PROJECT OVERVIEW			
Name of Project:	**Quilting with Geometry**		**Duration: 3 weeks**
Subject/Course: Math, ELA & Art		**Teacher(s): DeSmet & Maslowski**	**Grade Level: 4**
Other subject areas to be included, if any:	**Technology /Webquest**		
Project Idea Summary of the issue, challenge, investigation, scenario, or problem:	Setting the stage for developing a sense of spatial relationships and mastering the concepts and language of geometry, students will read various trade books and complete a geometry walk to observe geometry used in the everyday world. Using patterns, symmetry and geometric shapes, students in groups of 3 will create a quilt square designed from hypothetical instructions written by a classroom teacher who sews quilts. Before designing their quilt square, each member will be assigned a role to research the different designs. Using information learned from the WebQuest, each group will analyze and critique the qualities and geometric components of the design of each quilt, then create a quilt square using what they have learned about patterns, shapes and symmetry. Upon completion of the group design, each student will complete a one page rationale about their design identifying the geometric pattern by stating their rules and how they extended the pattern by generalizing and showing the symmetry of the quilt square.		
Driving Question	How can we create a work of art for interpreting, understanding and appreciating our geometric world?		
Content and Skills Standards to be addressed:	**G.GS.04.01** Identify and draw perpendicular, parallel, and intersecting lines using a ruler and a tool or object with a square (90º) corner. **G.GS.04.02** Identify basic geometric shapes including isosceles, equilateral, and right triangles, and use their properties to solve problems. **G.TR.04.04** Recognize plane figures that have line symmetry. **M.TE.04.10** Identify right angles and compare angles to right angles. M.**PS.04.09** Solve contextual problems about perimeter and area of squares and rectangles in compound shapes. **R.CM.04.01** Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses. **R.CM.04.04** Apply significant knowledge from grade-level science, social studies and mathematics texts. **W.GN.04.04** Use the writing process to organize relevant information to draw conclusions. **ART.II.VA.EL.1** Apply knowledge of materials, techniques and processes to creative artwork.		

		T+A	E		T+A	E
21st Century Skills to be explicitly *taught and assessed* (T+A) or that will be *encouraged* (E) by project work, but not taught or assessed:	Collaboration	T+A		Other: Webmaster Literacy	T	
	Presentation	A		Communication - Written	T+A	
	Critical Thinking:		E			

			Presentation	
Culminating Products and Performances	**Group:**	Use WebQuest to develop ideas for quilt square. Design and create quilt square. Oral Presentation	Class:	X
			School:	X
			Community:	
	Individual:	Collaborate with group members to create a finished product. Write a rationale for choosing design.	Experts:	
			Web:	
			Other:	

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Entry event to launch inquiry, engage students:	Restorative Practice Circle to assess prior knowledge of geometry. Geometry walk outside to observe geometry in action. Read Trade Books(Native American Legend, Poetry written on quilts). Display quilt products.				
Assessments	**Formative Assessments (During Project)**	Quizzes/Tests		Practice Presentations	X
		Journal/Learning Log	X	Notes	
		Preliminary Plans/Outlines/Prototypes	X	Checklists	
		Rough Drafts	X	Concept Maps	
		Online Tests/Exams		Other:	
	Summative Assessments (End of Project)	Written Product(s), with rubric: Individual Rubric and Presentation Rubric	X	Other Product(s) or Performance(s), with rubric: Classroom collaboration observed by teachers	X
		Oral Presentation, with rubric	X	Peer Evaluation	
		Multiple Choice/Short Answer Test		Self-Evaluation	
		Essay Test		Other:	
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Resources Needed	**On-site people, facilities:**	Computer Lab w/technology instructor, Mr. Smith Mrs. Stoddard Introduction and display finished quilt products			
	Equipment:	Laminator, Digital Camera, Interactive Whiteboard			
	Materials:	Graph paper, rulers, scissors, colored pencils, math templates, pattern & attribute blocks, poster paints, tagboard, trade books, magazines, folders			
	Community resources:				
Reflection Methods	**(Individual, Group, and/or**	Journal/Learning Log: Individual – GEO Walk		Focus Group	
		Whole-Class Discussion: Reading of Trade		Fishbowl Discussion	

	Whole Class)	Books, Restorative Practice Circles			
		Survey		Other:	

PROJECT TEACHING AND LEARNING GUIDE	
Project:	**Course/Semester:**
Knowledge and Skills Needed by Students to successfully complete culminating products and performances, and do well on summative assessments	**Scaffolding / Materials / Lessons to be Provided** by the project teacher, other teachers, experts, mentors, community members
Knowledge of geometric shapes - what characteristics define each shape Familiar with basic patterns - what constitutes a pattern & how one can be created Elements of symmetry - what it means for an object or design to be symmetrical	➔ Lessons in the classroom - practice sorting shapes by characteristics exposure to various patterns in books, clothing, quilts using miras to explore symmetry with shapes
Knowledge of WebQuest	➔ Technology Coach - websites provided -
Quilting	➔ Modeling and Guest speakers Possibly a tour of quilts by a quiltmaker

PROJECT CALENDAR				
Project:		**Start Date:**		
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
PROJECT WEEK ONE				
Informal Assess Background Knowledge of Geometric Shapes/Patterns using Restorative Practice Circle	Read "Lord of the Animals" A Native American Creation Myth by Fiona French Students point out geometric patterns in book and in classroom	Geometry Walk Collect observations in notebook	Read “Pieces: A Year in Poems & Quilts” by Anna Grossnickle Hines Ask driving question	Assign Groups Introduce Task Choose Geometric Web Task: Symmetry, Patterns, Shapes
PROJECT WEEK TWO				
Research assigned topic in computer lab	Research assigned topic in computer lab	Research assigned topic in computer lab	Groups of 3 design quilt pieces	Groups of 3 design quilt pieces
PROJECT WEEK THREE				
Groups of 3 design quilt pieces	Group Construct 3 x 3 quilt piece	Group Construct 3 x 3 quilt piece	Group Construct 3 x 3 quilt piece	Oral Presentations Construct 9 X 9 classroom quilt

Evaluation Rubric

	Beginning 1	Developing 2	Accomplished 3	Exemplary 4	Score
Group work/presentation	The final product only reflects one aspect of expectations and only shows an example of one expert role	The final product does not include all categories of description or does not meet her description but includes the categories	All of the categories in the description have been met. But the final product is not cohesive.	The final product is a cohesive piece with a clear interpretation of the criteria description	
Collaborative Effort	The students have a final product that does not fully demonstrate the three concepts researched, and does not reflect a combination of them	The final product shows a mastery of each category but does not combine them into a fluid final product.	The final product combines all three areas of expertise.	The final product combines all three areas of expertise as well as demonstrate a cohesive unified, collaborative design	
Individual Performance	The student does not cooperate with the group unless asked by the teacher or other group members. The student does not complete their portion of the project	The student completes their portion of the project but cannot relate it to the other students' portions.	The student completes their portion and can make connections with other areas, but has difficulty transferring it to the final product.	The student becomes an expert in their area, learns about the other areas, and is able to transfer this to the final product.	
One page description	The final product is described based on a list of what is included but does not include a description of rationale	The rationale is described but is not directly linked to the assignment	The rationale is described with reference to each area and how it was combined.	The rationale is described with reference to each area, how it was combined, and includes a reflective tone about the assignment	