BIG IDEAS

User needs and interests drive the design process.	Social, ethical, and sustainability considerations impact design.	Complex tasks require different technologies and tools at different stages.

Learning Standards

Curricular Competencies	Content
Students are expected to be able to do the following: **Applied Design** ***Understanding context*** • Engage in a period of research and **empathetic observation** ***Defining*** • Identify potential users and relevant contextual factors for a chosen design opportunity • Identify criteria for success, intended impact, and any **constraints** • Determine whether activity is collaborative or self-directed ***Ideating*** • 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** to meet community needs for preferred futures • Maintain an open mind about potentially viable ideas ***Prototyping*** • Visualize possibilities 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	*Students are expected to know the following:* • design opportunities • drafting **terminology** • drawing **standards** and **conventions** • scales for different **types** of drawings • drafting styles, including perspective, mechanical drafting, and architectural drawing • modelling using computer-aided design (CAD) and computer-aided manufacturing (CAM) software • coding for creating 3D representations of design solutions • equipment and tools for manual and computer-aided drafting

Learning Standards (continued)

Curricular Competencies	Content
Testing • Identify **sources of feedback** • Develop an appropriate test • Conduct the test, collect and compile data, evaluate data, and decide on changes ***Making*** • Identify and use appropriate tools, **technologies**, materials, and processes • Make a step-by-step plan and carry it out, making changes as needed • Use materials in ways that minimize waste ***Sharing*** • Decide on how and with whom to **share** product and processes • Demonstrate product to users and critically evaluate its success • Identify new design goals **Applied Skills** • Demonstrate and document an awareness of precautionary and emergency safety procedures • Develop competency and proficiency in skills at various levels involving manual dexterity and drafting techniques • Identify the skills needed, individually or collaboratively, in relation to specific projects, and develop and refine them **Applied Technologies** • Choose, adapt, and if necessary learn more about appropriate tools and technologies to use for tasks • Evaluate **impacts**, including unintended negative consequences, of choices made about technology use • Evaluate the influences of land, natural resources, and culture on the development and use of tools and technologies	

Curricular Competencies – Elaborations

APPLIED DESIGN, SKILLS, AND TECHNOLOGIES – Drafting
Grade 10

- **empathetic observation:** may include experiences; traditional cultural knowledge and approaches of First Peoples and those of other cultures; places, including the land and its natural resources and analogous settings; people, including users, experts, and thought leaders
- **constraints:** limiting factors such as task or user requirements, materials, expense, environmental impact
- **factors:** including social, ethical, and sustainability
- **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 First Nations, Métis, or Inuit community experts; keepers of other traditional cultural knowledge and approaches; peers, users, and other experts
- **technologies:** tools that extend human capabilities
- **share:** may include showing to others or use by others, giving away, or marketing and selling
- **impacts:** personal, social, and environmental

Content – Elaborations

APPLIED DESIGN, SKILLS, AND TECHNOLOGIES – Drafting
Grade 10

- **terminology:** for example, scale, weight, plan, elevation, section
- **standards:** for example, line types, line weights
- **conventions:** for example, layout, drawing setup
- **types:** for example, plans, section, detail