**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 Design  Understanding 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 |  |