SUBJECT: 6th Grade Computer	**GRADE: 6**
Unit Title: Scratch Programming	**Time Frame:** 7 Days
UNIT OVERVIEW	
Within this unit, students will learn how to program games in Scratch. By the end of this unit students will have made games in Scratch.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem Solving: Platform Game (S3B)	**1A-AP-10:** Develop programs with sequences and simple loops, to express ideas or address a problem. **1A-AP-11:** Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. **1A-AP-13:** Give attribution when using the ideas and creations of others while developing programs. **1A-AP-14:** Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops. **1B-AP-08:** Compare and refine multiple algorithms for the same task and determine which is the most appropriate. **1B-AP-09:** Create programs that use variables to store and modify data. **1B-AP-10:** Create programs that include sequences, events, loops, and conditionals. **1B-AP-13:** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. **2-AP-11:** Create clearly named variables that represent different data types and perform operations on their values. **2-AP-12:** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. **2-AP-13:** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
COMPETENCIES	**LEARNING TARGETS**
I can code a program to express an idea or solve a problem.	• I can use inputs, outputs and events to create an interactive program. • I can create my own ideas and build upon other projects • I can use appropriate code to solve problems • I can create and edit variables.

I can approach a challenge with computational thinking.	• I can think in sequential steps. • I can break problems down into smaller steps • I can explain an algorithm • I can understand and explain the code in the program
I can demonstrate an understanding of many digital tools	• I can identify and use inputs and outputs as tools. • I can create and use different types of data • I can understand that computers process information quickly
I can use best practices while programming.	• I can use correct terminology • I can test code frequently to assure that it is working correctly.

SUBJECT: 6th Grade Computer	**GRADE: 6**
Unit Title: Electronics	**Time Frame: 6 Days**
UNIT OVERVIEW	
Within this unit students will learn about electronics and how to program a circuit board using Scratch programming environment and Hummingbird circuit boards. By the end of this unit students will have made projects using output devices.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem Solving (S4B)	**1A-AP-10:** Develop programs with sequences and simple loops, to express ideas or address a problem. **1A-AP-11:** Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions. **1A-AP-13:** Give attribution when using the ideas and creations of others while developing programs. **1A-AP-14:** Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops. **1A-CS-02:** Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware). **1B-AP-08:** Compare and refine multiple algorithms for the same task and determine which is the most appropriate. **1B-AP-09:** Create programs that use variables to store and modify data. **1B-AP-10:** Create programs that include sequences, events, loops, and conditionals. **1B-AP-13:** Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

	1B-CS-02: Model how computer hardware and software work together as a system to accomplish tasks. **2-AP-11:** Create clearly named variables that represent different data types and perform operations on their values. **2-AP-12:** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. **2-AP-13:** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
COMPETENCIES	**LEARNING TARGETS**
I can code a program to express an idea or solve a problem.	● I can create and use procedures that use abstraction to solve problems. ● I can use inputs, outputs and events to create an interactive program. ● I can create my own ideas and build upon other projects ● I can use appropriate code to solve problems ● I can create and edit variables. ● I can create algorithms to complete repetitive tasks
I can approach a challenge with computational thinking.	● I can identify patterns when working through challenges ● I can think in sequential steps. ● I can break problems down into smaller steps ● I can plan and create a project by breaking it into smaller parts using procedures. ● I can explain an algorithm ● I can understand and explain the code in the program ● I can debug a program using a variety of methods
I can demonstrate an understanding of many digital tools	● I can identify and use inputs and outputs as tools. ● I can create and use different types of data ● I can understand that computers process information quickly
I can use best practices while programming.	● I can use correct terminology ● I can use pair programming techniques to complete a project ● I can describe how working together can result in the best product ● I can test code frequently to assure that it is working correctly.

SUBJECT: 6th Grade Computer	**GRADE: 6**
Unit Title: Code.org Programming	**Time Frame:** 8 days
UNIT OVERVIEW	
Within this unit students will learn about solving puzzles and drawing images using the programming language Blockly and the Code.Org curriculum. By the end of this unit students will have completed the 20-hour Accelerated Intro to Computer Science Course in Code.Org.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem Solving: Lesson 13: Outbreak (S4B) Continual Learning and Growth Mindset: Lesson 13: Outbreak (D2B)	**1B-CS-03:** Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. **1B-AP-15:** Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. **2-AP-11:** Create clearly named variables that represent different data types and perform operations on their values. **2-AP-12:** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. **2-AP-13:** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. **2-AP-14:** Create procedures with parameters to organize code and make it easier to reuse. **2-AP-17:** Systematically test and refine programs using a range of test cases.
COMPETENCIES	**LEARNING TARGETS**
I can code a program to express an idea or solve a problem	● I can create a function to eliminate redundancies in code. ● I can create and use procedures that use abstraction to solve problems. ● I can use appropriate code to solve problems ● I can create and edit variables. ● I can create algorithms to complete repetitive tasks
I can approach a challenge with computational thinking	● I can identify patterns when working through challenges ● I can think in sequential steps. ● I can break problems down into smaller steps ● I can explain an algorithm ● I can understand and explain the code in the program ● I can debug a program using a variety of methods

I can use best practices while programming	• I can use correct terminology • I can test code frequently to assure that it is working correctly.