LiftOff with CodeX	Tech Apps Standards Grade 7	Mission 1: Intro	Mission 2: Lift Off	Mission 3: Conserve Energy	Mission 4: Hatch Lock	Mission 5: Alert System	Mission 6: Life Support	Mission 7: Solar Tracking	Mission 8: Prepare Landing	Mission 9: Auto Garden	Mission 10: Explore Surface	Final Project	ADDITIONAL LESSONS	What is Computer Science?	Technology & Trends	Data & Trends	Design Process	Files & File Management	Searches	Digital Information	Digital Citizenship	Cybersecurity	Intellectual Property	OPTIONAL LESSONS	Mission 1 Extensions & CC	Mission 2 Extensions & CC	Mission 3 Extensions & CC	Mission 4 Extensions & CC	Mission 5 Extensions & CC	Mission 6 Extensions & CC	Mission 7 Extensions & CC	Mission 8 Extensions & CC	Mission 9 Extensions & CC	Mission 10 Extensions & CC
(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.	(A) decompose real-world problems into structured parts by using flowcharts						X	X	X								X													X	X	X		
	(B) analyze the patterns and sequences found in flowcharts											X					X																	
	(C) identify abstraction and analyze how an algorithm the student created can be generalized to solve additional problems		X	X	X	X	X	X	X	X	X	X					X									X	X	X	X	X	X	X	X	X
	(D) design a plan collaboratively using flowcharts to document a problem, possible solutions, and an expected timeline for the development of a coded solution											X					X									X	X	X	X	X	X	X	X	X
	(E) analyze different techniques used in debugging and apply them to an algorithm		X	X	X	X	X	X	X	X	X	X														X	X	X	X	X	X	X	X	X
	(F) analyze the benefits of using iteration (code and sequence repetition) in algorithms		X	X	X	X	X	X	X	X	X	X					X									X	X	X	X	X	X	X	X	X
(2) Computational thinking - applications. The student applies the fundamentals of computer science.	(A) manipulate and rename variables and describe different data types		X	X	X	X	X	X	X	X	X	X								X						X	X	X	X	X	X	X	X	X
	(B) use a software design process to create text-based programs with nested loops that address different subproblems within a real-world context			X	X		X	X	X		X	X					X										X	X		X	X	X		X
(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) resolve challenges in design processes independently using goal setting and personal character traits such as demonstrating responsibility and advocating for self appropriately		X	X	X	X	X	X	X	X	X	X					X									X	X	X	X	X	X	X	X	X
	(B) discuss and implement a design process that includes planning and selecting digital tools to develop and refine a prototype or model through trial and error		X	X	X	X	X	X	X	X	X	X					X									X	X	X	X	X	X	X	X	X
	(C) identify how the design process is used in various industries														X		X																	
(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) discuss how changes in technology throughout history have impacted various areas of study	X												X	X										X	X	X	X	X	X	X	X	X	X
	(B) discuss how global trends impact the development of technology	x												X	X											X	X	X	X	X	X	X	X	X
	(C) transfer current knowledge to the learning of newly encountered technologies	X														X						X				X	X	X	X	X	X	X	X	X
(5) Data literacy, management, and representation - collect data. The student uses advanced digital strategies to collect and represent data.	(A) demonstrate how data can be represented in a binary number system																			X					X									
	(B) evaluate advanced search strategies, including keywords, Boolean operators, and limiters																		X															
(6) Data literacy, management, and representation - organize, manage, and analyze data. The student uses digital tools to transform data, make inferences, and predictions.	(A) use digital tools in order to transform data to analyze trends and make inferences and predictions					X	X	X	X	X	X	X				X			X										X	X	X	X	X	X
(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.	(A) use digital tools to communicate and display data from a product or process to inform or persuade an intended audience		X	X	X	X	X	X	X	X	X	X		X	X	X			X		X	X	X			X	X	X	X	X	X	X	X	X
(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.	(A) classify actions as having a positive or negative effect on a digital footprint																				X													
	(B) create and revise formal and informal communications using a feedback process and appropriate digital etiquette																				X													
	(C) collaborate on digital platforms such as recording a video conference presentation using appropriate formal and informal digital etiquette																				X													

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(9) Digital citizenship - ethics and laws. 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 model safe, ethical, and positive online behaviors																				X	X												
	(B) explain the importance of intellectual property laws, including the benefits of protection for content owners, and the consequences of violating these laws																						X											
	(C) create citations and cite sources for a variety of digital forms of intellectual property																						X											
	(D) evaluate how various types of media, including social media, and technology can be used to exaggerate and misrepresent information																						X											
(10) Digital citizenship - privacy, safety, and security. The student practices safe, legal and ethical digital behaviors to become a socially responsible digital citizenship	(A) describe and model ways to protect oneself from real-world cybersecurity attacks																					X												
	(B) analyze the negative impacts of cyberbullying on the victim and the bully																					X												
(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.	(A) choose a variety of digital tools to create, share and communicate digital artifacts														X	X					X	X	X											
(12) Practical technology concepts - skills and tools. The student leverages technology systems, concepts, and operations to produce digital artifacts.	(A) demonstrate proficiency in the appropriate use of technology terminology in projects through team collaboration and communication	X	X	X	X	X	X	X	X	X	X	X			X	X		X			X	X	X			X	X	X	X	X	X	X	X	X
	(B) demonstrate effective file management strategies such as file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies with assistance																	X																
	(C) select and use the appropriate platform and tools, including selecting and using software or hardware for a defined task		X	X	X	X	X	X	X	X	X	X			X	X					X	X	X			X	X	X	X	X	X	X	X	X
	(D) demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques															X																		
	(E) select and use appropriate shortcuts within applications		X	X	X	X	X	X	X	X	X	X														X	X	X	X	X	X	X	X	X
	(F) research and test potential solutions to solve hardware and software problems		X	X	X	X	X	X	X	X	X	X			X	X									X	X	X	X	X	X	X	X	X	X
	(G) use a variety of types of local and remote data storage to store or share data such as cloud architecture or local server																	X																
	(H) select and use productivity tools found in spreadsheet, word processing, and publication applications to create digital artifacts such as reports, graphs, and charts with increasing complexity											X		X	X	X					X	X	X				X	X	X	X	X	X	X	X