**Area of Learning: Applied Design, Skills, and Technologies —
Computer Information Systems Grade 11**

**BIG IDEAS**

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| Design for the life cycle includes consideration of social and **environmental** **impacts**. |  | Personal design choices require self-exploration, collaboration, and evaluation and refinement of skills. |  | Tools and technologies can be adapted for specific purposes. |

**Learning Standards**

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| **Curricular Competencies** | **Content** |
| *Students are expected to be able to do the following:*Applied DesignUnderstanding context* Conduct **user-centred research** to determine technology design opportunities and barriers

Defining* Establish a point of view for a chosen design opportunity
* Identify potential users, intended impact, and possible unintended negative consequences
* Make inferences about premises and **constraints** that define the technologies

Ideating* Identify gaps to explore a design
* 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
* Work with users throughout the design process
 | *Students are expected to know the following:** design opportunities
* evolution of computer technology, including hardware, software, networks, and the Internet
* lab procedures, electrical safety, and appropriate tool use
* internal and external **components** of computer systems, including **peripheral devices**
* computer **troubleshooting**,including the incorporation of **digital tools** to aid and assist with research and diagnostics
* computer assembly and disassembly best practices
* ongoing **preventive maintenance**, including data security and online/offline backup solutions
* installation and configuration of operating systems
* proprietary versus **open-source** applications
* software installations and configurations
* use of correct terminology to describe the units, rates, and encoding of data communication
* network planning, setup, and diagnostics
* key aspects of network protocols and **standards**
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**Learning Standards (continued)**

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| **Curricular Competencies** | **Content** |
| Prototyping* Analyze the design for life cycle and evaluate its **impacts**
* Construct prototypes, making changes to tools, materials, and procedures as needed
* Record **iterations** of prototyping

Testing* Identify most appropriate feedback and possible **sources of feedback**
* Develop an **appropriate test** of the prototype
* Collect feedback to critically evaluate design and make changes to product design or processes
* Iterate the prototype or abandon the design idea

Making* Identify appropriate tools, technologies, materials, processes, and time needed for production, and where/how these could be available
* Use **project management processes** when working individually or collaboratively to coordinate production

Sharing* **Share** progress while creating to increase opportunities for feedback
* Critically reflect on their design thinking and processes, and identify new design goals
* Assess ability to work effectively both as individuals and collaboratively while implementing project management processes

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
 | * laptops and mobile device technology
* **design for the life cycle**
* careers in information and communication technology (ICT), including **roles and responsibilities** of ICT professionals
* future technologies and potential societal impacts
* appropriate use of technology, including digital citizenship, etiquette, and literacy
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**Learning Standards (continued)**

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| --- | --- |
| **Curricular Competencies** | **Content** |
| Applied Technologies* Explore existing, new, and emerging tools, **technologies**, and systems to evaluate their suitability for their design interests
* Evaluate impacts, including unintended negative consequences, of choices made about technology use
* Analyze the role technologies play in societal change
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