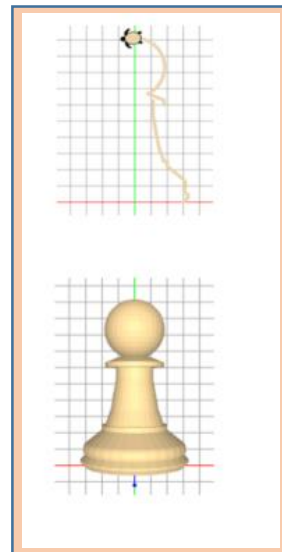
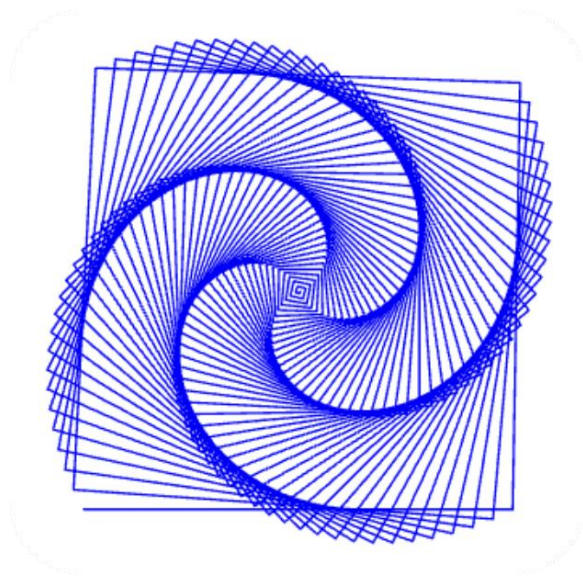




TINA 1 AND 2 PROGRAMMING COURSES
PACING GUIDE

FEBRUARY 22, 2016



Pacing Guide for Tina 1 and Tina 2

STANDARDS	SECTION	LEVEL NAME	WHAT STUDENTS WILL LEARN	DAYS
Notes:				
Course length is based on 50 to 60 minutes per day.				
Standards Listed: Common Core Math Content, Common Core ELA , CSTA Computer Science , NGSS Science . Standards are listed where they first appear, and are practiced throughout the course.				
TINA 1				
Introduction to Course: Log onto NCLab Desktop; view course overview video. Optional pre-test				1
Standard	Section 1	Basics	Basic commands that move and position Tina.	6
5.GA.1	1.1	Hi There!	Cartesian plane, default settings.	
4.GA.1,2, 3 CT.2.1, SEP.2	1.2	Turtle Pond	Linear movement along the x-axis.	
	1.3	Turtle Race	Movement, left and right turns	
	1.4	Missing Letter	Color, pen Up and pen Down commands	
4.GA.1,2,3	1.5	Tina's Place	Width and Hide commands	
	1.6	Peace Sign	Back and Extrude commands	
6.GA.3	1.7 Review	Deathly Hallows	The Goto (x,y) command. Review Section 1 concepts	
5.GB.1,2 6.G.A.1 6.G.A.3 7.G.A.1 8.G.A.x CPP.2.4, 2.5, SEP.6	1.8	Art Project/ Performance Task	Write a program that creates a tangram using the commands learned in Section 1. Learn how to save files.	
		Creative Suite	Introduction to Creative Suite	
W2, W10, CPP.2.4		Assessment	Quiz/Journal Reflection on Basic Commands	
	Section 2	Loops 1	Use a For loop to repeat instructions. Write programs that draw polygons.	5
5.GB.1,2 CCC.1	2.1	Triangle	Write a program that will draw a triangle using a For loop.	
	2.2	Square	Draw a square using a For loop.	
	2.3	Pentagon	Draw a pentagon using a For loop.	
	2.4	Hexagon	Draw a hexagon using a For loop.	
	2.5	Octagon	Draw an octagon using a For loop.	
	2.6	Circle	Draw a circle using a For loop.	
	2.7	Star	Draw a star using a For loop.	
	2.8	Art Project/ Performance Task	Create a pendant based on polygon designs, using For loops.	
		Assessment	Quiz/Journal Reflection on Loops 1	
	Section 3	Loops 2	Use loops to draw linear repeated and rotated patterns.	6
	3.1	Staircase	Write a program that draws a simple repeated pattern using turns.	
	3.2	Saw	Draw a simple repeated pattern that includes the back command.	

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STANDARDS	SECTION	LEVEL NAME	WHAT STUDENTS WILL LEARN	DAYS
	3.3	Battlement	Draw a simple repeated pattern that includes planning for specific start and end positions.	
	3.4	Swiss Cross	Draw a multi-step rotated pattern.	
	3.5	Dandelion	Draw a multi-step rotated pattern with a large number of iterations.	
	3.6	Windmill	Draw a complex rotated pattern.	
	3.7	Pinwheel	Draw a rotated pattern, including the goto command	
	3.8	Art Project/ Performance Task	Write a program that creates a 3D shape based on a repeated shape, using a For loop and the concepts learned in Section 3.	
		Assessments	Quiz/Journal Reflection on Loops 2	
	Section 4	Nested Loops	Use nested loops to draw repeated patterns within repeated patterns.	5
	4.1	Window	Draw a window composed of four squares using nested loops.	
	4.2	Mosaic 1	Draw a rotated nested loop mosaic based on hexagons.	
7.G.B.5	4.3	Mosaic 2	Draw a rotated nested loop mosaic based on octagons	
	4.4	Mosaic 3	Draw a rotated nested loop mosaic based on dodecahedrons.	
	4.5	Sunflower	Draw a rotated nested loop based on outward facing triangles.	
	4.6	Gear	Draw a rotated nested loop based on outward facing squares.	
	4.7	Snowflake Review	Draw a rotated nested loop based on complex patterns.	
	4.8	Art Project/ Performance Task	Write a program that creates a rotated pattern based on nested loops.	
		Quiz	Quiz/Journal Reflection on Nested Loops	
	Section 5	Variables	Use counting (range) variables to increase or decrease a value within a loop.	6
CCC.3	5.1	Pan Flute	Use a counting variable to increase the length for each iteration	
	5.2	Ice Dome	Use a counting variable and the back command to change the starting point and line length of a shape.	
	5.3	Bookshelf	Use a counting variable within an expression.	
	5.4	Triangle Maze	Use a counting variable to draw a triangle maze.	
	5.5	Square Maze	Use a counting variable to draw a square maze.	
	5.6	Black Hole	Use a counting variable, the goto command and xy coordinates to create a design.	
	5.7 Review	Factory	Use a counting variable, solve a puzzle drawing.	
	5.8	Art Project/ Performance Task	Write a program that creates a design using a counting variable.	
		Quiz	Quiz/Journal Reflection on Variables	

Pacing Guide for Tina 1 and Tina 2

STANDARDS	SECTION	LEVEL NAME	WHAT STUDENTS WILL LEARN	DAYS
		End of course Assessment	Review Final test on Tina 1	2
			Total instructional days for Tina 1 course	31
TINA 2				
Introduction to Tina 2: Course overview				1
	Section 6	Parametric Variables	Use parametric variables to assign values to parameters in the program.	7
HSF.BF.A.1, 1a CT.2.14	6.1	Swiss Cross II	Introduction to parametric variables. Revise an existing program using parametric variables.	
	6.2	Beehive	Use a parametric variable to control the edge length of a design.	
	6.3	Windmill II	Use a parametric variable to control 2 dimensions, one as a multiple of the other.	
	6.4	Snowflake II	Use a parametric variable to control 2 dimensions, one as a multiple of the other.	
	6.5	Polygon	Use three parametric variables to control shape type and dimensions.	
	6.6	Mosaic IV	Create a complex pattern using multiple parametric variables.	
	6.7	Gear II	Use multiple variables to control size, shape and number of teeth in a gear.	
	6.8	Art Project	Write a program that creates a 3D design based on parametric variables.	
			Quiz/Journal Reflection on parametric Variables	
	Section 7	Functions	Use functions to perform sets of tasks. Variables within the functions can be assigned values in the main program.	7
	7.1	Stop Sign	Select different values to change the outcome of the function	
	7.2	Rosetta	Modify a function.	
	7.3	Five to Six	Add code to a function to change the outcome.	
	7.4	Vortex	Write a function that includes a for loop	
	7.5	Spoked Wheel	Write a function that includes a more complex for loop.	
	7.6	Spider Web	Write a program that includes multiple functions	
	7.7	Fence	Write a program that includes two functions using the same variable.	
	7.8	Art Project/ Performance Task	Write a program that creates a 3D design based on a functions	
		Assessment	Quiz/Journal Reflection on Functions	

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STANDARDS	SECTION	LEVEL NAME	WHAT STUDENTS WILL LEARN	DAYS
	Section 8	Arcs	Learn how to use the arc command to create curves.	7
HSG.C.B.5	8.1	Triquetra	Learn the arc command and parameters	
	8.2	Celtic Rose	Use the arc command within a function	
	8.3	Splash	Use the arc command within a for loop	
	8.4	Celtic Knot	Use combinations of arcs and straight lines to build a design	
	8.5	Triskelion	Practice using a function with a decreasing variable and the arc command	
	8.6	Purple Heart	Write a function that includes the arc command	
	8.7	Four-Leaf Clover Review	Write a for loop that includes the function from 7.6	
	8.8	Art Project/ Performance Task	Write a program that creates a design that includes arcs	
		Quiz	Quiz/Journal Reflection on Arcs	
	Section 9	Solids	Learn how to create 3D rotational solids from 2D shapes.	7
HSG.GMD.B.4	9.1	Ice Cream	Use the rosol command to convert a line and an arc to a rotational solid.	
	9.2	Pencil	Use the rosol command, multiple variables and variable relationships to create a rotational solid.	
CCC.6	9.3	Table	Use the rosol command, radius and height, and variable relationships to create an object with three components.	
	9.4	Cake	Use the rosol command, radius and height, and variable relationships to create an object with three components.	
	9.5	Lightbulb	Use the rosol command, arcs, lines, coordinates and angle relationships to create a complex, scalable object.	
	9.6	Yo-Yo	Use the rosol command, and dimension relationships to create a complex object.	
	9.7	Towers of Hanoi	Use the rosol command, and dimension relationships to create a complex object.	
	9.8	Art Project/ Performance Task	Write a program to create a rotational solid using functions and the rosol command.	
		Assessment	Quiz/Journal Reflection	
	Section 10	Surfaces and Shells	Learn how to create 3D rotational surfaces and shells from 2D shapes.	7
	10.1	Water Glass	Use the rosurf command to convert two lines to a hollow, truncated cone (water glass).	
	10.2	Cowboy Hat	Use the rosurf command to build a 3D surface using relationships among three radii.	
	10.3	Washer	Use the rosurf command to build a 3D surface using inner and outer radii.	

Pacing Guide for Tina 1 and Tina 2

STANDARDS	SECTION	LEVEL NAME	WHAT STUDENTS WILL LEARN	DAYS
	10.4	Donut	Use the rosurf and arc commands to build a 3D surface.	
	10.5	Vase	Use the roshell and arc commands to build a complex 3D shell.	
	10.6	Bell	Use the roshell and arc commands to build a complex 3D shell.	
	10.7	Box	Use the roshell and arc commands to build a complex 3D shell made of two, fitted components.	
	10.8	Art project/ Performance Task	Write a program to create a 3D surface or shell using functions and rosurf or roshell.	
		End of course Assessment	Review Final test on Tina 2	2
			Total instructional days for Tina 2 course	38
			Total instructional days for Tina 1 and 2	69