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EDUC 546: Technology For The Classroom
First Primary Source Project
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This Primary Source Project is designed for 4th grade.

It integrates Math with Language Arts and Art.

Students should be familiar with the following terms (generally first introduced in 3rd grade):
- Flip
- Slide
- Turn

Students should also have a knowledge of simple fractions and basic patterns.
Why do we use quilts?
Did you know that people make quilts not only to keep warm but also as artwork?
Did you know that some of the geometric shapes and patterns we have been studying are found in quilts?
Let's take a look at some examples of quilts. As you look at the quilts, see if you can recognize any shapes and/or patterns that you know.
After slide show, ask students if there were any quilts in particular they thought were interesting.

Be prepared to discuss every quilt (i.e., be knowledgeable about the shapes and patterns in each quilt!).
For example, a student is interested in:

Here a student might point out that the diamonds are turning (rotating) to form a star. The student might also note the A/B pattern of diamonds (dark blue/white) and where that pattern breaks down.
After discussion . . .
Did you know that quilts are often made out of square patches?
We are each going to make a patch and then we are going to put our patches together to make a classroom math quilt.
We are going to use our knowledge of shapes and patterns to design our own creative patch.

Then we are going to use our knowledge of fractions to figure out how much our patch would be worth.
Sound tricky?
It’s not at all!
Let’s take a look.
First everyone is going to get a square patch and a handful of four shapes:

hexagons, trapezoids, parallelograms, triangles.
Why these four shapes?
Remember what we learned while exploring with our pattern blocks?*

*This assumes previous lessons have been taught using pattern blocks and fractions.
6 triangles fit into 1 hexagon
3 triangles fit into 1 trapezoid
2 triangles fit into 1 parallelogram
1 triangle fits into 1 triangle
So if a triangle is worth 10 cents, how much would a parallelogram be worth?

*Remember 2 triangles = 1 parallelogram*
That’s right! 20 cents!

10 cents + 10 cents = 20 cents

OR

10 cents x 2 = 20 cents
Let’s try another one:

If a triangle is worth 10 cents, how much would a trapezoid be worth?

*Remember 3 triangles = 1 trapezoid*
Correct again! 30 cents!

10 cents + 10 cents + 10 cents = 30 cents

OR

10 cents x 3 = 30 cents
One last shape!

If a triangle is worth 10 cents, how much would a hexagon be worth?

*Remember 6 triangles = 1 hexagon*
You're on a roll! 60 cents!

10 cents + 10 cents + 10 cents +
10 cents + 10 cents + 10 cents = 60 cents

OR

10 cents x 6 = 60 cents
So we just figured out how much each shape is worth.

- Triangle = 10 cents
- Parallelogram = 20 cents
- Trapezoid = 30 cents
- Hexagon = 60 cents

Don't worry!
This information will be on your worksheet!
You’re going to be using a lot more than one shape each, so you’ll need to use addition or multiplication to add up your total cost.

You can do it using pencil and paper OR you can use calculators. *Your choice!*
Once you’ve figured out your total cost, there’s space at the bottom of your work sheet to describe your quilt patch.

Make sure to mention your patterns, flips, turns, and/or slides!
Here's some examples of what students might make:
And here’s what a student worksheet for the project might look like:
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My Math Quilt Patch

- I had 16 triangles = 160 cents
  \[ 16 \times 10c = 1.60 \]

- I had 12 trapezoids = 240 cents
  \[ 12 \times 20c = 2.40 \]

- I had 9 parallelograms = 270 cents
  \[ 9 \times 30c = 2.70 \]

- I had 0 hexagons = 0 cents
  \[ 0 \times 60c = 0 \]

The total cost of my design was $6.70. I used 2 AB patterns (parallelogram/trapezoid and triangle/parallelogram.) I used 3 ABC patterns. The first pattern is just trapezoid/triangle/parallelogram. The second is parallelogram, trapezoid, trapezoid flipped. The third ABC pattern is parallelogram, triangle, flipped triangle. I think my design looks like a face.
You could also break this primary source project into parts:

- Just discuss the primary source images using an EPR (every pupil responds) technique using whiteboards—no need for additional project!
- Just making a *pattern* focused quilt patch
- Just making a *slide, flip, turn* focused quilt patch
- Just making a quilt patch and *determine its cost*
Photographs of Quilts from The Library of Congress:

http://memory.loc.gov/ammem/qlthtml/qlthome.html

Printed shapes used to make example quilts from: Kidspiration3

*you can change the colors of the shapes for added pattern/fraction making!*