

Mr. G's Math Marvels

Theme: Mathematics skills

Lesson: Hands-On Activity- Hawaiian Quilts

Facilitator: Gary Walton, Mr. G.

BECON Studio Teacher

Lesson Plan

Grade Level: 3

Sunshine State Standard: MA.C.1.2.1, MA.C.2.2.1, MA.C.3.2.2,

Objective:

1. Students will be able to create a quilting pattern with four lines of symmetry.
2. Students will be able to follow verbal directions to fold the paper into rectangles, squares, and right isosceles triangles.
3. Students will be able to identify the number of lines of symmetry in a square, rectangle, and isosceles triangle.
4. Students will be able to identify the legs and hypotenuse of a right triangle.
5. Students will be able to create the back of the quilting piece with a design that is the reverse of colors from the front. The design is the same. Only the colors are reversed.

Activity:

1. Pick up the darker colored square and fold in half horizontally.
2. With the fold at the bottom, fold in half again so that you again have a square. (It is necessary to fold the right side over the left when creating the squares.)
3. This leaves you with one fold on the right side and two folds on the bottom.
4. Fold the upper right vertex to the opposite vertex (lower left vertex) at the bottom creating a right isosceles triangle.

5. Use your pencil to create a design that begins about an inch from the top of the hypotenuse and ends about an inch from the bottom of the hypotenuse. (Make sure that your design does not get near a side nor a vertex.
6. Cut out the design in one continuous cut. **Do not** go back and trim anything. You will have four congruent pieces when the section is removed from the hypotenuse. Lay these four congruent sections aside for use later.
7. Carefully open up the whole piece of paper with the pattern removed and mash it flat. Pick up the second square and glue the pattern part to it by matching up the top two vertices and the top. Work towards the bottom. Do not try to match up all four vertices at the same time because it will wrinkle in the middle.
8. After you have glued the whole thing down, turn it over to the back side. Hold it up to the light. It is easy to see exactly where to glue the four congruent sections so that the back will be the same design as the front. The only difference is, the colors are reversed.
9. Collect the quilting pieces and lay them into an array. Have the students identify their piece of the large quilt by identifying its coordinates. If you have additional pieces that keep you from creating an array, ask other students to make a second pattern so that an array can be made.

Materials Needed: Two congruent squares of two complimentary colors with one color lighter than the other, pencil, glue or glue stick, and scissors.