** physical living spaces (e.g., apartments, houses, co-ops)