

Curriculum Connections: Digital Literacy and the Use of AI

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Ministry of
Education and
Child Care

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Introduction

Today we live in a state of constant change due to digitization and artificial intelligence (AI). It is a technology-rich world, where communication is instant, and information is immediately accessible. The way we interact with each other personally, socially, and at work has changed forever. Knowledge is growing at exponential rates in many domains, creating new information and possibilities. This is the world our students are learning in.

British Columbia's K-12 curriculum is designed to equip students with the essential competencies necessary for them to adapt and excel in a landscape increasingly shaped by digitization and AI. The goal of B.C.'s curriculum is to develop learners who are creative, critical, and reflective thinkers; who are competent communicators and collaborators; and who are personally and socially aware and responsible in all areas of their lives. In B.C., [all areas of learning](#) from Kindergarten to Grade 12 are based on a "Know-Do-Understand" curriculum model that supports a concept-based, competency-driven approach to learning. These three elements—the Content (Know), Curricular Competencies (Do), and Big Ideas (Understand)—all

work together to support deeper learning that can be applied to students' future pathways. An integral part of the curriculum is the [Core Competencies](#), sets of intellectual, personal, and social and emotional proficiencies. The combined focus on deeper, applied learning for students that is rooted in Core Competencies prepares students to thrive in an environment where adaptability, problem-solving, and critical analysis are essential.

AI-related learning

Exploring AI concepts, topics, and tools offers students a valuable and enriching learning experience. Throughout their K-12 journey, students may explore topics such as the inner workings of AI and its applications in various contexts, as well as have opportunities to safely and responsibly cultivate the essential digital literacy skills needed for the present and future use of AI tools. The B.C. curriculum provides numerous entry points for educators to engage students in learning with and about AI. By incorporating AI topics and concepts into various learning areas, teachers can help students develop the knowledge needed to make informed choices in a digital world. Incorporating AI topics across the curriculum allows teachers to address ethical, social, and

technological dimensions of digitization and AI, such as bias, privacy, and algorithmic transparency. Teachers may choose to guide students in using AI-related tools within certain learning experiences, fostering an understanding of how to effectively leverage AI tools. By integrating AI-related learning experiences, educators can empower students to comprehend AI and make informed decisions in the ever-expanding landscape of AI technologies.

However, before developing AI-related learning experiences or incorporating AI tools to support student learning, there are a few important considerations for teachers. Prioritizing a human-centric approach to AI learning is essential, ensuring that AI serves to enhance rather than replace fundamental elements of teaching and learning. Additionally, teachers should be mindful of cultural sensitivity and acknowledge diverse perspectives, including Indigenous ways of knowing. Digital access and accessibility are also vital considerations for teachers. For a comprehensive exploration of these and other considerations, teachers may find the "Teaching and Learning" and "Inclusive Learning" sections of the [Considerations for Using AI Tools in K-12 Schools](#) document helpful.

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Curriculum Connections overview

Applied Design, Skills, and Technologies (ADST) and Career Education provide the most direct curricular connections to digital literacy, technologies, and AI. However, these topics can be included throughout the curriculum, and the connections identified below do not represent a complete list of where these topics may be taught. The B.C. curriculum supports significant flexibility for teachers regarding the instructional approaches they use, and the use of digital technologies and AI can also be found across the curriculum. For examples of how this learning can look in a variety of grades and areas of learning, please explore the AI-related [Teaching and Learning Stories](#) that have been developed by B.C. teachers. You will find these materials under the Materials for Teachers drop-down menu.

Core Competencies

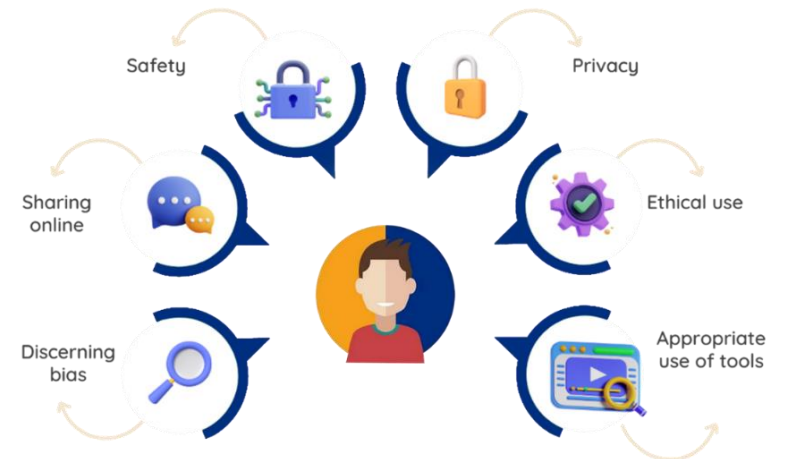
The Core Competencies are sets of intellectual, personal, and social and emotional proficiencies that all students need to develop in order to engage in deep learning and lifelong learning. Students develop Core Competencies when they are engaged in the “doing”—the Curricular Competencies—within an area of learning.

Communication: The Communication competency comprises two essential sub-competences—Communicating and Collaborating—encompassing the knowledge, skills, processes, and dispositions essential for effective interpersonal interactions. In the context of digitization and AI education, students concurrently refine their Communication competency as they explore learning standards related to using digital and AI tools to communicate safely and effectively in both physical and digital spaces.

Thinking: The Thinking competency encompasses two pivotal sub-competences—Creative Thinking and Critical and Reflective Thinking—embodying the knowledge, skills, and processes essential for intellectual development. In the context of digitization and AI education, students concurrently refine their Thinking competency as they explore learning standards that

cultivate their ability to think critically and make informed choices about selecting and utilizing AI tools.

Personal and Social: The Personal and Social competency consists of three essential sub-competencies: Personal Awareness and Responsibility, Positive Personal and Cultural Identity, and Social Awareness and Responsibility. It encapsulates a set of abilities related to students’ identity in the world, both as individuals and as members of their community and society. In the context of digitization and AI education, students concurrently refine their Personal and Social competency as they explore learning standards related to ethics and learn how to navigate digital tools and AI effectively and safely in real-world and digital situations.



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Applied Design, Skills, and Technologies

Under the [Required Areas of Learning in an Educational Program Order](#), students in K-9 are required to take Applied Design, Skills, and Technologies (ADST).

Students in K-5 are expected to use the learning standards for curricular competencies from ADST in combination with grade-level content from other learning areas. In Grades 6-9, students experience three modules of ADST that schools choose from among those featured in the curriculum and locally developed content. In Grades 10-12, there are several ADST elective options students may wish to take.

The table below outlines where students may learn about AI topics, concepts, and tools, as well as AI-related digital literacy in the ADST curriculum.

Required learning for all students in K-9

Grades	Big Ideas	Curricular Competencies	Content
Kindergarten-Grade 3	<ul style="list-style-type: none"> Technologies are tools that extend human capabilities. 	<p>Applied Skills</p> <ul style="list-style-type: none"> Use materials, tools, and technologies in a safe manner in both physical and digital environments <p>Applied Technologies</p> <ul style="list-style-type: none"> Explore the use of simple, available tools and technologies to extend their capabilities 	
Grades 4-5	<ul style="list-style-type: none"> The choice of technology and tools depends on the task. 	<p>Applied Skills</p> <ul style="list-style-type: none"> Use materials, tools, and technologies in a safe manner, and with an awareness of the safety of others, in both physical and digital environments <p>Applied Technologies</p> <ul style="list-style-type: none"> Use familiar tools and technologies to extend their capabilities when completing a task <ul style="list-style-type: none"> Elaboration: Technologies: “things that extend human capabilities” Choose appropriate technologies to use for specific tasks Demonstrate a willingness to learn new technologies as needed 	

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Grades	Big Ideas	Curricular Competencies	Content
Grades 6-8	<ul style="list-style-type: none"> Complex tasks may require multiple tools and technologies. 	<p>Making</p> <ul style="list-style-type: none"> Identify and use appropriate tools, technologies, and materials for production <ul style="list-style-type: none"> Elaboration: Technologies: “things that extend human capabilities” <p>Applied Technologies</p> <ul style="list-style-type: none"> Select and as needed learn about appropriate tools and technologies to extend their capability to complete a task Identify the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use Identify how the land, natural resources, and culture influence the development and use of tools and technologies 	<p>Digital Literacy (Grades 6-7)</p> <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; search techniques, how search results are selected and ranked, and criteria for evaluating search results <p>Digital Literacy (Grade 8)</p> <ul style="list-style-type: none"> Elements of digital citizenship; ethical and legal implications of current and future technologies; search techniques, how search results are selected and ranked, and criteria for evaluating search results
Grade 9	<ul style="list-style-type: none"> Complex tasks may require different technologies and tools at different stages. 	<p>Applied Technologies</p> <ul style="list-style-type: none"> Choose, adapt, and if necessary learn about appropriate tools and technologies to use for tasks Evaluate the personal, social, and environmental impacts, including unintended negative consequences, of the choices they make about technology use Evaluate how the land, natural resources, and culture influence the development and use of tools and technologies 	

Elective course options for students in Grades 10-12

Grades	Big Ideas	Curricular Competencies	Content
Computer Studies 10	<ul style="list-style-type: none"> Complex tasks require different technologies and tools at different stages. 	<ul style="list-style-type: none"> Identify potential users, intended impacts, and possible unintended negative consequences Choose, adapt, and if necessary learn more about appropriate tools and technologies to use for tasks 	<ul style="list-style-type: none"> Evolution of digital technology and the impact on traditional models of computing Impacts of computers and technology on society Ethical consideration of technology use, including cultural appropriation and environmental sustainability

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Grades	Big Ideas	Curricular Competencies	Content
Computer Information Systems 11	<ul style="list-style-type: none"> Design for the life cycle includes consideration of social and environmental impacts. Tools and technologies can be adapted for specific purposes. 	<ul style="list-style-type: none"> Identify potential users, intended impact, and possible unintended negative consequences Critically analyze how competing social, ethical, and sustainability considerations impact creation and development of solutions Explore existing, new, and emerging tools, technologies, and systems to evaluate their suitability for their design interests <ul style="list-style-type: none"> Evaluate impacts, including unintended negative consequences, of choices made about technology use Analyze the role technologies play in societal change 	<ul style="list-style-type: none"> Evolution of computer technology, including hardware, software, networks, and the internet Future technologies and potential societal impacts Appropriate use of technology, including digital citizenship, etiquette, and literacy
Robotics 11	<ul style="list-style-type: none"> Design for the life cycle includes consideration of social and environmental impacts. Tools and technologies can be adapted for specific purposes. 	<ul style="list-style-type: none"> Identify potential users, intended impacts, and possible unintended negative consequences Critically analyze how competing social, ethical, and sustainability considerations impact creation and development of solutions 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 	<ul style="list-style-type: none"> Developments in robotic technology Robotic technologies in the community and industry Programming related to microcontrollers
Mechatronics 12	<ul style="list-style-type: none"> Design for the life cycle includes consideration of social and environmental impacts. Tools and technologies can be adapted for specific purposes. 	<ul style="list-style-type: none"> Identify potential users, intended impacts, and possible unintended negative consequences Critically analyze how competing social, ethical, and sustainability considerations impact creation and development of solutions 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 	<ul style="list-style-type: none"> Impact of artificial intelligence (AI) and singularity in society <ul style="list-style-type: none"> (Elaboration): the hypothesis that artificial intelligence will create extensive technological and societal change

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Other courses that can be applicable for the study of digitization and AI:

- Electronics and Robotics 10
- Technology Explorations 10
- Computer Information Systems 11 and 12
- Computer Programming 11 and 12
- Robotics 12
- Remotely Operated Vehicles and Drones 12



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Career Education

Students take [career education](#) in grades kindergarten through grade 12. Career education has a career-life focus, where students learn how to set personally meaningful goals, recognize and cultivate meaningful opportunities and relationships, and continually evaluate and revise their long-term goals and plans.

Under the [Required Areas of Learning In An Educational Program Order](#) students in grades K-9 are required to take career education. In grades 10-12, [Career-Life Education](#) and [Career-Life Connections](#) are two courses that are required for graduation.

The chart below outlines where students may learn about AI topics, concepts, and tools, as well as AI-related digital literacy in the Career Education curriculum.

Grades	Big Ideas	Curricular Competencies	Content
Grade 4-5		<ul style="list-style-type: none"> Question self and others about the role of technology in the changing workplace 	
Grades 6-7	<ul style="list-style-type: none"> Our personal digital identity forms part of our public identity. 		<p>Life and Career Plan (Grade 6-7)</p> <ul style="list-style-type: none"> Technology in learning and working <p>Life and Career Plan (Grade 8)</p> <ul style="list-style-type: none"> Influence of technology in learning and working
Grades 8-9			<p>Life and Career Plan</p> <ul style="list-style-type: none"> Influence of technology in learning and working
Grades 10-12	<ul style="list-style-type: none"> Career-life choices are made in a recurring cycle of planning, reflecting, adapting, and deciding Career-life decisions are influenced by internal and external factors, including local and global trends. 	<ul style="list-style-type: none"> Identify career-life challenges and opportunities, and generate and apply strategies Explore and reflect on career-life roles, personal growth, and initial planning for preferred career-life pathways 	<ul style="list-style-type: none"> Competencies of the educated citizen, employability skills, essential skills, leadership and collaboration skills Factors that both inform career-life choices and are influenced by them, including personal, environmental, and land use factors