



# Lift-Off with CodeX – TEKS Technology Applications Grade 8 Curriculum

Updated 06/02/2024 by Jill Jones

KNOWLEDGE & SKILLS	Technology Applications Grade 8 No prerequisite	Mission / Lesson
<p><b>(1) Computational thinking - foundations.</b> The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms.</p>	<p>(A) decompose real-world problems into structured parts by using pseudocode</p>	<p>Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i></p>
	<p>(B) analyze the patterns and sequences found in pseudocode and identify its variables</p>	<p>Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i></p>
	<p>(C) practice abstraction by developing a generalized algorithm that can solve different types of problems</p>	<p>Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i></p>
	<p>(D) design a plan collaboratively using pseudocode to document a problem, possible solutions, and an expected timeline for the development of a coded solution</p>	<p>Final Project, Design Process <i>Extensions and cross-curricular for missions 2-10</i></p>
	<p>(E) develop, compare, and improve algorithms for a specific task to solve a problem</p>	<p>Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i></p>
	<p>(F) analyze the benefits of using iteration (code and sequence repetition) in algorithms</p>	<p>Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7</p>

		Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i>
<b>(2) Computational thinking - applications.</b> The student applies the fundamentals of computer science.	(A) construct named variables with multiple data types and perform operations on their values	Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Digital Information <i>Extensions and cross-curricular for missions 3-10</i>
	(B) use a software design process to create text-based programs with nested loops that address different subproblems within a real-world context	Mission 3, Mission 4 Mission 6, Mission 7 Mission 8, Mission 10 Final Project, Design Process <i>Extensions and cross-curricular for missions 3, 4, 6-8, 10</i>
	(C) modify and implement previously written code to develop improved programs	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process Cybersecurity <i>Extensions and cross-curricular for missions 2-10</i>
<b>(3) Creativity and innovation - innovative design process.</b> The student takes an active role in learning by using a design process and creative thinking to develop and evaluate solutions, considering a variety of local and global perspectives.	(A) demonstrate innovation in a design process using goal setting and personal character traits, including demonstrating calculated risk-taking and tolerance	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i>
	(B) discuss and implement a design process that includes planning, selecting digital tools to develop, test and evaluate design limitations, and refining a prototype or model	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Design Process <i>Extensions and cross-curricular for missions 2-10</i>
	(C) identify how the design process is used in various industries	Design Process
<b>(4) Creativity and innovation - emerging technologies.</b> The student	(A) evaluate how changes in technology throughout history have impacted various areas of study	What is Computer Science? Technology & Trends

demonstrates a thorough understanding of the role of technology throughout history and its impact on societies.		<i>Extensions and cross-curricular for missions 2-10</i>
	(B) evaluate and predict how global trends impact the development of technology	What is Computer Science? Technology & Trends <i>Extensions and cross-curricular for missions 2-10</i>
	(C) transfer current knowledge to the learning of newly encountered technologies	Data & Trends, Cybersecurity <i>Extensions and cross-curricular for missions 2-10</i>
<b>(5) Data literacy, management, and representation - collect data.</b> The student uses advanced digital strategies to collect and represent data.	(A) compare and contrast data types, including binary, integers, real numbers, Boolean data, and text-based representations	Digital Information
	(B) apply appropriate search strategies, including keywords, Boolean operators, and limiters, to achieve a specified outcome that includes a variety of file formats	Searches
<b>(6) Data literacy, management, and representation - organize, manage, and analyze data.</b> The student uses digital tools to transform data, make inferences, and predictions.	(A) use digital tools in order to transform data, analyze trends, and predict possibilities and develop steps for the creation of an innovative process or product	Mission 5, Mission 6 Mission 7, Mission 8 Mission 9, Mission 10 Final Project Data & Trends, Searches <i>Extensions and cross-curricular for missions 5-10</i>
<b>(7) Data literacy, management, and representation - communicate and publish results.</b> The student creates digital products to communicate data to an audience for an intended purpose.	(A) use digital tools to communicate and publish data from a product or process to persuade an intended audience	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project What is Computer Science? Technology & Trends Data & Trends, Searches Digital Citizenship Cybersecurity Intellectual Property <i>Extensions and cross-curricular for missions 2-10</i>
<b>(8) Digital citizenship - social interactions.</b> The student understands different styles of digital communication and that a student's actions online can have a long-term impact.	(A) analyze the importance of managing a digital footprint and how a digital footprint can affect the future	Digital Citizenship
	(B) create and revise formal and informal communications using a feedback process and appropriate digital etiquette	Digital Citizenship
	(C) collaborate and publish for a global audience on digital platforms such as recording and editing videos using appropriate formal and informal digital etiquette	Digital Citizenship
<b>(9) Digital citizenship - ethics and laws.</b> The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources.	(A) adhere to local acceptable use policy (AUP) and practice and advocate for safe, ethical, and positive online behaviors	Digital Citizenship Cybersecurity
	(B) adhere to appropriate intellectual property law when creating digital products	Intellectual Property

	(C) create citations and cite sources for a variety of digital forms of intellectual property	Intellectual Property
	(D) evaluate the bias of digital information sources, including websites	Intellectual Property
<b>(10) Digital citizenship - privacy, safety, and security.</b> The student practices safe, legal and ethical digital behaviors to become a socially responsible digital citizenship.	(A) analyze real-world scenarios to identify cybersecurity threats and propose ways to prevent harm	Cybersecurity
	(B) evaluate scenarios or case studies to identify warning signs of a cyberbullying victim such as withdrawal or lack of sleep and predict the outcomes for both the victim and the bully	Cybersecurity
<b>(11) Practical technology concepts - processes.</b> The student evaluates and selects appropriate methods or techniques for an independent project and identifies and solves common hardware and software problems using troubleshooting strategies.	(A) combine various file formats for a specific project or audience	Technology & Trends Data & Trends Digital Citizenship Cybersecurity Intellectual Property
	(B) share and seek feedback on files in various formats, including text, raster and vector graphics, video and audio files	Digital Information Digital Citizenship
<b>(12) Practical technology concepts - skills and tools.</b> The student leverages technology systems, concepts, and operations to produce digital artifacts.	(A) integrate use of appropriate technology terminology in scholarly inquiry and dialogue such as classroom discussion and written samples	Technology & Trends Data & Trends Files & File Management Digital Citizenship Cybersecurity Intellectual Property <i>Extensions and cross-curricular for missions 2-10</i>
	(B) implement effective file management strategies independently, including file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies	Files & File Management
	(C) select and use the appropriate platform and tools, including selecting and using software or hardware to transfer data	Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Technology & Trends Data & Trends Digital Citizenship Cybersecurity Intellectual Property <i>Extensions and cross-curricular for missions 5-10</i>
	(D) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques	Data & Trends
	(E) select and use appropriate shortcuts within applications	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9

		Mission 10, Final Project <i>Extensions and cross-curricular for missions 2-10</i>
	(F) apply appropriate troubleshooting techniques and seek technical assistance as needed	Mission 2, Mission 3 Mission 4, Mission 5 Mission 6, Mission 7 Mission 8, Mission 9 Mission 10, Final Project Technology & Trends Data & Trends <i>Extensions and cross-curricular for missions 2-10</i>
	(G) compare types of local and remote data storage such as cloud architecture or local server and select the appropriate type of storage to store and share data	Files & File Management
	(H) select and use productivity tools found in spreadsheet, word processing, and publication applications to create digital artifacts including reports, graphs, and charts with increasing complexity	Final Project What is Computer Science? Technology & Trends Data & Trends Digital Citizenship Cybersecurity Intellectual Property <i>Extensions and cross-curricular for missions 3, 5-10</i>