Content Area: Apple Robotics
Grade: 7

Unit	Enduring Understandings	Essential Questions	Objectives	Skills
Unit 1: Draw	•Develop understanding of the role and impact of technologies in changing and influencing societies • Contribute to building a better world by taking responsible ethical actions to improve their lives, the lives of others and the environment. • Gain the skills and confidence to embrace and use technologies now and in the future, at home, at work and in the wider community. • Become informed consumers and producers who have an appreciation of the merits and impacts of products and services. • Be capable of making reasoned choices relating to the environment, to sustainable development and to	● What is coding and how is it used? ● *How can you draw the robot to make Sphero move as little as possible between shapes?* ● *Do you need to redesign the shapes of your robot?* ● *Could you make larger shapes into smaller shapes or combine shapes to make a larger shape?* ● *How is programming letters in the Draw Canvas*	Students will learn to connect their robots. • Students will learn to aim their robots. • Students will learn to drive their robots. • Students will understand how to define a sequence. • Students will be able to use the Draw programming canvas. • I can spell words using Sphero. • I can program Sphero to navigate around an obstacle and return to the start.	● Working effectively in teams. ● Gathering supporting information. ● Defining the specific problem. ● Idea Generation. ● Evaluation of concepts and making decisions. ● Implementing a selected concept. ● Communicating the design effort. ● Participating effectively in groups or teams. ● Using effective group communication skills. ● Gathering information, use various sources

	ethical, economic and cultural issues. • Gain the skills and confidence to embrace and use technologies now and in the future, at home, at work and in the wider community.	*different than how you normally write letters?* ● *What did you learn about programming while working with your Sphero today?* ● *How do each of the inputs on a roll block (heading, speed, and duration) affect BOLT's movement?* ● *What is your strategy for making BOLT's movements as accurate as possible?* ● *Why are delay blocks important?* ● *Did your photo turn out the way you thought it would?*	• I can create and execute a Draw program.	and techniques, and analyze their validity and appropriateness. ● Defining problems, which includes specific goal statement, criteria and constraints. ● Understanding what is open-ended and what is defined in problems. ● Brainstorm effectively in teams. ● Utilizing critical evaluation and decision making skills and techniques, including testing. ● Following an iterative approach that employs evaluation repeatedly in
Unit 2: Beginning Block			• I can practice refactoring code. • I can define and use loops. • I can create and execute a Blocks program.	
Unit 3: Intermediate Block			•Students will be able to write movement commands in JavaScript • I can spell words using Sphero. • I can program Sphero to navigate around an obstacle and return to the start. • I can create and execute a Draw program.	

		● *What could you do to make your light drawing even better?* ● *How do you think changing the sensitivity or shutter speed might affect your photo?* ● *What movements, lights, and sounds did you observe?* ● *Which block is set to run asynchronously, that is, at the same time as other blocks?* ● *Will the play sound block at the end of the program run? Why or why not?* ● *What does the initialization do?*	•Students will learn what "Debugging" is and be able to debug a simple movement and sound program •Students will be able to alter a JavaScript program to spell their name. • Students will understand how to control the movement of Sphero using the movements category. • Students will use the controls category and understand how to use deals and begin to understand how to use loops. • Students will be able to work independently.	their design process. ● Managing time and other resources as required to complete their project. ● Following instructions provided by others in implementation. ● Communicating with team members at all stages of development and implementation of design solutions. ● Practicing effective listening skills for receiving information accurately. ● Exhibiting appropriate nonverbal

		● *What does the condition do?* ● *What does the final expression do?* ● *Why does the while loop never stop?*	• Students will learn to create a new program on the Block Canvas. • Students will learn to control Sphero Mini's movement with the three inputs on a roll block: speed, heading, and duration. • Students will learn to program Sphero Mini's to roll in a square. • Students will learn to identify and describe shapes. •Students will learn to distinguish between two and three-dimensional shapes. • Students will learn to compose simple shapes to form larger shapes.	mannerisms (e.g., eye contact) in interpersonal communication. ● Giving and receiving constructive criticism and suggestions. ● Recording group activities and outcomes, ideas, date, etc. in personal design journals. ● Presenting design information in group oral presentations.

			•Students will learn to create and execute a Draw program. • Students will be able to create a simple block code that will send Sphero on its way to the ramp. • Students will be able to tell a story with BOLT using movement, lights, and sound. • Students will be able to program blocks to execute asynchronously and synchronously. • Students will be able to use delay blocks to ensure my program runs as designed. • Students will be able to program their own	

			animation on robots LED matrix. • Students will learn to use loop forever and loop x times blocks to make my programs execute blocks repeatedly. • Students will learn to program robots to respond to events. • Students will learn to modify a game to make it more fun for a user.	
Unit 4: Advanced Block			• I can define and use conditionals, including if/then/else statements. • I can create and execute a Blocks program.	

Unit 5: Block-Text Transition			•Students will learn what "Debugging" is and be able to debug a simple movement and sound program •Students will be able to alter a JavaScript program to spell their name. • Students will understand how to control the movement of Sphero using the movements category. • Students will use the controls category and understand how to use deals and begin to understand how to use loops.	
Unit 6: Beginning Text			Students will be able to define JavaScript code.	

			• Students will be able to create and execute a Text program. • Students will be able to define and use "For Loops". • Students will learn to practice industry standards, including: - Draw a flow diagram - Create code from pseudocode. • Students will be able to practice industry standards, including: - Draw a flow diagram, Create code from pseudocode, Reading technical documentation. • Student will be able to practice industry standards, including optimization, debugging, and pseudocode.	

			• Student will be able to define and use Computer Science fundamentals, including data structures (like object literals and arrays) and loops. • Student will be able to use JavaScript syntax, including a modulus operator and a ternary operator. • Student will be able to use JavaScript to create a program for Sphero.	