Python with Robotics (CodeBot) – TEKS Technology Applications Grade 7 Curriculum

Updated 06/03/2024 by Jill Jones

KNOWLEDGE & SKILLS	Technology Applications Grade 7 No prerequisite	Project / Lesson
(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	Remix 2, Remix 3, Remix 4 Remix 5, Remix 6 Design Process *Remix 7, Remix 8*
	(B) analyze the patterns and sequences found in flowcharts	Remix 4, Remix 5, Remix 6 Design Process *Remix 7, Remix 8*
	(C) identify abstraction and analyze how an algorithm the student created can be generalized to solve additional problems	Project 5, Remix 5 Project 6, Remix 6 Design Process *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(D) design a plan collaboratively using flowcharts to document a problem, possible solutions, and an expected timeline for the development of a coded solution	Remix 4, Remix 5, Remix 6 Design Process *Remix 7, Remix 8, Project 10*
	(E) analyze different techniques used in debugging and apply them to an algorithm	Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(F) analyze the benefits of using iteration (code and sequence repetition) in algorithms	Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Design Process *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(2) Computational thinking – applications. The student applies the fundamentals of computer science.	(A) manipulate and rename variables and describe different data types	Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Digital Information *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*

	(B) use a software design process to create text-based programs with nested loops that address different subproblems within a real-world context	Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Design Process *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(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	Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Design Process *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(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	Remix 3, Remix 4 Remix 5, Remix 6 Design Process *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(C) identify how the design process is used in various industries	Technology & Trends 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) discuss how changes in technology throughout history have impacted various areas of study	What is Computer Science? Technology & Trends
	(B) discuss how global trends impact the development of technology	What is Computer Science? Technology & Trends
	(C) transfer current knowledge to the learning of newly encountered technologies	Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Data & Trends Cybersecurity *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(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	Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Digital Information
	(B) evaluate advanced search strategies, including keywords, Boolean operators, and limiters	Searches

(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	Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Data & Trends, Searches *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(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	Project 1, Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 What is Computer Science? Technology & Trends Data & Trends, Searches Digital Citizenship, Cybersecurity Intellectual Property *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(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	Digital Citizenship
	(B) create and revise formal and informal communications using a feedback process and appropriate digital etiquette	Digital Citizenship
	(C) collaborate on digital platforms such as recording a video conference presentation using appropriate formal and informal digital etiquette	Digital Citizenship
(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	Digital Citizenship Cybersecurity
	(B) explain the importance of intellectual property laws, including the benefits of protection for content owners, and the consequences of violating these laws	Intellectual Property
	(C) create citations and cite sources for a variety of digital forms of intellectual property	Intellectual Property
	(D) evaluate how various types of media, including social media, and technology can be used to exaggerate and misrepresent information	Intellectual Property
(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	Cybersecurity
	(B) analyze the negative impacts of cyberbullying on the victim and the bully	Cybersecurity
(11) Practical technology concepts – processes. The student evaluates and selects appropriate methods or techniques for an independent project	(A) choose a variety of digital tools to create, share and communicate digital artifacts	Project 1, Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6

and identifies and solves common hardware and software problems using troubleshooting strategies.		Technology & Trends Data & Trends, Digital Citizenship Cybersecurity, Intellectual Property *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
(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	Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Technology & Trends Data & Trends Files & File Management Digital Citizenship, Cybersecurity Intellectual Property *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(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	Files & File Management
	(C) select and use the appropriate platform and tools, including selecting and using software or hardware for a defined task	Project 1, Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Technology & Trends Data & Trends, Digital Citizenship Cybersecurity, Intellectual Property *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(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	Project 1, Project 2, Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(F) research and test potential solutions to solve hardware and software problems	Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 Technology & Trends

		Data & Trends *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*
	(G) use a variety of types of local and remote data storage to store or share data such as cloud architecture or local server	Files & File Management
	(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	Remix 2 Project 3, Remix 3 Project 4, Remix 4 Project 5, Remix 5 Project 6, Remix 6 What is Computer Science? Technology & Trends Data & Trends, Digital Citizenship Cybersecurity, Intellectual Property *Project 7, Remix 7* *Project 8, Remix 8* *Project 9, Project 10*

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