**Area of Learning: Applied Design, Skills, and Technologies — Computer Studies Grade 10**

**BIG IDEAS**

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| User needs and interests drive the design process. |  | Social, ethical, and sustainability issues are influenced by design. |  | Complex tasks require different technologies and tools at different stages. |

**Learning Standards**

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| **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, societal impacts, and other relevant contextual factors  for a chosen design opportunity * Identify criteria for success, intended impact, and any **constraints** or possible unintended impacts   *Ideating*   * 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*   * Identify and use **sources of inspiration** and information * Choose a form for prototyping and develop a **plan** that includes key stages  and resources * Prototype, making changes to tools, materials, and procedures as needed * Record **iterations** of prototyping | *Students are expected to know the following:*   * design opportunities * **computer hardware**, peripherals, internal and external components, and standards * distinctions between **software types**,cloud-based and desktop applications * intermediate features of **business applications**, including word processing, spreadsheets, and presentations * **operating system shortcuts** and **command line operations** * **preventive maintenance** of hardware and software * **computer security risks** * hardware and software **troubleshooting** * **wired and wireless computer networking** * **evolution of digital technology** and the impact on traditional models of computing * **risks and rewards** associated with big data, multi-device connectivity, and the Internet of Things * principles of **computational thinking** * introductory computer **programming concepts  and constructs** |

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**Learning Standards (continued)**

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| **Curricular Competencies** | **Content** |
| *Testing*   * 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   *Making*   * 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   *Sharing*   * Decide on how and with whom to **share** **product** and processes * Demonstrate the product to potential users, providing a rationale for the selected solution, modifications, and procedures * Use appropriate terminology * Critically reflect on their design thinking and processes, and identify new design goals * Assess their ability to work effectively both as individuals and collaboratively in a group, including ability to share and maintain an efficient collaborative workspace   Applied Skills   * Demonstrate an awareness of precautionary and emergency safety procedures  in both physical and digital environments * Identify the skills needed 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 | * **planning and writing** simple programs,  including games * **impacts of computers and technology on society** * **ethical considerations** of technology use, including **cultural appropriation** and **environmental sustainability** * **digital literacy** and digital citizenship * impacts of technology use on personal **health  and wellness** |