**Area of Learning: Applied Design, Skills, and Technologies — Drafting Grade 11**

**BIG IDEAS**

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| Design for the life cycle includes consideration of social and **environmental** **impacts**. |  | Personal design interests require the 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   * Engage in a period of **user-centred research** and **empathetic observation** to understand  design opportunities   Defining   * Establish a point of view for a chosen design opportunity * Identify potential users, intended impact, and possible unintended negative consequences * Make decisions about premises and **constraints** that define the design space, and identify criteria for success * Determine whether activity is collaborative or self-directed   Ideating   * Generate ideas and add to others’ ideas to create possibilities, and prioritize them for prototyping * Critically analyze how competing social, ethical, and sustainability considerations impact design * Choose an idea to pursue based on success criteria and maintain an open mind about potentially viable ideas   Prototyping   * Choose a form for prototyping and develop a **plan** that includes key stages and resources * Analyze the design for life cycle and evaluate its **impacts** * Visualize and construct prototypes, making changes to tools, materials, and procedures as needed * Record **iterations** of prototyping | *Students are expected to know the following:*   * simple drafting design projects * geometric construction to create **drawings and images** * **drawing management** and problem solving using computer-assisted design (CAD) software * use of scale and proportion when outputting to 3D models * geometric dimensioning and tolerancing  in both imperial and SI units. * types, sizes, and applications of  drawing media * applicable visual formats and media  for presenting design solutions * technical problem solving using geometry, trigonometry, and algebra * **design for the life cycle** * ethics of **cultural appropriation**  and plagiarism |

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**Learning Standards (continued)**

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| **Curricular Competencies** | **Content** |
| Testing   * Identify and communicate with **sources of feedback** * Develop an appropriate test of the prototype, conduct the test, and collect and compile data * Apply information from critiques, testing results, and success criteria to make changes   Making   * Identify appropriate tools, **technologies**, materials, processes, cost implications, and time needed * Create design, incorporating feedback from self, others, and testing prototypes * Use materials in ways that minimize waste   Sharing   * Decide on how and with whom to **share** design and processes for feedback * Share the product with users and critically evaluate its success * Critically reflect on their design thinking and processes, and identify new design goals * Identify and analyze new design possibilities, including how they or others might build  on their concept   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, individually or collaboratively,  and develop specific plans to learn or refine them over time * Develop competency and proficiency in skills at various levels involving manual dexterity  and drafting techniques   Applied Technologies   * Explore existing, new, and emerging tools, technologies, and systems to evaluate suitability  for their design interests * Evaluate impacts, including unintended negative consequences, of choices made about  technology use * Examine the role that advancing technologies play in drafting contexts |  |