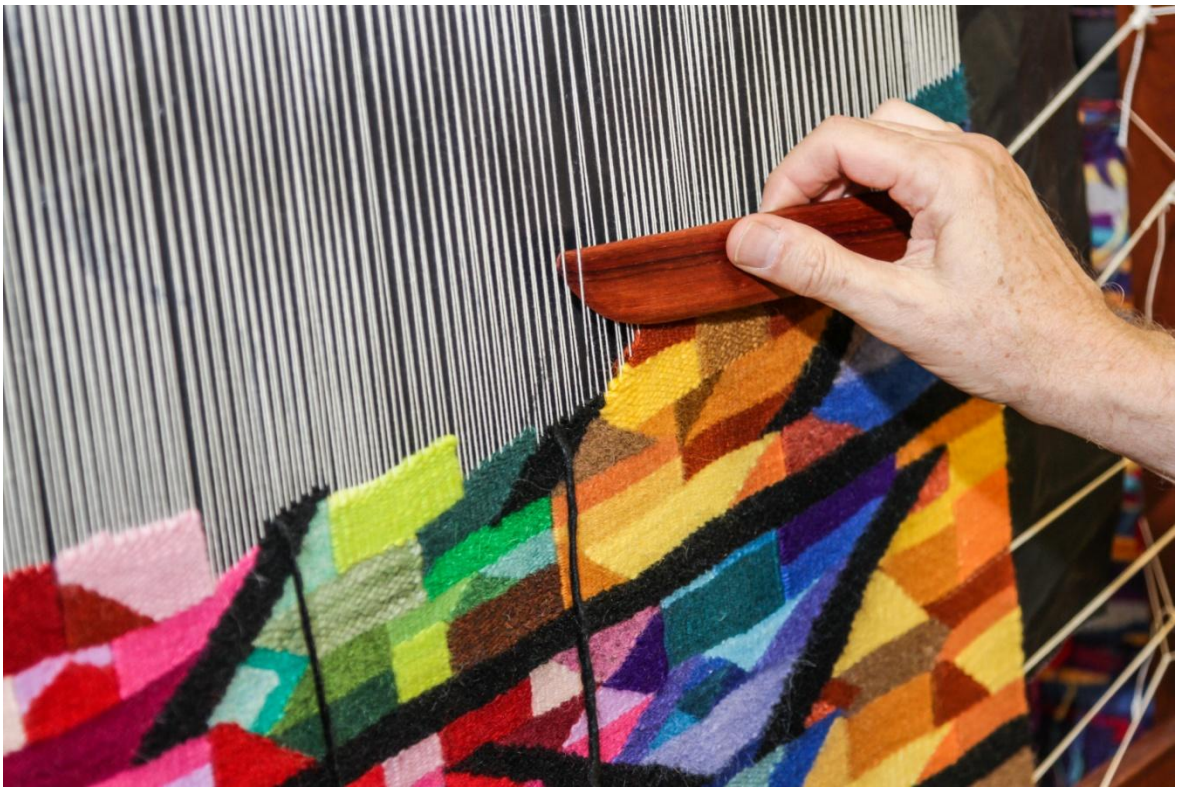
Crafting the Classroom



Integrating Visual and Tactile Learning into Core Subjects

EDUCATOR RESOURCES BY HOUSTON CENTER FOR CONTEMPORARY CRAFT

How to Use *Crafting the Classroom*

Houston Center for Contemporary Craft (HCCC) is a nonprofit arts organization founded to advance education about the process, product and history of craft. HCCC's major emphasis is on objects of art made primarily from craft materials: clay, fiber, glass, metal, wood or found/recycled materials.

Each *Crafting the Classroom* lesson teaches a science, math, social studies, or language arts objective, and a corresponding craft-based art project. Through integrating art into the core subjects, these lessons are designed to increase student engagement with the objective, promote higher order thinking and creative expression, and provide tactile learners with opportunities to excel.

Use these lessons to connect craft with topics that are meaningful to your students and curriculum. For example, many tools, vessels, furniture, clothes, and other items integral to daily life used to be made by hand. Learning about these objects, as well as the skills needed to make and use them, can be a unique way to study world history or other cultures. Replicating decorative patterns can give students a better understanding of geometry. Learning about how craft materials are made and used relates to chemistry, physics, and natural science. These are just a few of the connections that can be made.

Pair these lessons with a visit to Houston Center for Contemporary Craft, where your group can enjoy a free guided tour, visit the craft garden, and observe resident artists in their studios. Optional, hands-on workshops are available upon request.

Please share these plans with other teachers, parents, and administrators.

For more information about HCCC, or to schedule your visit, please visit our website at www.crafthouston.org or call 713-529-4848 Ext. 0

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Weaver from Contemporary Handweavers of Houston
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HOUSTON CENTER FOR CONTEMPORARY CRAFT

MATH AND ART: GEOMETRY QUILTS

LESSON OBJECTIVES

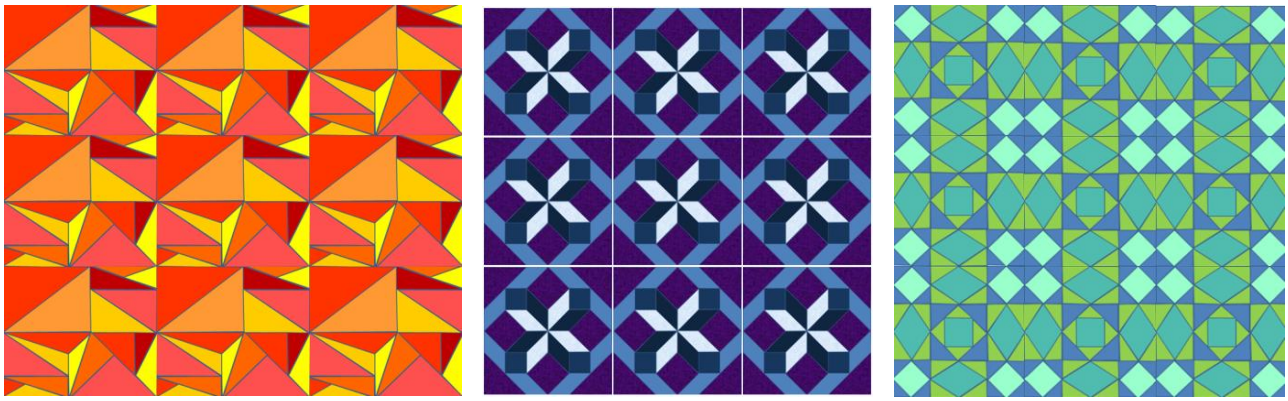
Mathematics (Geometry): Students will tessellate, rotate, flip, and decompose basic geometric shapes to create a patterned "quilt" out of colorful paper.

Fine Arts: Students will learn to discuss and apply the elements of art, including line, shape, color, texture, repetition, pattern, movement, and balance, in creating their quilts.

Relating to craft media: ***Fiber***

MATERIALS NEEDED

- "Pattern Worksheet" and "New Math Vocabulary" handouts for each student
- Colored pencils, markers, or crayons
- Colorful paper and larger white paper for a backing
- Scissors
- Glue
- Pictures of geometric quilts such as these (can be printed or shown on a projector):



Designs such as these can be found by conducting a web search for "geometric quilt designs".

VOCABULARY

Pattern – Shapes, colors, numbers, etc…arranged or repeating following a rule or rules.

Tessellate (tiling) – A pattern of identical shapes, with no overlapping edges or white spaces between shapes.

Rotate – To turn a shape in a circular motion around a central fixed point.

Flip – To turn a shape over, or make a mirror image of it as though flipped over an invisible line.

LESSON OVERVIEW

Introduction of New Material: Class Discussion of Quilt Images

1. Ask students to look at the quilt images with the eyes of a mathematician:

Which shapes do they see? How do those shapes fit together? How are they repeated? Are the shapes different sizes and orientations? Do they see any smaller shapes within larger ones, such as two triangles within a larger square?

How did the artist make the pattern? Did they **flip**, **rotate**, or **tessellate** shapes?

2. Ask students to look at the quilt images with the eyes of an artist:

Which colors do they see? Which shapes and lines? How has the quilt artist used colors and shapes to create a sense of **movement**, straight and curvy **lines, texture**, such as the appearance of **3D forms**, and complex **patterns** throughout the quilt?

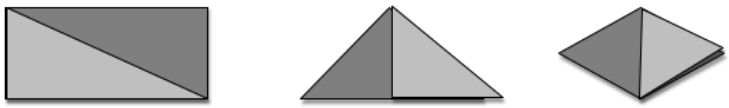
How do these elements combine to create a feeling of **balance** and/or **rhythm**?

Guided Practice: Pattern Practice Worksheet

Using the *attached worksheet,* guide students through the process of creating a pattern through **tessellation** (tiling). Encourage them to **rotate**, **flip**, or use different sizes of the same shape to create more complex patterns.

Independent Practice: Geometry Quilt Making

Provide students with colorful paper or fabric, scissors, glue and white backings.
Show students how they can create new shapes from existing ones by cutting off the angles or folding them in half:

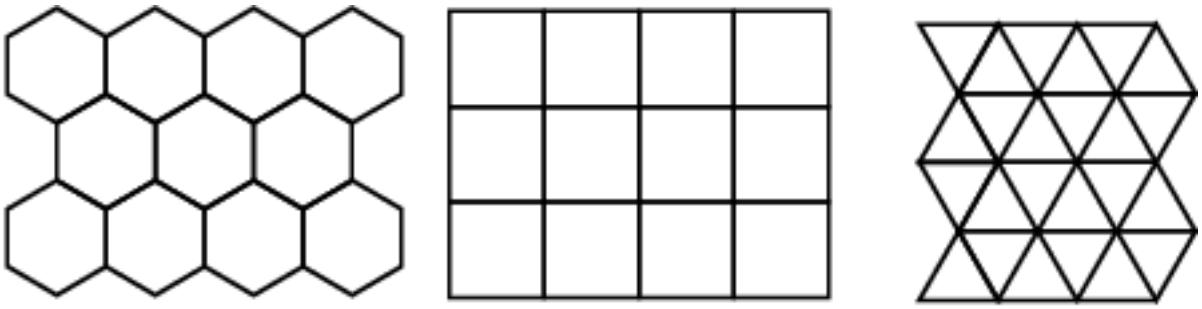


Give students time to create their own geometric "quilts". Encourage them to play around with arranging the pattern before they glue it, to create the desired **movement** and **balance** of **colors** and **forms**, and to get hands-on practice **rotating** and **flipping** shapes.

Conclusion
Have students critique their classmates' "quilts" in pairs or small groups using the same *Eyes of an Artist* discussion questions from the beginning of class.

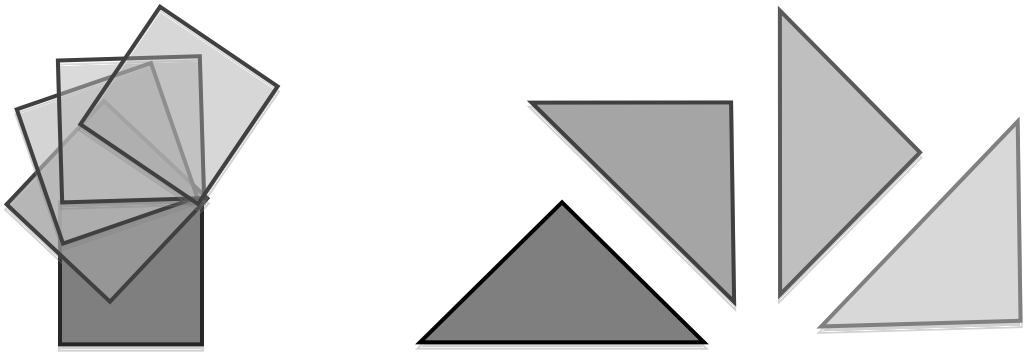
NEW MATH VOCABULARY

Tessellate (tiling) – A pattern of identical shapes, with no overlapping edges or white spaces between shapes.

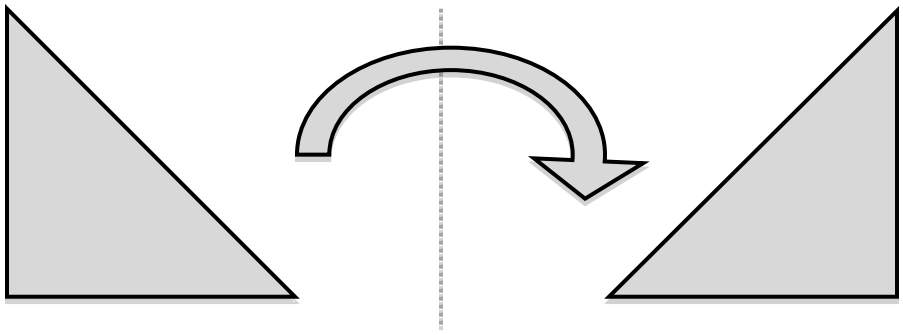


Hexagons **Squares** **Triangles**

Rotate – To turn a shape in a circular motion around a central fixed point.



Flip – To turn a shape over, or make a mirror image of it as though flipped over an invisible line.



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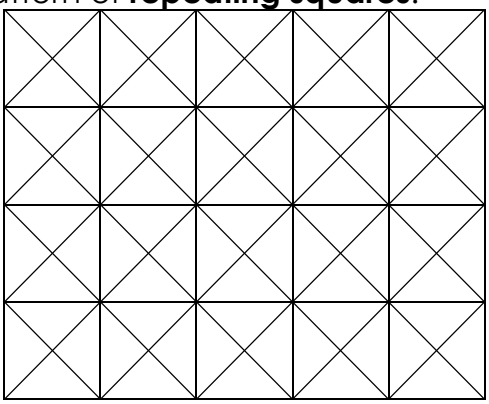
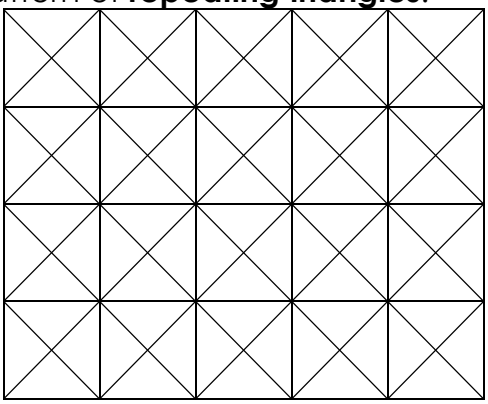
WORKSHEET: PATTERN PRACTICE!

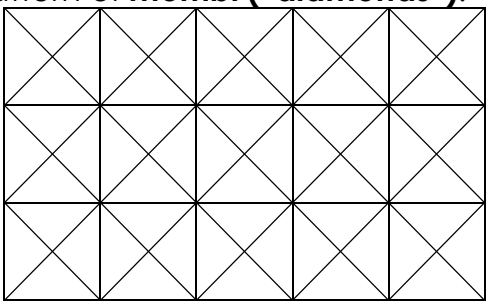
Use crayons or markers to color in a pattern of **repeating squares**:



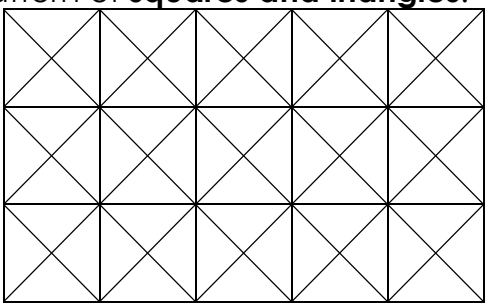
Use crayons or markers to color in a pattern of **repeating triangles**:



Use crayons or markers to color in a pattern of **rhombi ("diamonds")**:



Use crayons or markers to color in a pattern of **squares and triangles**:



Now make your own pattern using **two or more shapes** of different sizes. Try **rotating or flipping** shapes to make them fit together in unique ways: