Coding in Minecraft Introduction to Coding Using MakeCode

Scope and Sequence

Lesson Title	Lesson Objectives	CSTA Standards	ISTE Standards	Average Completion Time (in hours)
Lesson 1: Introduction to Minecraft	• Learners will learn how to navigate in Minecraft. • Learners will learn how to interact with the NPC. • Learners will learn the differences in the 3 languages offered in the MakeCode editor. • Learners will understand the role of the Agent			1
Lesson 2: Agent Move	• Learners will develop an understanding of how they can use code to build in Minecraft and develop a relationship with 'Agent.' • Learners code Agent to navigate through a maze.	• **1B-AP-09** Create programs that use variables to store and modify data.	**1.5.d Algorithmic Thinking** Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	3

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Lesson 3: Agent Build	• Learners programme Agent to place and break blocks • Learners design and create a code (including a loop) to build a structure.	• **1B-AP-10** Create programs that include sequences, events, loops, and conditionals. • **1B-AP-11** Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. • **1B-AP-13** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	**1.5.c Decompose Problems** Students break problems into component parts, extract key information and develop descriptive models to understand complex systems or facilitate problem-solving. **1.5.d Algorithmic Thinking** Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	3
Lesson 4: Errors	• Learners will identify and fix a number of different errors in MakeCode blocks	• **1B-AP-15** Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. • **1B-AP-12** Modify, remix, or incorporate portions of an existing program into one's own	**1.5.c Decompose Problems** Students break problems into component parts, extract key information and develop descriptive models to	3

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		work, to develop something new or add more advanced features. • **1B-AP-08** Compare and refine multiple algorithms for the same task and determine which is the most appropriate. • **1B-AP-16** Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. • **1B-AP-17** Describe choices made during program development using code comments, presentations, and demonstrations.	understand complex systems or facilitate problem-solving. **1.5.d Algorithmic Thinking** Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	
Lesson 5: Digital Citizenship	• Pupils create a list of behaviors which make a responsible digital citizen. • Learners create a set of rules for using a collaborative platform.	• **1B-IC-19** Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	**1.2.a Digital Footprint** Students manage their digital identity and understand the lasting impact of their online behaviors on themselves and others and make	2

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		• **1B-IC-20** Seek diverse perspectives for the purpose of improving computational artefacts. • **1B-AP-14** Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	safe, legal and ethical decisions in the digital world. **1.2.b Online Interactions** Students demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute to their communities. **1.2.c Safeguard Well-being** Students safeguard their well-being by being intentional about what they do online and how much time they spend online. **1.2.d Digital Privacy** Students take action to protect their digital privacy on devices and manage their personal data and security while online.	

Lesson Title	Lesson Objectives	CSTA Standards	ISTE Standards	Average Completion Time (in hours)
Lesson 6: Community Build	• Learners will collaborate on a community build challenge to build a street	• **1B-AP-10** Create programs that include sequences, events, loops, and conditionals. • **1B-AP-11** Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. • **1B-AP-13** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	**1.1a Learning Goals** Students set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. **1.2.b Online Interactions** Students demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute to their communities. **1.4.d Open-Ended Problems** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems	3

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			1.5.d Algorithmic Thinking Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	
Lesson 7: Project	• Learners apply the coding skills developed in the first six lessons to create a collaborative build of another island containing structures. • The build must also adhere to the rules created in the earlier Digital Citizenship lesson.	• **1B-AP-10** Create programs that include sequences, events, loops, and conditionals. • **1B-AP-11** Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. • **1B-AP-13** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. • **1B-AP-15** Test and debug (identify and fix errors) a	**1.1a Learning Goals** Students set learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process to improve learning outcomes. **1.2.b Online Interactions** Students demonstrate empathetic, inclusive interactions online and use technology to responsibly contribute to their communities.	5 – 10

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		program or algorithm to ensure it runs as intended. • **1B-AP-12** Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. • **1B-AP-08** Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	**1.4.d Open-Ended Problems** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems **1.5.d Algorithmic Thinking** Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.	
		Total Hours		20 - 30