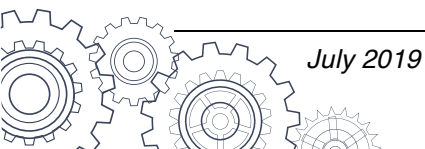
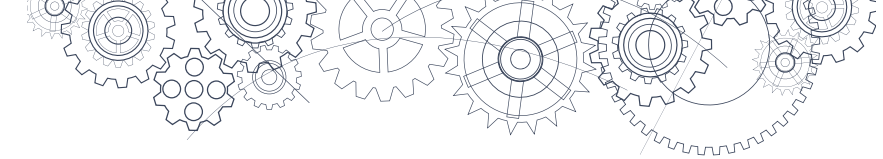


Applied Design, Skills, and Technologies K-9 – Content

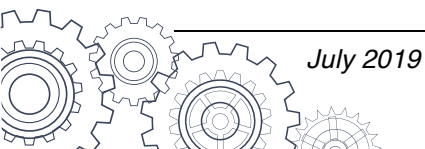
Grade	Computational Thinking	Computers and Communications Devices	Digital Literacy	Drafting	Entrepreneurship and Marketing	Food Studies	Media Arts	Metalwork	Power Technology	Robotics	Textiles	Woodwork
K-3	<ul style="list-style-type: none"> Students are expected to use the learning standards for Curricular Competencies from Applied Design, Skills, and Technologies K-3 in combination with grade-level content from other areas of learning in cross-curricular activities to develop foundational mindsets and skills in design thinking and making. 											
4-5	<ul style="list-style-type: none"> Students are expected to use the learning standards for Curricular Competencies from Applied Design, Skills, and Technologies 4-5 in combination with grade-level content from other areas of learning in cross-curricular activities to develop foundational mindsets and skills in design thinking and making. 											
6-7	<ul style="list-style-type: none"> Students will experience a minimum of three modules of Applied Design, Skills, and Technologies 6-7 in each of Grades 6 and 7. Schools may choose from among the modules listed below or develop new modules that use the Curricular Competencies of Applied Design, Skills, and Technologies 6-7 with locally developed content. Locally developed modules can be offered in addition to, or instead of, the modules in the provincial curriculum. 											
6-7	<ul style="list-style-type: none"> simple algorithms that reflect computational thinking visual representations of problems and data evolution of programming languages visual programming 	<ul style="list-style-type: none"> computer system architecture, including hardware and software, network infrastructure (local), intranet/Internet, and personal communication devices strategies for identifying and troubleshooting simple hardware and software problems function of input and output devices, including 3D printing and adaptive technologies for those with special needs ergonomics in use of computers and computing devices effective and efficient keyboarding techniques 	<ul style="list-style-type: none"> Internet safety digital self-image, citizenship, relationships, and communication legal and ethical considerations, including creative credit and copyright, and cyberbullying methods for personal media management search techniques, how search results are selected and ranked, and criteria for evaluating search results strategies to identify personal learning networks 	<ul style="list-style-type: none"> technical drawing, including sketching techniques and manual drafting techniques elements of plans and drawings simple computer-aided drafting programs 	<ul style="list-style-type: none"> role of entrepreneurship in designing and making products and services market niche branding of products, services, institutions, or places pricing product/service, including decision to seek profit or break even role of basic financial record-keeping and budgeting 	<ul style="list-style-type: none"> basic food handling and simple preparation techniques and equipment factors in ingredient use, including balanced eating/nutrition, function, and dietary restrictions factors that influence food choices, including cost, availability, and family and cultural influences 	<ul style="list-style-type: none"> digital and non-digital media, and their distinguishing characteristics and uses techniques for using images, sounds, and text to communicate information, settings, ideas, and story structure media technologies and techniques to capture, edit, and manipulate images, sounds, and text for specific purposes influences of digital media for the purpose of communication and self-expression 	<ul style="list-style-type: none"> characteristics and uses of metals metalworking techniques and processes using hand tools metals as a non-renewable resource 	<ul style="list-style-type: none"> power is the rate at which energy is transformed forms of energy energy is conserved devices that transform energy 	<ul style="list-style-type: none"> a robot is a machine capable of carrying out a complex series of actions automatically uses of robotics main components of robots: sensors, control systems, and effectors various ways that objects can move programming and logic for robotics components various platforms for robotics 	<ul style="list-style-type: none"> range of uses of textiles variety of textile materials hand construction techniques for producing and/or repairing textile items consumer concerns that influence textile choices, including availability, cost, function (e.g., waterproof), and textile care 	<ul style="list-style-type: none"> ways in which wood is used in local cultural and economic contexts characteristics of wood as a material woodworking techniques and basic joinery using hand tools

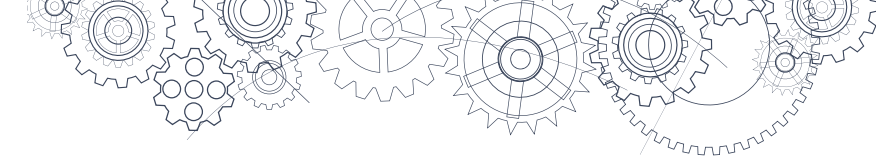




Applied Design, Skills, and Technologies K-9 – Content – continued

Grade	Computational Thinking	Computers and Communications Devices	Digital Literacy	Drafting	Entrepreneurship and Marketing	Food Studies	Media Arts	Metalwork	Power Technology	Robotics	Textiles	Woodwork
8	<p>• The curriculum is designed to be offered in modules or courses of various lengths. Schools are required to provide students with the equivalent of a full-year “course” in Applied Design, Skills, and Technologies. This “course” can be made up of one or more modules. Schools may choose from among the modules listed below or develop new modules that use the Curricular Competencies of Applied Design, Skills, and Technologies 8 with locally developed content. Locally developed modules can be offered in addition to, or instead of, the modules in the provincial curriculum.</p>											
8	<ul style="list-style-type: none"> software programs as specific and sequential instructions with algorithms that can be reliably repeated by others debugging algorithms and programs by breaking problems down into a series of sub-problems binary number system (1s and 0s) to represent data programming languages, including visual programming in relation to text-based programming and programming modular components 	<ul style="list-style-type: none"> design and function of digital infrastructures, from personal communication systems to wide area networks and the Internet of Things social, cultural, and economic impact of mobile devices systems for information transfer and communication, including videos, blogs, podcasts, and social media keyboarding techniques 	<ul style="list-style-type: none"> elements of digital citizenship ethical and legal implications of current and future technologies strategies for curating personal digital content, including management, personalization, organization, and maintenance of digital content; e-mail management; and workflow search techniques, how search results are selected and ranked, and criteria for evaluating search results strategies to engage with personal learning networks 	<ul style="list-style-type: none"> manual and computer-aided drafting techniques elements of technical plans and drawings advantages of using vector files virtual creation using CAD 	<ul style="list-style-type: none"> characteristics of entrepreneurial activity characteristics of social entrepreneurship in First Nations communities recognition of a market need and identification of target market development of a product or service, including its features and benefits forms of advertising and marketing that can influence a potential customer or buyer differences between consumer wants and needs role of money management in financing an idea or developing a product 	<ul style="list-style-type: none"> cross-contamination, including prevention and management food preparation practices, including elements of a recipe, techniques, and equipment effects of removing or substituting ingredients, including nutritional profile, food quality, taste social factors that affect food choices, including eating practices variety of eating practices local food systems First Peoples food use and how that use has changed over time 	<ul style="list-style-type: none"> digital and non-digital media technologies, their distinguishing characteristics, and their uses, including layout and design, graphics and images, and video production techniques for using images, sounds, and text to represent characterizations and points of view of people, including themselves, as well as settings and ideas story principles and genre convention media technologies and techniques to shape space, time, movement, and lighting within images, sounds, and text for specific purposes processes for manipulating and testing digital media data issues in ethical media practices, including cultural appropriation, moral copyright, reproduction, and privacy elements of media arts used to communicate meaning influences of digital media, including on communication and self-expression 	<ul style="list-style-type: none"> characteristics and uses of ferrous and non-ferrous metals metal fastening techniques, including basic welding and fabrication practices metalworking techniques and processes using hand tools and power equipment elements of plans and drawings reclamation and repurposing of metals 	<ul style="list-style-type: none"> uses of power technology renewable and non-renewable sources of energy conversion and transmission of energy kinetic and potential energy effect of mass and inertia on speed and distance role of aerodynamics effects of forces on devices 	<ul style="list-style-type: none"> uses of robotics in local contexts types of sensors user and autonomous control systems uses and applications of end effectors movement- and sensor-based responses program flow interpretation and use of schematics for assembling circuits identification and applications of components various platforms for robotics programming 	<ul style="list-style-type: none"> sources of textile materials hand and machine construction techniques for producing and/or repairing textile items basic components of patterns and instructions colour as an element of design personal factors that influence textile choices, including culture and self-expression, and the impact of those choices on individual and cultural identity 	<ul style="list-style-type: none"> historical and current contexts of woodworking identification, characteristics, and properties of a variety of woods, both manufactured and natural elements of plans and drawings woodworking techniques traditional and non-traditional joinery using hand tools and power equipment options for reuse of wood and wood products





Applied Design, Skills, and Technologies K-9 – Content – continued

Grade	Information and Communications Technologies	Drafting	Entrepreneurship and Marketing	Food Studies	Media Arts	Metalwork	Power Technology	Electronics and Robotics	Textiles	Woodwork
9	<p>The curriculum is designed to be offered in modules or courses of various lengths. There are more Content learning standards for Grade 9, as schools often offer these as full courses. Schools are required to provide students with the equivalent of a full-year “course” in Applied Design, Skills, and Technologies. This “course” can be made up of one or more of the modules listed below. Schools may choose from among the modules provided in the provincial curriculum or develop new modules that use the Curricular Competencies of Applied Design, Skills, and Technologies 9 with locally developed content. Locally developed modules can be offered in addition to, or instead of, the modules in the provincial curriculum.</p>									
9	<ul style="list-style-type: none"> text-based coding binary representation of various data types, including text, sound, pictures, video drag-and-drop mobile development programming modular components development and collaboration in a cloud-based environment design and function of networking hardware and topology, including wired and wireless network router types, switches, hubs, wireless transfer systems, and client-server relationships functions of operating systems, including mobile, open source, and proprietary systems current and future impacts of evolving web standards and cloud-based technologies design for the web strategies for curating and managing personal digital content, including management, personalization, organization, maintenance, contribution, creation, and publishing of digital content relationships between technology and social change strategies to manage and maintain personal learning networks, including content consumption and creation keyboarding techniques 	<ul style="list-style-type: none"> drafting technique, including dimensioning and standards drafting styles, including perspective, mechanical, and architectural CADD/CAM, CNC and 3D printing function of models basic code digital output devices virtual creation using CAD/CAM 	<ul style="list-style-type: none"> risks and benefits of entrepreneurship the role of social entrepreneurship in First Nations communities ways of decreasing production costs through training and technological advancement flow of goods and services from producers to consumers identification of a good or service that ensures brand recognition marketing strategies using the 4 Ps: product, price, promotion, and placement market segmentation by demographic, geographic, psychographic, and purchasing pattern evolving consumer needs and wants role of online technologies in expanding access to goods and services sources of financing for a new venture or start-up business measurement of financial success and failure 	<ul style="list-style-type: none"> pathogenic microbes associated with food-borne illnesses components of food preparation, including use and adaptations of ingredients, techniques, and equipment health, economic, and environmental factors that influence availability and choice of food in personal, local, and global contexts ethical issues related to food systems First Peoples traditional food use, including ingredients, harvesting/gathering, storage, preparation, and preservation 	<ul style="list-style-type: none"> digital and non-digital media technologies, their distinguishing characteristics and uses techniques for organizing ideas to structure information and story through media conventions media production skills standards-compliant technology ethical, moral, and legal considerations and regulatory issues technical and symbolic elements that can be used in storytelling specific features and purposes of media artworks from the present and the past to explore viewpoints, including those of First Peoples specific purposes of media use in the social advocacy of First Peoples in Canada influences of digital media in society 	<ul style="list-style-type: none"> basic metallurgy range of uses of metalwork welding fabrication techniques and processes using hand tools and stationary equipment foundry processes, including creating patterns and moulds, and casting recycling and repurposing of materials 	<ul style="list-style-type: none"> energy transmission and applications efficiency, including energy loss in the form of thermal energy thermodynamics types of fuels and methods of converting fuels to mechanical energy alternative energy sources small engine systems mechanical measurement devices power technology hand tools effects of forces on devices manuals as information sources 	<ul style="list-style-type: none"> uses of electronics and robotics components of an electric circuit ways in which various electrical components affect the path of electricity Ohm’s law platforms for PCB (printed circuit board) production basic robot behaviours using input/output devices, movement- and sensor-based responses, and microcontrollers mechanical devices for the transfer of mechanical energy mechanical advantage and power efficiency, including friction, force, and torque robotics coding various platforms for robotics programming 	<ul style="list-style-type: none"> natural and manufactured fibres, including their origins, characteristics, uses, and care strategies for using and modifying simple patterns elements of design used in the design of a textile item social factors that influence textile choices and the impact of those choices on local communities role of textiles in First Peoples cultures 	<ul style="list-style-type: none"> importance of woodwork in historical and cultural contexts, locally and throughout Canada identification, characteristics, properties, and uses of wood from various tree species techniques for adjusting plans and drawings woodworking techniques and traditional and non-traditional joinery using a variety of tools and equipment, including stationary power equipment the relationship between First Peoples culturally modified trees and the sustainable use of wood issues in the sustainable use of wood

