

ARTS IMPACT LESSON PLAN

Dance and Math Infused Lesson

Geometric Stretchy Dance

Author: Joanne Petroff Grade Level: Pre-Kindergarten



Enduring Understanding

Geometric shapes are math shapes with names – circle, square, rectangle, and triangle. Dancing geometric shapes can help us recognize them in the world around us.

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

In this lesson, students will make basic geometric shapes using their bodies and stretchy bands. They will describe the shapes and also compare and contrast their choices to those of their peers. Using general and self-space in an alternating pattern, they will create a dance using the shapes they created earlier in the lesson.

Learning Targets and Assessment Criteria

Target: Identifies and makes geometric shapes.

Criteria: Uses a stretchy band and body to create triangles, rectangles, squares, and circles.

Target: Identifies and compares characteristics of geometric shapes.

Criteria: Describes the attributes of a chosen shape (triangle, rectangle, square, or circle); and then describes similarities or differences between own shape and shapes of peers.

Target: Dances in general space and makes shapes in self-space.

Criteria: Moves in empty spaces between dancers, then makes a series of geometric shapes remaining in one spot using the stretchy band.

Vocabulary

Arts Infused:

Relative Sizes:

Big/bigger

Short/shorter

Small/smaller

Tall/taller

Math:

Geometric Shapes:

Circle

Rectangle

Square

Triangle

Arts:

Beat

Count

General Space

Pattern

Self-space

Shape

Materials

Museum Artworks or Performance

Seattle, WA

Pacific Northwest Ballet

UW World Series of Dance

Tacoma, WA

Children's Museum of Tacoma

Broadway Center for the Performing Arts

Materials

Drum/percussion instrument; Large examples of geometric shapes: triangle, square, circle, rectangle; Stretchies; Basket, box, or bag to collect stretchies; Computer with internet connection and projector; Class Assessment Worksheet

Music

Music for Creative Dance, Volume IV by Eric Chappelle
"Five Senses" by Debbie Gilbert or
Best of Shenanigans CD 1 by Shenanigans

continued

Learning Standards

WA Arts State Grade Level Expectations

For the full description of each WA State Arts Grade Level Expectation, see:

<http://www.k12.wa.us/Arts/Standards>

1.1.1 Elements: Shape, Place, Relationship

1.2.1 Skills and Techniques:

Locomotor Movements

1.4.1 Audience Skills

2.1.1 Creative Process

2.2.1 Performance Process

2.3.1 Responding Process

4.2.1 Connection between Dance and Math

Early Learning Guidelines (Pre-K – Grade 3)

For a full description of Washington State Early Learning and Child Development Guidelines see:

<http://www.del.wa.gov/development/guidelines/>

(Age 4-5) 3. Touching, seeing, hearing and moving around: Using the large muscles (gross motor skills): move with purpose from one place to another using the whole body; show balance and coordination; enjoy challenging him or herself to try new and increasingly difficult activities.

continued

Video

Tensile Involvement, by Alwin Nikolais
www.youtube.com/watch?v=AfxsFTDWWnw
(start 1:30 into clip)

(Age 4-5) 6. Learning about my world: Math: Match and sort simple shapes; identify by sight how many are in a small group of objects. Arts: show creativity and imagination.

Common Core State Standards (CCSS) in

Math For a full description of CCSS Standards by grade level see:

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

K.CC. Count to tell the number of objects.

K.G.2. Correctly identify shapes, regardless of their orientations or overall size.

K.G.4. Analyze and compare two-dimensional shapes in different sizes and orientations, using informal languages to describe their similarities, differences, parts and other attributes.

K.MD.2. Directly compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute, and describe the difference.

K.MD.4. Classify objects into given categories; count the number of objects in each category.

K.G. Identify and describe shapes.

K.G.2. Correctly name shapes, regardless of their orientations or overall size.

K.G.4. Analyze and compare two-dimensional shapes in different sizes and orientations, using informal language to describe their similarities, difference, parts, and other attributes.


CCSS Mathematical Practices


MP.4. Model with mathematics.

MP.5. Use appropriate tools strategically.

MP.7. Look for and make use of structure.

ICON KEY:

 = Indicates note or reminder for teacher

 = Embedded assessment points in the lesson

Pre-Teach

Students should have some experience with identifying simple geometric shapes and body shapes, as well as self and general space, in dance.

Lesson Steps Outline

Day One

1. Lead students in BrainDance Warm-up.

Music: #18 "Potpourri" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

2. Guide exploration of dancing with a stretchy band using a move-and-freeze structure.

Music: #4 "Islands" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

3. Direct students to identify and make geometric shapes with a stretchy band.

Music: Drum

Criteria-based teacher checklist: Uses a stretchy band and body to create triangles, rectangles, squares, and circles.

4. Ask students to choose, create, and describe a geometric shape of own choice and compare to shapes made by others.

Music: #9 "Skippity Jig" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

Criteria-based teacher checklist, peer assessment: Describes the attributes of a chosen shape (triangle, rectangle, square, or circle); and then describes similarities or differences between own shape and shapes of peers.

5. Lead reflection.

Criteria-based reflection and discussion: Makes a shape. Names the shape.

Day Two

1. Lead students in BrainDance Warm-up from Day One.

Music: #18 "Potpourri" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

2. Guide students to choose, create, and describe a geometric shape of own choice and compare to shapes made by others.

Music: "Five Senses" by Debbie Gilbert

Criteria-based teacher checklist, peer assessment: Describes the attributes of a chosen shape (triangle, rectangle, square, or circle); and then describes similarities or differences between own shape and shapes of peers.

3. Create a dance using movements through general space and geometric shapes in self-space.

Music: "Five Senses" by Debbie Gilbert

Criteria-based teacher checklist: Moves in empty spaces between dancers, then makes a series of geometric shapes remaining in one spot using the stretchy band.

4. Show video, Nikolais Dance Company. Lead reflection/discussion.

Video: Nikolais Dance Company, *Tensile Involvement*, www.youtube.com/watch?v=AfxsFTDWWnw (start 1:30 into clip).

Criteria-based reflection and discussion: Identifies and compares shapes made by professional dancers.

LESSON STEPS

Day One

- ▣ Prepare the classroom for dance.



Movement Safety



Moving Desks/Set-up

1. Lead students in BrainDance Warm-up. (Originally developed by Anne Green Gilbert, www.creativedance.org, reference: *Brain-Compatible Dance Education*, video: *BrainDance, Variations for Infants through Seniors.*)

Music: #18 "Potpourri" from *Music for Creative Dance, Volume IV*, by Eric Chappelle



BrainDance

- ▣ Have the students practice their counting skills by joining you in counting the number of times you perform a movement. Reinforce their understanding of size and height by making movements small and large, tall and short.

- *We'll use the BrainDance to warm up our bodies to get us ready to dance. It will make our brains work better at the same time.*

Breath

- (Sitting) *Your muscles and your brain need oxygen, so inhale through your nose and exhale through your mouth like you are blowing out a candle. Breathe deeply. Use your finger to show me as you blow out 1 candle. Now 2 fingers to represent 2 candles, 3 candles. Let's see if we have enough music as we blow out 4 candles.*

Tactile

- (Standing) *Wake up your hands. Tap from the top of your head all the way to your toes. Let's count 8 taps down then 8 counts up. Count with me.*

Core-Distal

- (Standing) *Grow into a big shape. Shrink into a small shape. Grow into a bigger shape. Shrink into a smaller shape. Try tilting and balancing your big shape.*

Head-Tail

- (On hands & knees) *Curl your spine, rounding and arching like "cat/cow". Wag your tail. Shake your head. Do both at once. Make a bigger shape by pushing up to hands and feet like "downward facing dog".*

Upper Half

- (Standing) *The top half of your body dances, while the lower half is frozen. Do small movements with your hands. Make the movement smaller by just moving your fingers. Make the actions bigger by using your whole arm as you make big circles.*

Lower Half

- (Sitting) *The lower half of your body dances, while the upper half is frozen. Draw circles with your feet. Draw squares.*

Body-Half Right

- (Standing) *Your left side is frozen and only the right side dances. Make half a butterfly, half a lizard. Draw a rectangle with both your hand and foot. Make the rectangle taller.*

Body-Half Left

- (Standing) *The right side is frozen and the left half dances. Make half a butterfly, half a lizard. Draw a rectangle with both your hand and foot. Make the rectangle taller.*

Cross-Lateral

- (Standing) *Use your hands to draw lines crossing in front of your body. What other crisscross movements can we do?*

Eye Tracking

- (Sitting) *Keep your eyes on your right hand. Move it from one side to the other and up and down. Watch your left hand as you move it from side to side and up and down.*

Spin/Vestibular

- (Standing) *Swing and jump, then turn and freeze in a shape. Repeat.*

Breath

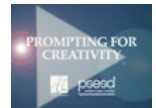
- (standing) *Breathe quietly.*

2. Guide exploration of dancing with a stretchy band using a move-and-freeze structure.

Music: #4 "Islands" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

▣ Hand out stretchy bands and review safety guidelines: no snapping them at other people; don't ever put them around the front of your neck; etc. Review concepts of **self space**, **general space**, **shape**, and **kinesphere/space bubble gum**.

- *When you hear the music, move in self-space, one spot, with your stretchy and freeze when the music stops. Explore how you and your stretchy can move and freeze.*
- *Find as many ways as you can to stretch your band when you freeze. Make it tall or short, wide, twisted, your own choice.*
- *Now let's dance through the general space, the safe, empty spaces between the other dancers. Remember to freeze when the music stops.*



Prompting for Creativity

3. Direct students to identify and make geometric shapes with a stretchy band.

Music: Drum

▣ The stretchy bands are strips of 4-way stretch fabric about 3 inches wide and 4-6 feet long tied tightly together to make a loop.

▣ Use large geometric forms as a visual cue in addition to saying the name of the shape – triangle, etc.

- *Let's practice making our geometric shapes by using the stretchy to make the shape. Here's a triangle. How many sides does it have? 3!*
- *Let's make triangles! On my drumbeat make a triangle. "Ready, set, shape".*
- *Show me another way can you make a triangle. "Ready, set, shape." Make that triangle bigger. Make it smaller.*
- *What shape is this? (Students respond, "triangle!") A triangle has 3 sides and 3 angles.*

▣ Count the sides and the points, holding up correct number of fingers.

- *Here's a rectangle. How many sides does it have? Right, 4, and the opposite sides are equal in length.*
- *On my drumbeat make a rectangle. Ready, set, shape (drum beat).*
- *How else can you make your rectangle? Ready, set, shape. Make the tallest rectangle you can. Ready, set, shape (drum beat).*

▣ Ask, "What shape is this?" Students respond "Rectangle", each time they make the rectangle. Add the chant..."a rectangle has 2 long sides and 2 short sides and 4 right angles". Count the sides and the points (hold up correct number of fingers).

▣ Continue same exploration introducing squares and circles. Have students name the attributes of the shapes. Add the chant: "a square has 4 equal sides and 4 right angles" or "a circle is round, it curves around, and has zero angles" (make a zero with your hand).



Criteria-based teacher checklist: Uses a stretchy band and body to create triangles, rectangles, squares, and circles.

4. Ask students to choose, create, and describe a geometric shape of own choice and compare to shapes made by others.

Music: #9 "Skippity Jig" from *Music for Creative Dance, Volume IV* by Eric Chappelle

▣ Structure this exploration as a variation on the basic move-and-freeze structure by using 16 counts of the music for the section dancing through the general space. Then, pause (not stop!) the music in order for the students to make their shapes with the stretchy bands, count, and describe them. Continue from the point you paused in the music. Students dance during the next 16 counts.

- *Let's start by sitting and listening to the music and tapping the beat.*
- *Now let's count 16 beats.*
- *When you hear the music, move in general space for 16 counts throughout the room. When the music stops, freeze using the stretchy to make either a triangle or rectangle shape.*
- *Be clear about the shape you make, because I will ask you to count with me how many triangles we see. Then we'll count how many rectangles we see.*

▣ Repeat several times. Change the prompt to ask for squares and circles.

- *This time when the music stops and you make your shape, I may ask you to tell me something about your shape. What is it called? How many sides does it have?*
- *Do you see one of your friends making a similar shape? Is it exactly the same? Is it different? How?*

▣ Repeat the move-and-freeze pattern enough times to be able to assess each student's response. If students are able, let them choose whichever shape they would like from the set of four. This may be considered the initial introduction of the activity and concept and you may want to wait until Day Two to assess. If you are tracking initial understanding of concept, you may assess at this point.

☑ Criteria-based teacher checklist, peer assessment: Describes the attributes of a chosen shape (triangle, rectangle, square, or circle); and then describes similarities or differences between own shape and shapes of peers.

5. Lead reflection.

▣ Have a basket, box, or bag for stretchies to be tossed into after each student has responded.

- *Let's sit in a circle. When I call your name, show and tell me your favorite stretchy shape that you made today. What made it easy or hard to do? Then place your stretchy in the basket and sit down.*

☑ Criteria based reflection and discussion: Makes a shape. Names the shape.

Day Two

1. Lead students in BrainDance Warm-up from Day One.

Music: #18 "Potpourri" from *Music for Creative Dance, Volume IV*, by Eric Chappelle

▣ (Optional) If students are totally familiar with the BrainDance and dancing with the stretchies, you could use them in the warm-up.

2. Guide students to choose, create, and describe a geometric shape of their own choice, and compare to shapes made by others.

Music: "Five Senses" by Debbie Gilbert

▣ An alternative choice for music is: #11 "Seven Jumps", *Best of Shenanigans CD 1*, by Shenanigans

▣ This will be a variation on the exploration from Day One (Lesson Step #4). Use it as a review and an introduction to the music for creating the dance in Lesson Step #3. Start by listening to the new music and then hand out the stretchies.

▣ Be ready to stop the music after the introduction, plus 16 counts and the extra beat. Each time start the music from the beginning of the track.

- *Let's start by sitting and listening to the music and tapping the beat. Now let's count 16 beats. It is different music than we used last time, but we still need to listen for the 16 beats or counts. Start counting after the introduction. We won't count the extra beat after 16.*
- *Now I will hand out the stretchies. When you hear the music, move in general space for 16 counts throughout the room. Remember general space is the empty spaces between other dancers.*
- *When the music stops, listen for the special sound, and then use the stretchy to make one of the geometric shapes we've been talking about. Listen for the special sound in the music. That is when you make your shape.*
- *Be clear about the shape you make, because I will ask you to count with me how many triangles, squares, circles, or rectangles we see. We'll also look for triangles and rectangles that are exactly the same. Or squares and circles that are different sizes.*
- *Do you see one of your friends making a similar shape? Is it exactly the same? Is it different? How?*

▣ Assess at this point for tracking understanding of concept after some practice, or this activity may be a time to allow more experience with the concepts. Also, if you have not had a chance to assess all students the day before, you can complete the assessment now.

☑ Criteria-based teacher checklist, peer assessment: Describes the attributes of a chosen shape (triangle, rectangle, square, or circle); and then describes similarities or differences between own shape and shapes of peers.

3. Create a dance using movements through general space and geometric shapes in self-space.

Music: "Five Senses" by Debbie Gilbert

▣ The alternative, #11 "Seven Jumps", *Best of Shenanigans CD 1*, by Shenanigans, is a folk dance from Denmark. It has a similar structure, but uses 7 shapes instead of just 5.

▣ This dance uses 5 shapes on the special sounds in the music. Depending on the abilities of your students, you can adapt the dance structure below and use the same shape for the first 4 shapes and allow the 5th shape to be a “dancer’s choice”. Or alternate between 2 shapes, again allowing for a 5th “dancer’s choice”. The basic structure is an alternating AB pattern of dancing through the general space for 16 counts (A), and then making shapes that add, or accumulate, one more shape each time you do section (B), the special sounds.

- *We have actually learned most of the “Five Senses” dance we will do today. The first part of the dance we have already practiced. We dance through the general space for 16 counts.*
- *Then on the special sound we’ll make a triangle shape.*
- *We’ll dance through the general space again and then make two shapes: a triangle and a square. You will hear two different special sounds.*
- *The third time we will make 3 shapes (triangle, square, circle), then 4 (triangle, square, circle, rectangle). Each shape will have its own special sound.*
- *Surprise me when we get to shape number 5. It will be your own choice.*
- *Let’s get ready to dance the pattern. Get ready to tiptoe prance through the general space and then make your triangle.*



Movement in
General Space and
Geometric Shapes in
Self-Space Dance

▣ Change the locomotor or traveling movement each time the students dance through the general space. Use tiptoe prance, gallop or side-slide, slow motion run, hop, and dancer’s choice.

Criteria-based teacher checklist: Moves in empty spaces between dancers, then makes a series of geometric shapes remaining in one spot using the stretchy band.

4. Show video, Nikolais Dance Company. Then lead reflection/discussion.

Video: Nikolais Dance Company, *Tensile Involvement*, www.youtube.com/watch?v=AfxsFTDWWnw (start 1:30 into clip).

- *What did you see? What shapes did the dancers make with their stretchies? Were their stretchies the same size as your stretchies? Describe them to me. What else did you notice?*

Criteria based reflection and discussion: Identifies and compares shapes made by professional dancers.

ARTS IMPACT LESSON PLAN Dance and Math Infusion

Pre-Kindergarten Lesson: *Geometric Stretchy Dance*

CLASS ASSESSMENT WORKSHEET

Disciplines	DANCE/MATH			DANCE		Total 5
Concept	Geometric Shape			General and Self-Space Shape		
Criteria	Uses a stretchy band and body to create triangles, rectangles, squares and circles.	Describes the attributes of a chosen shape (triangle, rectangle, square, or circle).	Describes similarities or differences between own shape and shapes of peers.	Moves in empty spaces between dancers.	Makes a series of geometric shapes remaining in one spot, using the stretchy band.	
Students						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
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 dance and math?

Teacher: _____

Date: _____

DANCE AND MATH LESSON: *Geometric Stretchy Dance*

Dear Family:

Today your child participated in an **Arts and Math** lesson.

- We made geometric shapes (circle, rectangle, square, and triangle) using people-size stretchy bands.
- We described and compared our shapes and those of our friends.
- We created a dance, moving in general space and making shapes in self-space (staying in one spot) with stretchy bands.

At home, you could look for different geometric shapes you see around you. Where do you see triangles, rectangles, squares, or circles? Are there any in your furniture? Can you find any in the foods you eat? In nature? In sports?

Enduring Understanding

Geometric shapes are math shapes with names – circle, square, rectangle and triangle.
Dancing geometric shapes can help us recognize them in the world around us.