



Python with CodeX – TEKS Technology Applications Grade 8 Curriculum

Updated 06/04/2024 by Jill Jones

KNOWLEDGE & SKILLS	Technology Applications Grade 8 No prerequisite	Mission / Lesson
<p>(1) Computational thinking - foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms.</p>	(A) decompose real-world problems into structured parts by using pseudocode	Design Process, Remix 1 Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 <i>Mission 12, Remix 5</i> <i>Mission 13, Mission 14</i> <i>Pixel Images, CodeX & Images</i> <i>CodeX & Audio, CodeX & Line Art</i>
	(B) analyze the patterns and sequences found in pseudocode and identify its variables	Design Process, Remix 3 Remix 4, Remix 5
	(C) practice abstraction by developing a generalized algorithm that can solve different types of problems	Mission 3, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12</i> <i>Remix 5, Mission 13, Mission 14</i>
	(D) design a plan collaboratively using pseudocode to document a problem, possible solutions, and an expected timeline for the development of a coded solution	Design Process, Remix 1, Remix 2 Mission 7, Mission 8, Remix 3 <i>Remix 5, Mission 13, Mission 14</i> <i>Pixel Images, CodeX & Images</i> <i>CodeX & Audio, CodeX & Line Art</i>
	(E) develop, compare, and improve algorithms for a specific task to solve a problem	Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12,</i> <i>Remix 5, Mission 13, Mission 14</i> <i>Pixel Images, CodeX & Images</i> <i>CodeX & Audio, CodeX & Line Art</i>
	(F) analyze the benefits of using iteration (code and sequence repetition) in algorithms	Design Process Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12,</i> <i>Remix 5, Mission 13, Mission 14t</i>
<p>(2) Computational thinking - applications. The student applies the fundamentals of computer science.</p>	(A) construct named variables with multiple data types and perform operations on their values	Mission 3, Mission 4, Remix 1 Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 Digital Information <i>Mission 10, Mission 11, Mission 12,</i> <i>Remix 5, Mission 13, Mission 14</i>

		<i>Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</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 4, Design Process Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12, Remix 5, Mission 13, Mission 14 Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</i>
	(C) modify and implement previously written code to develop improved programs	Remix 1, Remix 2 Remix 3, Remix 4 Cybersecurity <i>Mission 13</i>
(3) Creativity and innovation - innovative design process. 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	Design Process, Remix 11 Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12, Remix 5, Mission 13, Mission 14 Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</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	Design Process, Remix 1 Remix 2, Remix 3, Remix 4 <i>Remix 5, Mission 13, Mission 14</i>
	(C) identify how the design process is used in various industries	Design Process
(4) Creativity and innovation - emerging technologies. The student demonstrates a thorough understanding of the role of technology throughout history and its impact on societies.	(A) evaluate how changes in technology throughout history have impacted various areas of study	Technology & Trends <i>What is Computer Science?</i>
	(B) evaluate and predict how global trends impact the development of technology	Technology & Trends <i>What is Computer Science?</i>
	(C) transfer current knowledge to the learning of newly encountered technologies	Mission 2, Mission 3, Remix 1 Mission 5, Remix 2 Mission 7, Remix 3 Mission 9, Remix 4 Data & Trends, Cybersecurity <i>Remix 5, Mission 13</i>
(5) Data literacy, management, and representation - collect data. 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	Mission 9, Remix 4 Digital Information <i>Mission 13, Mission 14</i>
	(B) apply appropriate search strategies, including keywords, Boolean operators, and limiters, to achieve a specified outcome that includes a variety of file formats	Searches

<p>(6) Data literacy, management, and representation - organize, manage, and analyze data. The student uses digital tools to transform data, make inferences, and predictions.</p>	<p>(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</p>	<p>Data & Trends, Searches <i>Mission 14</i></p>
<p>(7) Data literacy, management, and representation - communicate and publish results. The student creates digital products to communicate data to an audience for an intended purpose.</p>	<p>(A) use digital tools to communicate and publish data from a product or process to persuade an intended audience</p>	<p>Technology & Trends Data & Trends, Searches Digital Citizenship, Cybersecurity Intellectual Property <i>Mission 10, Mission 11, Mission 12</i> <i>What is Computer Science?</i></p>
<p>(8) Digital citizenship - social interactions. The student understands different styles of digital communication and that a student's actions online can have a long-term impact.</p>	<p>(A) analyze the importance of managing a digital footprint and how a digital footprint can affect the future</p>	<p>Digital Citizenship</p>
	<p>(B) create and revise formal and informal communications using a feedback process and appropriate digital etiquette</p>	<p>Digital Citizenship</p>
	<p>(C) collaborate and publish for a global audience on digital platforms such as recording and editing videos using appropriate formal and informal digital etiquette</p>	<p>Digital Citizenship</p>
<p>(9) Digital citizenship - ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources.</p>	<p>(A) adhere to local acceptable use policy (AUP) and practice and advocate for safe, ethical, and positive online behaviors</p>	<p>Digital Citizenship Cybersecurity</p>
	<p>(B) adhere to appropriate intellectual property law when creating digital products</p>	<p>Intellectual Property</p>
	<p>(C) create citations and cite sources for a variety of digital forms of intellectual property</p>	<p>Intellectual Property</p>
	<p>(D) evaluate the bias of digital information sources, including websites</p>	<p>Intellectual Property</p>
<p>(10) Digital citizenship - privacy, safety, and security. The student practices safe, legal and ethical digital behaviors to become a socially responsible digital citizenship.</p>	<p>(A) analyze real-world scenarios to identify cybersecurity threats and propose ways to prevent harm</p>	<p>Cybersecurity</p>
	<p>(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</p>	<p>Cybersecurity</p>
<p>(11) Practical technology concepts - processes. 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.</p>	<p>(A) combine various file formats for a specific project or audience</p>	<p>Technology & Trends Data & Trends Digital Citizenship, Cybersecurity Intellectual Property <i>Pixel Images, CodeX & Images</i> <i>CodeX & Audio, CodeX & Line Art</i></p>
	<p>(B) share and seek feedback on files in various formats, including text, raster and vector graphics, video and audio files</p>	<p>Remix 1, Remix 2 Remix 3, Remix 4 Digital Information Digital Citizenship <i>Mission 14</i></p>

<p>(12) Practical technology concepts - skills and tools. The student leverages technology systems, concepts, and operations to produce digital artifacts.</p>	<p>(A) integrate use of appropriate technology terminology in scholarly inquiry and dialogue such as classroom discussion and written samples</p>	<p>Mission 2, Mission 3 Mission 4, Remix 1 Mission 5, Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 Technology & Trends Data & Trends Files & File Management Digital Citizenship, Cybersecurity Intellectual Property <i>Mission 10, Mission 11, Mission 12, Remix 5, Mission 13, Mission 14</i></p>
	<p>(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</p>	<p>Mission 2 Files & File Management <i>Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</i></p>
	<p>(C) select and use the appropriate platform and tools, including selecting and using software or hardware to transfer data</p>	<p>Mission 1 Technology & Trends Data & Trends Digital Citizenship, Cybersecurity Intellectual Property <i>Remix 5, Mission 13, Mission 14 Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</i></p>
	<p>(D) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques</p>	<p>Data & Trends</p>
	<p>(E) select and use appropriate shortcuts within applications</p>	<p>Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 <i>Mission 10, Mission 11, Mission 12, Remix 5, Mission 13, Mission 14 Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</i></p>
	<p>(F) apply appropriate troubleshooting techniques and seek technical assistance as needed</p>	<p>Mission 1, Mission 2 Mission 4, Remix 1 Mission 5, Mission 6, Remix 2 Mission 7, Mission 8, Remix 3 Mission 9, Remix 4 Technology & Trends Data & Trends <i>Mission 10, Mission 11, Mission 12, Remix 5, Mission 13, Mission 14 Pixel Images, CodeX & Images CodeX & Audio, CodeX & Line Art</i></p>
	<p>(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</p>	<p>Files & File Management</p>

(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

Mission 1
Technology & Trends
Data & Trends
Digital Citizenship, Cybersecurity
Intellectual Property
Mission 14
What is Computer Science?
CodeX & Line Art