SUBJECT: Design and Animation	GRADE: 8
Unit Title: Creating Drawings	**Time Frame: 9 Days**
UNIT OVERVIEW	
Within this unit students will learn how to create drawings and shapes with colors and opacity.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Creativity and Innovation (S3B)	**1A-AP-14:** Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops. **2-AP-13:** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. **2-AP-17:** Systematically test and refine programs using a range of test cases.
COMPETENCIES	**LEARNING TARGETS**
I can demonstrate an understanding of the canvas.	• I can use (x, y) coordinates to talk about places on the canvas.
I can draw various shapes on the canvas.	• I can draw shapes with a radius- circles and stars. • I can draw shapes with width/height- rectangles and ovals. • I can draw miscellaneous shapes- lines and labels.
I can use inputs to change the alignment or visual properties of shapes.	• I can recognize which inputs can be applied to which shapes • I can successfully use inputs to replicate shapes and text • I can explain the purpose of a specific input.

SUBJECT: Design and Animation	GRADE: 8
Unit Title: Functions, Mouse Events, and Properties	**Time Frame: 7 Days**
UNIT OVERVIEW	
Within this unit students will learn how to use functions, onMousePress and onMouseRelease events and other shape properties.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem-Solving (S4B)	**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-10:** Create programs that include sequences, events, loops, and conditionals. **2A-AP-13:** Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. **2-AP-17:** Systematically test and refine programs using a range of test cases. **3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.

	3A-AP-21: Evaluate and refine computational artifacts to make them more usable and accessible.
COMPETENCIES	**LEARNING TARGETS**
I can use functions to make coding more efficient.	• I can identify repeating patterns. • I can create and call functions to perform repetitive tasks.
I can interact with the canvas using the mouse.	• I can use 'onMousePress' to cause an event when the mouse is pressed. • I can use 'onMouseRelease' to cause an event when the mouse is released from a press. • I can use arithmetic to offset the distance of a shape being drawn.
I can change the properties of shapes.	• I can identify the position, size and appearance of shapes. • I can create a variable to access the property of a shape. • I can use arithmetic to add or subtract from a property. • I can recognize properties such as: size, position, fill, border, alignment and other shape-specific properties.
I can approach a challenge with computational thinking.	• I can debug a program using a variety of methods • I can use the iterative process to solve a problem • I can create programs by creating and testing code in an incremental approach

SUBJECT: Design and Animation	**GRADE: 8**
Unit Title: Mouse Motion Events, Conditionals, and Helper Functions	**Time Frame: 8 Days**
UNIT OVERVIEW	
Within this unit students will learn how to use onMouseMove and onMouse Drag events, conditionals, and helper functions.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem-Solving (S4B)	**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-10:** Create programs that include sequences, events, loops, and conditionals. **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-17:** Systematically test and refine programs using a range of test cases. **3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions. **3A-AP-21:** Evaluate and refine computational artifacts to make them more usable and accessible.

	3A-AP-23: Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.
COMPETENCIES	**LEARNING TARGETS**
I can interact with the canvas using the mouse.	● I can use 'onMouseMove' to cause an event when the mouse is moved. ● I can use 'onMouseDrag' to cause an event when the mouse is pressed, held down and dragged.
I can code a program with conditionals.	● I can use common conditions and if-else statements to run code.
I can code with purpose.	● I can use helper functions to eliminate repetitions in code ● I can identify when to use helper functions to break down larger, more complex functions.
I can use best practices while programming.	● I can use pair programming techniques to complete a project ● I can test code frequently to assure that it is working correctly. ● I can make sure my project meets the requirements

SUBJECT: Design and Animation	**GRADE: 8**
Unit Title: More Conditionals, Key Events, and Methods	**Time Frame: 8 Days**
UNIT OVERVIEW	
Within this unit students will learn how to use elif statements, onKeyPress and onKeyRelease events, and shape methods.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem-Solving (S4B)	**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-10:** Create programs that include sequences, events, loops, and conditionals. **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-17:** Systematically test and refine programs using a range of test cases. **3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions. **3A-AP-21:** Evaluate and refine computational artifacts to make them more usable and accessible. **3A-AP-23:** Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.
COMPETENCIES	**LEARNING TARGETS**
I can code a program with conditionals.	● I can use if-elif-else and multiple if's statements to run code.

I can use key functions to interact with the canvas.	• I can use the ‘onKeyPress’and ‘onKeyRelease’ functions to cause key events in my code.
I can approach a challenge with computational thinking.	• I can identify patterns when working through challenges • I can plan and create a project by breaking it into smaller parts using procedures. • I can use the iterative process to solve a problem • I can create complex images by creating and testing code in an incremental approach • I can describe the purpose of a section of code.
I can use best practices while programming.	• I can use correct terminology • I can test code frequently to assure that it is working correctly. • I can recognize that identifying and defining problems and proposing a solution can be challenging. • I can make sure my project meets the requirements

SUBJECT: Design and Animation	**GRADE: 8**
Unit Title: Complex Conditionals, and More Key Events	**Time Frame: 6 Days**
UNIT OVERVIEW	
Within this unit students will learn how to use compound and nested conditionals, and onKeyHold events.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Continual Learning and Growth Mindset (D2B)	**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-10:** Create programs that include sequences, events, loops, and conditionals. **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-17:** Systematically test and refine programs using a range of test cases. **3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions. **3A-AP-21:** Evaluate and refine computational artifacts to make them more usable and accessible. **3A-AP-23:** Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.
COMPETENCIES	**LEARNING TARGETS**
I can make my code clear and concise.	• I can identify when it might be beneficial to use nested or compound conditionals.

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 use the iterative process to solve a problem • I can create visuals by creating and testing code in an incremental approach • I can describe the purpose of a section of code.
I can use best practices while programming.	• I can use correct terminology • I can test code frequently to assure that it is working correctly. • I can recognize that identifying and defining problems and proposing a solution can be challenging. • I can use good programming practices to make code more readable

SUBJECT: Design and Animation	**GRADE: 8**
Unit Title: Groups, Step Events, and Motion	**Time Frame: 8 Days**
UNIT OVERVIEW	
Within this unit students will use groups, onStep events, and motion.	
LRG SKILLS AND DISPOSITIONS	**PA STANDARDS**
Critical Thinking and Problem-Solving (S4B)	**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-10:** Create programs that include sequences, events, loops, and conditionals. **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-17:** Systematically test and refine programs using a range of test cases. **3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions. **3A-AP-21:** Evaluate and refine computational artifacts to make them more usable and accessible. **3A-AP-23:** Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.
COMPETENCIES	**LEARNING TARGETS**
I can simplify complex behaviors.	• I can create a group of shapes that can be moved or changed together. • I can add, remove or clear the properties of shapes within a group. • I can use for loops to access individual shapes within a group.
I can create smooth motion animation.	• I can use functions to create step events that are independent of the user.

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 understand and explain the code in the program • I can debug a program using a variety of methods • I can use the iterative process to solve a problem • I can create programs by creating and testing code in an incremental approach • I can change and improve code that already exists • I can use computational thinking to solve problems. • I can describe the purpose of a section of code.