

Name: Paula Wood
Grade Level: 8th – 10th
Topic: Quilting in Mathematics
Class Time Needed: 3 days

A. Objective

- a. Students will learn the area formulas for rectangles, parallelograms, triangles, trapezoids, and circles.
- b. Students will apply the area formulas to a specific quilt block.
- c. Students will produce a 12" x 12" quilt block.

B. Materials

- a. Eight Hands Round, A Patchwork Alphabet, by Ann Whitford Paul
- b. Copies of actual quilt blocks (several different)
- c. Enlarged drawing of the quilt block (one for each quilt block to be used)
- d. Worksheets 1 and 2
- e. Card Stock
- f. Colored paper
- g. Rulers

C. Resources

- a. Quilting books
- b. Textbook

D. Introduction

- a. Create a foldable as formulas for finding area and perimeter of a rectangle and a parallelogram are introduced. Using these formulas develop the formula for finding the area of a triangle. Most of the students will remember the basic formulas from a previous math class so we are building on previous knowledge. After the term trapezoid is introduced, develop the formula for finding the area of a trapezoid. The formulas for finding the area and circumference of a circle are also introduced but will not be used in the quilting exercises.
- b. After creating the foldable for the formulas used to find area and perimeter, discuss the book Eight Hands Round, A Patchwork Alphabet. Most of the students will be familiar with quilts and their history.
- c. Students are shown an example of a quilt block and the basic shapes of the block are discussed. Within the block, the basic shapes that compose the block will be discussed. The students will then discuss the block using

a basic drawing of the block. This allows them to visualize exactly what they will be doing with the quilt blocks.

- d. The students are then allowed to select, with guidance, from the blocks available (pre-selected by the teacher) and are given worksheet number one and two to complete. In the first worksheet they will identify the shapes involved, identify the formulas that will be used, take the appropriate measurements of the drawn block, calculate the area of individual pieces, and compare the total of their calculations to the actual area of the block.
- e. Once the area calculations have been made and discussed the students will use ratio and proportion to determine the sizes of the pieces that should be used to create a 12" x 12" quilt block in the same pattern as the block they measured. Using their measurements, students will construct the pieces and create the larger quilt block.

E. Assessment

Assessment will be made by checking the worksheets.

F. Modifications

- a. Lower level students will be guided to select a quilt block with a lesser degree of difficulty.
- b. Students with higher ability can be guided to select a block with a higher degree of difficulty.

G. Reflection

This is the first year I have used this project in this form and as it is the class working on this is all boys. I was a bit skeptical as to how they would react to a "quilting" project, but they were all familiar with quilts and had some type of connection whether it was through a love of folk-art or family traditions. Also I have never introduced the formulas all at once, but in my mind if they were given enough practice (that didn't really seem like practice) it might just work.

So far, so good! The students really enjoy creating foldables – they say it is just like taking notes but in a way that is more fun! Also the formulas are all in one place for the students to access easily if they are unable to remember one.

We have at this point finished the foldable and the first worksheet and will be working on the second worksheet and discussing the creation of the 12" x 12" quilt block tomorrow in class. I am anxious to get to the end to see what the outcome will be. These students are very honest and are a very good group from which to obtain feedback.

Quilt Block Problem

October 26, 2006

Name of Quilt Block:

List four facts about this block:

a.

b.

c.

d.

Name of each different shape in the block	Total Number of this shape	Formula used to find area	Measurements		Area

Quilt Block Problem

October 27, 2006

Use worksheet #1 to complete this worksheet.

List the shapes used in your block	List the number of each shape	Calculated Area from Worksheet #1	Total Area for each shape
TOTAL Area of Quilt Block			

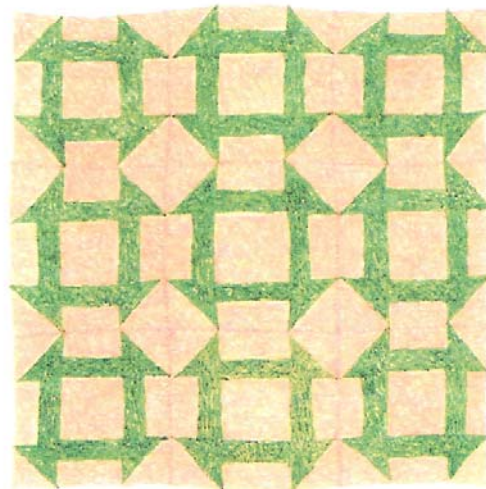
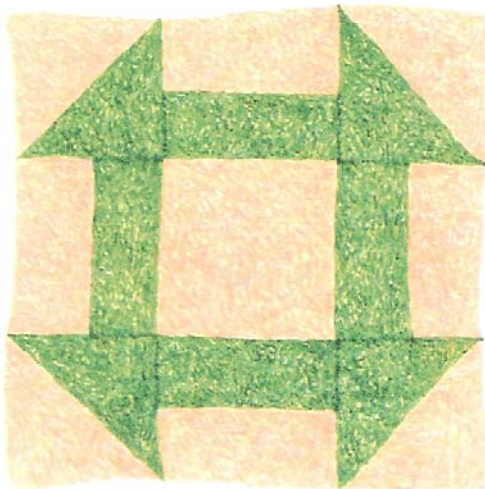
1. What is the area of the quilt block?

2. Is this the same as the Total Area of the Quilt Block calculated above? Explain.

C churn Dash



The family cow provided the milk that was used to make butter. Usually it was the woman's job to milk the cow and pour the cream that rose to the top of the pail into a thin wooden barrel called a churn. Then she rolled the pole sticking out of the churn back and forth between her hands. The rolling turned the dash, which was the wooden piece shaped like this pattern, at the other end of the pole. The dash whipped the cream until it separated into butter. Maybe the idea for this pattern came to someone while churning.



Picture from Eight Hands Round, A Patchwork Alphabet, by Ann Whitfor Paul, ISBN:0-06-024689.

Churn Dash Quilt Block Pattern drawn for student use.

