

ABSS Math Unit Planning Template

Introduction:

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