

Algebra/Geometry Institute Summer 2004

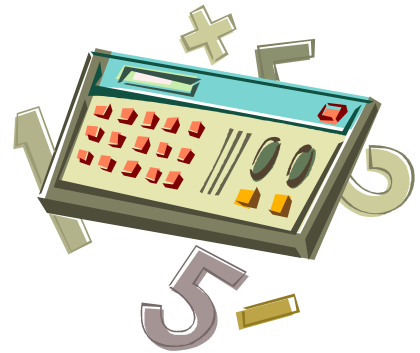
Lesson Plan One

Faculty Name: Andrea J. Brown

School: Coleman Middle School

Greenville, MS

Grade Level: Grades 7-8



1 Teaching objective(s)

Mississippi Framework:

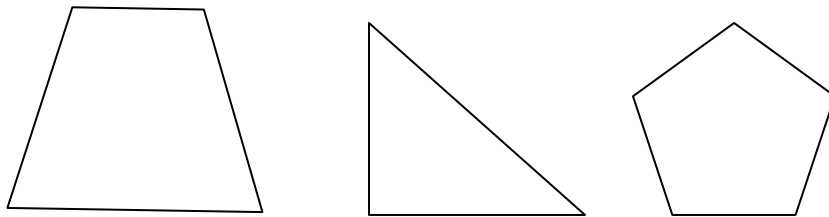
- *5j- The student will perform transformations (rotations, reflections, translations) on plane figures using physical models. (*Note: Using these skills the students will create a tessellation.)*

2 Instructional Activities

(This lesson will be implemented after discussing the skills- translations, rotations, and reflections.)

- *The teacher will display several pattern blocks on the overhead and review the three transformations – (translations, rotations, and reflections). The students will describe or demonstrate one of the assigned transformations using a pattern block. The teacher will discuss the students' response.*
- *The teacher will lead a discussion on tessellations, and provide the students with a definition and examples of tessellations. The teacher will have the students compile a list of where they have seen tessellations and record their responses on the board. The teacher will discuss the students' responses.*
- *The teacher will discuss how to determine whether a figure can form tessellations. The teacher will provide the students with patty paper and copies of three figures. The students will group into threes and draw each figure on a sheet of patty paper. The teacher will have the students determine whether each figure can form a tessellation. If the figure does, the students will show a tessellation using the figure. The students will share their drawings. The teacher will discuss the students' drawings.*

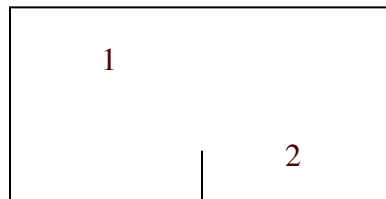
Shapes/Figures:



- *The teacher will have the students use an index card to create a shape. The students will create a tessellation by using the shape repeatedly to cover a sheet of drawing or typing paper.*

Steps to creating a shape using an index card:

- ✓ *Have the students turn the index card the long way and fold or crease the index card at the mid-point. Have the students write the number 1 at the top left-hand side of the index card. On the right-hand side of the fold or crease have the student write the number 2 at the bottom of the index card.*

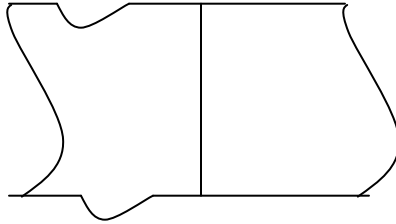


- ✓ *Have the students turn the index card with the small edges to the top and bottom.*
- ✓ *Have the students cut a piece from the top of the card and slide the piece to the bottom of the card. Have the students tape the pieces together.*

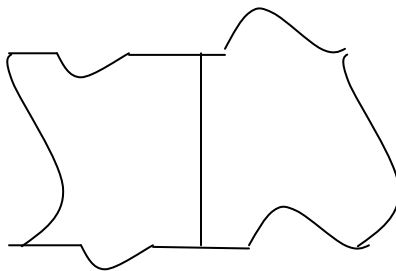


- ✓ *Have the students turn the index to the side.*

- ✓ Have the students cut a section from part 1 of the index card and tape it to the bottom of section 1.



- ✓ Have the students to cut a section from part 2 and tape it to the top of section 2.



- ✓ Have the students use the created pattern to form a tessellation. Have the students use at least two transformations in their tessellations. Provide the students with markers or crayons to color the tessellation. Ask the students to be creative in their coloring by choosing different colors or patterns.
- ✓ Allow at least 20 minutes to cut, draw, flip, slide, and rotate to create a tessellation. (* See Attachment for sample pattern.)

3 Materials and Resources

Prentice-Hall: Pre-Algebra

Website: Tantalizing Tessellations

<http://mathcentral.uregina.ca/RR/database/RR.09.96/archamb1.html>

Scissors

Tape

Index card

Paper

Patty Paper

Pencils

Markers or Crayons

4 Assessment

- *Teacher should observe the students as they work. The teacher should look to see if the students are using the directions correctly, using the pattern created, and using transformations that were discussed from a previous lesson.*
- *Performance Assessment - The teacher will make sure that the students have used a transformation to create a tessellation.*

Attachment: Example of Pattern

