Enduring Understanding
Repetition of congruent shapes/figures and a warm or cool color palette can create unity in a composition.

Geometry Search Journal:
Target: Identifies congruent shapes/figures.
Criteria: Identifies and/or records repeated shapes/figures: same shape/figure, same size.

Target: Makes/Uses templates.
Criteria: Draws math shapes/figures.

Target: Organizes and repeats polygons in composition for unity.
Criteria: Traces around straight-sided shapes; repeats at least one shape/figure multiple times for congruency.

Target: Selects a warm or cool palette.
Criteria: Applies colors only from the blue/green/violet or red/orange/yellow half of the color wheel.

Geometry Search Journal:
Target: Recognizes congruent shapes/figures in the work of others.
Criteria: Identifies and records where same shape/figure, same size is used in peer’s art.

Teaching and Learning Strategies
Introduction to Arts-Infused Concepts through Classroom Activities:

Arts-Infused Concept: Congruent Shapes
Find and record congruent shapes/figures in the classroom environment.

1. Introduces/reviews concept of congruency of shapes/figures. Prompts: This is a lesson that is a visual art lesson and a math lesson at the same time. Repetition of shapes/figures can create unity in an art composition—it can hold a picture together visually (unite it!) What is the math name for repeated shapes/figures that are the same size and shape/figure? Congruent! Introduces Writing Lessons by Dennis Evans: Prompts: Identify congruent shapes/figures in this art and record matching shapes/figures in your Geometry Search Journal. What effect does the repetition of
shapes/figures have in this art? What if every single shape/figure was different? What math understanding does the artist use?

Student: Analyzes art and records shapes/figures in Geometry Search Journal. Checks for accuracy by comparing notes with partner.

Embedded Assessment: Criteria-based peer critique

2. Demonstrates creating OR using shape/figure templates to use in composition. Prompts: Your job is to use your math kit shape template OR cut a polygon template from tag-board in half to make two polygons. You can share your polygons with your neighbors so you have a group of straight-sided shapes with which to work.

Student: Observes demonstration.

3. Introduces/reviews warm and cool color using a color wheel. Prompts: What colors are cool colors, and what colors are warm colors? Think water, forest, ice for cool...desert, sun and fire for warm colors. I am selecting pencils first that I will be using (you will be showing the teacher that they all match the warm or cool side of the color wheel). I am going to choose either warm or cool colors for my whole composition: I choose cool colors for my art. So I’m looking for the blues, greens, and violets for my palette. I am tracing around each of my shapes/figures, but...I need to have some repetition to help hold my composition together. I am going to trace at least one of my shapes/figures multiple times. I can point them in different directions or flip them, but they will still be congruent. If you have space, and want to repeat another shape/figure, making them congruent, feel free to do that. Notice as I trace my shapes/figures, I am thinking about their placement. I want to fill up the space, but not overlap my shapes/figures. Same shape/figure—same size! They’re congruent!

Now that my whole composition is filled with outlines of shapes, and I have checked to makes sure that some are congruent, I can create patterns of color or shape, light and dark values, or solid color inside of all my shapes/figures until they are all filled with color. I am overlapping color in strokes of different direction and experimenting with other effects while sticking with my cool palette of pencils.

Student: Observes demonstration.

4. Guides creative process. Prompts: Don’t forget to check to make sure you have at least two shapes/figures that are the same size and have the same sides that are the same length. Check in too, with a partner and your teacher on pencil/palette choice—is it warm or cool? Once you have all of your shapes drawn, point the congruent shapes/figures in your composition.

Student: Creates art.

Embedded Assessment: Criteria-based self-assessment.

5. Demonstrates and guides technique possibilities for using water soluble colored pencils. Prompts: Once I have completely filed in all of my shapes and checked for congruency, I am going to use the water color pencil. Now I am carefully adding a small amount of water using a barely wet, small brush—I can create brush effects, extend the color or blend it. I am being very thoughtful and careful to enhance, not distort my shapes. I can also dab away excess water on my brush or paper with a paper towel. It is very important that my shapes/figures are still clear in my composition, so I am not brushing away my shape/figure outlines.

Student: Observes demonstration and creates watercolor effects.

6. Facilitates criteria-based reflection: Displays art on the board. Prompts: Find a work of art (of a classmate) and identify the congruent shapes/figures in their art. Note the artist and record properties/attributes—number of sides and length of sides/name of matching shapes/figures in your
Geometry Search Journal. *What effect does the repetition of shapes/figures and a warm or cool color palette have in the art?*

*Student:* Participates in critique.

*Embedded Assessment:* Criteria-based class critique; criteria-based peer assessment

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**BEFORE next VISUAL ART lesson:**

**Math Centers**

1. Cut out a picture with congruent math polygon shapes/figures from a magazine or other printed material (buildings with repeated congruent window shapes/figures; fabrics with repeated polygon shapes/figures) and glue into Geometry Search Journal. Label the congruent shapes/figures found with their properties/attributes: number of sides, etc.). Switch with a neighbor and see if any are missed!

2. Draw an animal using math shape/figure templates or by tracing around pattern blocks. Try making an animal where there is only one pair of congruent shapes/figures, try making another that is all congruent shapes/figures. Ask a classmate to identify the polygon shape/figure that helped to create the animal.

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**Independent Practice: Congruent—same shape—same size! Count the sides to check!**

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<th>WA Essential Learnings &amp; Frameworks</th>
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<td><strong>Museum Artworks:</strong> TAM: Dennis Evans, <em>Writing Lessons</em>, 2002 color wheels</td>
<td><strong>AEL 1.1 concepts:</strong> shape, warm/cool color palette, unity, repetition</td>
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<td><strong>Art Materials:</strong> Geometry Search Journals water soluble colored pencils tag board scraps pre-cut in small polygon shapes OR shape templates from math kits watercolor paper: 7 x 9 in. scissors</td>
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<td><strong>Grade 4:</strong> describes and compares congruent 2D figures; draws a shape that is congruent to a given 2D shape</td>
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*Third Grade—Visual Art and Math—Congruency: Match Shapes in Compositions*
ARTS IMPACT—ARTS-INFUSED INSTITUTE LESSON PLAN (YR2-AEMDD)
LESSON TITLE: Congruency: Match Shapes in Compositions

ASSESSMENT WORKSHEET

<table>
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<tr>
<th>Disciplines</th>
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<th>ART</th>
<th>ART AND MATH</th>
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<tr>
<td>Concept</td>
<td>SHAPE: Congruent</td>
<td>Palette: Warm/Cool</td>
<td>SHAPE: Congruent</td>
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<td>Student</td>
<td>Identifies and records repeated shapes/figures: same shape/figure, same size in (TAM) art</td>
<td>Draws math shapes/figures</td>
<td>Traces around straight-sided shapes; repeats at least one shape/figure multiple times for congruency.</td>
<td>Applies colors only from the blue/green/violet or red/orange/yellow half of the color wheel</td>
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Criteria-based Reflection Questions: (Note examples of student reflections.)

Self-Reflection: What effect does the repetition of shapes/figures and color palette have in this art? Where is the math congruency in the art?

Peer to Peer: Check in with a partner on pencil/palette choice—is it warm or cool? Look at a classmate’s art and identify the congruent shapes. Record properties/attributes and names of matching shapes/figures in Geometry Search Journal.

Thoughts about Learning:
Which prompts best communicated concepts? Which lesson dynamics helped or hindered learning?

Lesson Logistics:
Which classroom management techniques supported learning?
Teacher: __________________________ Date: __________________________

Third Grade—Visual Art and Math—Congruency: Match Shapes in Compositions

6-1
Dear Family:

Today your child participated in a visual art and math lesson.

We identified congruent shapes/figures in *Writing Lessons*, a work of art by Dennis Evans.

- We talked about and recorded where (the same shape/figure: number and length of sides and size) congruent shapes/figures are seen in art.
- We used shape/figure templates to trace shapes on small pieces of watercolor paper.
- We organized and repeated shapes/figures in composition for unity—we repeated at least two of the same shapes/figures to make them congruent.
- We selected and used a cool color palette—blue/violet/green or warm or a warm color palette—yellow/orange/red to also unify our composition. We applied color using water-soluble colored pencils.

You could make art using congruent shapes/figures by tracing around simple objects multiple times. You could also hide congruent shapes/figures in complex compositions with many, many shapes/figures and challenge others to find them.

**Enduring Understanding**

Repetition of congruent shapes/figures and a warm or cool color palette can create unity in a composition.