

ARTS IMPACT LESSON PLAN

Visual Art and Math Infused Lesson

Geometric Shape Assemblage

Authors: Tracy Whitley, Turner Cagle with Natalie Ramsey

Grade Level: Pre-kindergarten

Enduring Understanding

Geometric forms can be combined to create sculptures, buildings, and other human-made constructions.

Lesson Description (Use for family communication and displaying student art)

Students learn about shapes from math (circles, squares, triangles and rectangles) and positions of those shapes in space (above, below, next to). Students create shape flashcards by tracing wooden forms and practice "reading" them. Flashcards then become visual guides to help create assemblage constructions using geometric wooden forms.

Learning Targets and Assessment Criteria

Target: Learns to use a tool with one hand while drawing with the other.

Criteria: Traces around shapes to make a closed geometric shape.

Target: Creates flashcards of sets of shapes.

Criteria: Traces a geometric shape using wood blocks and pencils more than once on three cards.

Target: "Reads" the flashcards.

Criteria: Recognizes, names, and counts shapes for geometric shape cards and describes relationship of cards/shapes by naming one position word (above, below, next to).

Target: Accurately represents flashcard in assemblage.

Criteria: Glues the same kind and number of shapes (as card) in wood construction.

Target: Combines shapes together in ways that eliminate negative space.

Criteria: Fills box lid with additional wood pieces using up at least 85% of the negative space.

Target: Demonstrates perseverance.

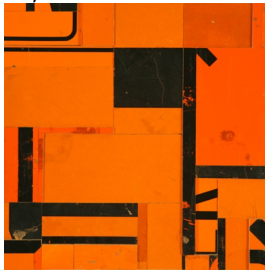
Criteria: Persists, working through challenges to complete a wooden assemblage.

| Vocabulary | Materials | Learning Standards |
|---|--|--|
| <p><u>Arts Infused:</u> Above Below Beside Circle Geometric shape Next to Rectangle Shape Square Triangle</p> <p><u>Math:</u> Face</p> <p><u>Arts:</u> Assemblage Form Negative space Trace</p> | <p>Museum Artworks or Performance</p> <p>Seattle, WA Seattle Art Museum</p> <p>Tacoma, WA Tacoma Art Museum</p> <p>Materials 4" X 6" Cardstock; Pencils; Sample flash card and assemblage; Bags of wood shapes from craft store; Shoe box lids; Elmer's glue; Class Assessment Worksheet</p> <p><i>continued</i></p> | <p>WA Arts State Grade Level Expectations <i>For the full description of each WA State Arts Grade Level Expectation, see:</i> http://www.k12.wa.us/Arts/Standards</p> <p>1.1.2 Elements: Shape and Form 1.1.5 Elements: Space 4.2.1 Connection between Visual Arts and Math</p> <p>Early Learning Guidelines, <i>For a full description of Washington State Early Learning and Child Development Guidelines see:</i> http://www.del.wa.gov/development/guidelines/</p> <p>(Age 4-5) 6. Learning about my world: Math: Create own patterns with a variety of materials. (Age 5 and kindergarten) Name shapes and recognize shapes in the environment. Art: Show an increasing ability to use art materials safely and with purpose.</p> |

Seattle Art Museum images:
Tempel Wandmalerei II (Temple Wall
Painting II), 1920, Paul Klee, 52.107



Tacoma Art Museum images:
Mather, Robert Yoder, 2002



Writing Lessons, Dennis Evans, 2002



Common Core State Standards (CCSS) in Math


<http://www.k12.wa.us/CoreStandards/Mathematics/default.aspx>

K.CC.B. Count to tell the number of objects
K.G.A. Identify and describe shapes.
K.G.B. Analyze, compare, create and compose shapes

CCSS Mathematical Practices

4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.


ICON KEY:

 = Indicates note or reminder for teacher

 = Embedded assessment points in the lesson

Pre-Teach


Introduce geometric shapes and position words.

 From the bags of wood pieces, separate out the forms that have faces representing the following shapes: square, rectangle, circle and triangle.


Lesson Steps Outline

Day One

1. Warm students up by asking them to play with blocks in a circle following teacher directions that review geometric shapes and positional words (above, below, next to...).


 Criteria-based process assessment: Shows examples of shapes and position words.

2. Demonstrate and guide finding the shapes of circles, triangles, squares, and rectangles on the sides (faces) of wood pieces.

 Criteria-based process assessment: Finds pieces of wood that represent the four shapes and names them.

3. Introduce and guide art analysis of *Tempel Wandmalerei II* by Paul Klee from the Seattle Art Museum collection, as well as *Mather* by Robert Wood and *Writing Lessons* by Dennis Evans from the Tacoma Art Museum collection. Discuss the way that the artists combine smaller geometric forms into a larger artwork.

4. Present sample of a flashcard and completed wood assemblage project that matches that flashcard. Demonstrate and guide creating three shape flash cards using geometric forms and pencil.

 Criteria-based teacher checklist: Traces around shapes to make a closed geometric shape. Traces a geometric shape using wood blocks and pencils more than once on three cards.

5. "Reads" the flash cards naming and counting the shapes and naming one position word to describe their placement.

☑ Criteria-based teacher checklist, self-assessment: Recognizes, names, and counts shapes for geometric shape cards and describes relationship of cards/shapes by naming one position word (above, below, next to).

Day Two

- 1.** Demonstrate process of choosing and arranging wood pieces to match cards and gluing them into the box lid.
- 2.** Review negative space with students and demonstrate adding other shapes to fill in almost the entire area of the box.
- 3.** Ask students to choose one of their flash cards, and then select the corresponding number and shapes from the bags of wood pieces that match the card. Guide them as they create assemblages that match the flash cards.

Criteria-based teacher checklist: Glues the same kind and number of shapes (as card) in wood construction.

- 4.** Guide students to use the 21st Century Skill of Perseverance to complete their shape assemblages. Direct them to fill the negative space with extra odd-shaped pieces, working to eliminate (approximately 85%+) all possible negative space.

Criteria-based teacher checklist: Fills box lid with additional wood pieces using up at least 85% of the negative space. Persists, working through challenges to complete a wooden assemblage.

- 5.** Lead a gallery walk reflection.

Criteria-based teacher checklist, self and peer assessment: Glues the same kind and number of shapes (as card) in wood construction. Fills box lid with additional wood pieces using up at least 85% of the negative space. Persists, working through challenges to complete a wooden assemblage. Observes and describes own and others' assemblages.

LESSON STEPS

Day One

1. Warm students up by asking them to play with blocks in a circle following teacher directions that review geometric shapes and positional words (above, below, next to...).

- *We are going to review our position words by using our blocks.*
- *Put your triangle block next to your rectangle block.*

☐ Continue with other shapes and positions.

☑ Criteria-based process assessment: Shows examples of shapes and position words.

2. Demonstrate and guide finding the shapes of circles, triangles, squares, and rectangles on the sides (faces) of wood pieces.

- *Look at the sides or faces of your blocks.*
- *This circle block has a circle on this side.*

☐ Continue showing how to find shapes on all the blocks. Ask students to name the shapes they find.

- *Show me a circle on a block.*
- *Show me a triangle on a block.*
- *Show me a square on a block.*
- *Show me a rectangle on a block.*

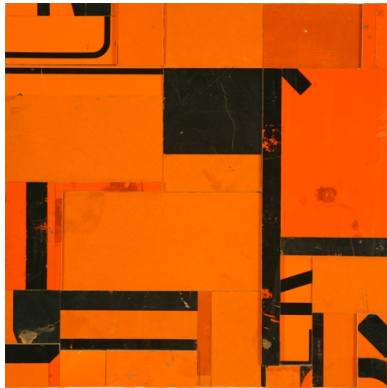
☑ Criteria-based process assessment: Finds pieces of wood that represent the four shapes and names them.

3. Introduce and guide art analysis of *Tempel Wandmalerei II* by Paul Klee from the Seattle Art Museum collection, as well as *Mather* by Robert Wood and *Writing Lessons* by Dennis Evans from the Tacoma Art Museum collection. Discuss the way that the artists combine smaller geometric forms into a larger artwork.



☰ The Seattle Art Museum’s collection is available on-line at:

<http://www.seattleartmuseum.org/emuseum/code/collection.asp>. To find the images in this lesson, enter the accession number for the work of art in the search box on the collections page of SAM’s website. Accession numbers for these works of art are listed in the materials box at the beginning of the lesson.



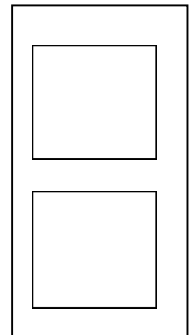
☰ The Tacoma Art Museum’s collection is available on-line at:

<http://tacomaartmuseum2.tru-m.com/Page.aspx?nid=128>

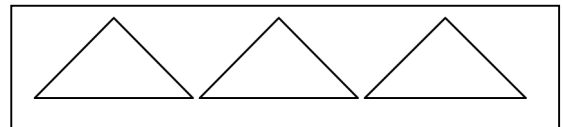
- *What shapes do you see?*
- *Where do you see little shapes that go together to make bigger shapes?*
- *Point to a shape above, below, or next to another shape.*

4. Present sample of a flashcard and completed wood assemblage project that matches that flashcard.

- *What shapes do you see in this card?*
- *How many are there?*
- *How does this card match this wood assemblage?*



Demonstrate and guide creating three shape flash cards using geometric forms and pencil.



(See flash card samples at right.)

- *You will make three flash cards.*
- *To make a flash card, trace around the block shapes to make the geometric shape.*
- *You can put as many as three shapes on each flash card.*

Criteria-based teacher checklist: Traces around shapes to make a closed geometric shape. Traces a geometric shape using wood blocks and pencils more than once on three cards.

5. "Reads" the flash cards naming and counting the shapes and naming one position word to describe their placement.

- *Name the shapes you have made.*
- *Count the shapes on each card.*
- *Name a position word like "next to" or "above" that describes where they are placed in your card.*

Criteria-based teacher checklist, self-assessment: Recognizes, names, and counts shapes for geometric shape cards and describes relationship of cards/shapes by naming one position word (above, below, next to).

Day Two

1. Demonstrate process of choosing and arranging wood pieces to match cards and gluing them into the box lid.

- *We are going to make an assemblage. That is a form of sculpture where objects are combined to make an artwork.*
 - *I'll demonstrate. First I'll choose one of my flash cards. It is the one with three triangles placed next to each other.*
 - *Next I'll choose three triangular shaped pieces of wood.*
 - *I'll glue the wood pieces in my box lid to match their arrangement on my flash card.*
-

2. Review negative space with students and demonstrate adding other shapes to fill in almost the entire area of the box.

- *What is negative space?*
 - *I am going to fill up most of the negative space, the empty space around my triangles.*
 - *I will add wood pieces to my assemblage to use up at least 85% of the empty space in the box lid.*
-

3. Ask students to choose one of their flash cards, and then select the corresponding number and shapes from the bags of wood pieces that match the card. Guide them as they create assemblages that match the flash cards.

- *Choose one of your flash cards.*
- *Look through our bags of wood pieces and find the same kind and number of shapes that match your card.*
- *Glue them into your box lid so they are arranged just like in your flash card.*

Criteria-based teacher checklist: Glues the same kind and number of shapes (as card) in wood construction.

4. Guide students to use the 21st Century Skill of Perseverance to complete their shape assemblages. Direct them to fill the negative space with extra odd-shaped pieces, working to eliminate (approximately 85%+) all possible negative space.

- *We are not finished yet. We have one more step and we won't give up. We will be using the 21st Century Skill of Perseverance! Will you repeat that word with me? PER-SE-VER-ANCE. Let's tap the word into our knees while we say it again. PER-SE-VER-ANCE. Now let's tap while crisscrossing. Tap your right knee with your left hand and tap your left knee with your right hand. PER-SE-VER-ANCE.*
- *We are going to fill at least 85% of the negative space in our assemblages. Look through the wood pieces and find some odd shaped pieces that we will glue into our artworks to fill up the empty spaces.*
- *Use your perseverance. Keep looking for the wood pieces to fill the negative space. You can set the pieces in place and move them around if you need to. Then when you have them where you want them, glue them in.*

Criteria-based teacher checklist: Fills box lid with additional wood pieces using up at least 85% of the negative space. Persists, working through challenges to complete a wooden assemblage.

5. Lead a gallery walk reflection.

- *Display your assemblage on the table. Put your flash card beside it.*
- *Take a gallery walk around and look your assemblage and at the other artists' assemblages.*
- *What shapes do you see? How many?*
- *What positions are the shapes in on the box lids?*
- *How did the artists fill the negative space?*
- *How do you know you used perseverance to complete your assemblage?*

Criteria-based teacher checklist, self and peer assessment: Glues the same kind and number of shapes (as card) in wood construction. Fills box lid with additional wood pieces using up at least 85% of the negative space. Persists, working through challenges to complete a wooden assemblage. Observes and describes own and others' assemblages.

ARTS IMPACT LESSON PLAN Visual Arts and Math Infused Lesson

Pre-kindergarten: *Geometric Shape Assemblage*

CLASS ASSESSMENT WORKSHEET

| Disciplines | VISUAL ARTS/MATH | | MATH | VISUAL ARTS/MATH | VISUAL ARTS | VISUAL ARTS/ MATH | Total 6 |
|--------------|--|---|--|--|--|---|------------|
| Concept | Shape | | Shape and Position | Composition | Negative Space | Perseverance | |
| Criteria | Traces around shapes to make a closed geometric shape. | Traces a geometric shape using wood blocks and pencils more than once on three cards. | Recognizes, names, and counts shapes for geometric shape cards and describes relationship of cards/shapes by naming one position word (above, below, next to). | Glues the same kind and number of shapes (as card) in wood construction. | Fills box lid with additional wood pieces using up at least 85% of the negative space. | Persists, working through challenges to complete a wooden assemblage. | |
| Student Name | | | | | | | |
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. | | | | | | | |
| 7. | | | | | | | |
| 8. | | | | | | | |
| 9. | | | | | | | |
| 10. | | | | | | | |
| 11. | | | | | | | |
| 12. | | | | | | | |
| 13. | | | | | | | |
| 14. | | | | | | | |
| 15. | | | | | | | |
| 16. | | | | | | | |
| 17. | | | | | | | |
| 18. | | | | | | | |
| 19. | | | | | | | |
| 20. | | | | | | | |
| 21. | | | | | | | |
| 22. | | | | | | | |
| 23. | | | | | | | |
| 24. | | | | | | | |
| 25. | | | | | | | |
| 26. | | | | | | | |
| 27. | | | | | | | |
| Total | | | | | | | |
| Percentage | | | | | | | |

What was effective in the lesson? Why?

What do I want to consider for the next time I teach this lesson?

What were the strongest connections between visual arts and math?

Teacher: _____ Date: _____

ARTS AND MATH INFUSED LESSON: *Geometric Shape Assemblage*

Dear Family:

Today your child participated in an **Arts and Math** lesson. We talked about using shapes to create assemblages or sculptures.

- We discovered shapes (circles, squares, triangles and rectangles) and positions of those shapes in space (above, below, next to).
- We created shape flashcards by tracing wooden forms and practiced “reading” them.
- We used the flash cards as guides to create assemblage constructions using geometric wooden forms.
- We used perseverance to keep working until our assemblage was completed.

At home, you could look for the shapes in houses and stores.

Enduring Understanding

Geometric forms can be combined to create sculptures, buildings, and other human-made constructions.