

## ABSS Math Unit Planning Template

## Introduction:

Grade/Course: 9_12   Discrete Mathematics		Suggested Unit Pacing (# of days): 9 days		
<b>Unit Number and Title:</b> Unit 8 - Graph Theory		<b>Mathematical Practices</b>		
		<b>P1</b>	Make sense of problems and persevere in solving them.	
		<b>P2</b>	Reason abstractly and quantitatively.	
		<b>P3</b>	Construct viable arguments and critique the reasoning of others.	
		<b>P4</b>	Model with mathematics.	
		<b>P5</b>	Use appropriate tools strategically.	
		<b>P6</b>	Attend to precision.	
		<b>P7</b>	Look for and make use of structure.	
<b>P8</b>	Look for and express regularity in repeated reasoning.			
<b>Conceptual Overview</b>				
<b>Essential Understandings</b>				
<b>SCS</b>	The learner will use matrices and graphs to model relationships and solve problems.	<b>SCS.9 12.MA.1.02</b>	Use graph theory to model relationships and solve problems.	
<b>CCSS</b>	<b>Vector and Matrix Quantities</b>	<b>CCSS.9 12.MA.N.VM.6</b>	(+ Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	
<b>Learning Targets</b>	<ul style="list-style-type: none"> <li>Identify the different types of graphs</li> <li>Draw a graph with the given characteristics</li> <li>Identify a path or circuit of specific length</li> <li>Represent a power influence table with a directed graph</li> <li>Use matrices to calculate the power after a specific number of cycles</li> <li>Use the Four Color concept to color a map or a graph</li> <li>Define an Euler path or circuit</li> <li>Identify if an Euler path or circuit exists and list the path or circuit</li> <li>Use Nearest Neighbor and Cheapest Link methods to calculate the cheapest route for a traveling salesperson</li> <li>Determine the shortest route of a weighted graph using Dijkstra's Algorithm</li> <li>Draw a PERT diagram given a table of information</li> <li>Determine the critical path for a given PERT diagram</li> <li>Identify the earliest start time for a project</li> </ul>			
<b>Essential Terminology</b>				
<b>Literacy Integration</b>	<b>Literacy Standards</b>	Level	Standard	Standard Name
	<b>Literature Connections</b>			
<b>Technology Integration</b>	<b>Technology Standards</b>	Level	Standard	Standard Name
	<b>Websites</b>			
<b>Assessment</b>	<b>Formative</b>			
	<b>Performance Tasks</b>			
	<b>Summative</b>			
<b>Resources</b>				
<b>Learning Plan</b>	<b>Instructional Sequence</b>	1- Intro graph theory 2- Power Influence tables (with graph and matrices) 3- Graph coloring (Four Color problem) 4- Euler paths and circuits 5- Traveling salesperson 6- Shortest route 7- Critical path, earliest start time, PERT 8- Review 9- Test		
<b>Differentiation</b>	<b>Remediation</b>			
	<b>Enrichment</b>			