<table>
<thead>
<tr>
<th>Dance</th>
<th>Sample Target Learning Assessment Criteria</th>
<th>Dance Standard</th>
<th>Math Standard</th>
<th>Dance/ Math Vocabulary</th>
<th>Enduring Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>January and February</td>
<td><strong>Dance Focus Lesson 1a:</strong> <em>Patterns in Dance and Math</em></td>
<td><strong>Target:</strong> Understands and represents ab pattern through math and dance. <strong>Criteria:</strong> Creates and extends alternating units that repeat dance concepts.</td>
<td>AEL 1.1 concepts: pattern, space, levels, shape, directions AEL 1.2 skills and techniques: small group choreography AEL 2: applies a creative process; creates performs and responds to ab pattern dance.</td>
<td>N/A</td>
<td>Repeating body movements and shapes can represent and extend patterns.</td>
</tr>
<tr>
<td>January and February</td>
<td><strong>Dance Infused Lesson 1b:</strong> <em>Analyzing and Using Numeric Patterns</em></td>
<td><strong>Target:</strong> Analyzes numerical patterns. <strong>Criteria:</strong> Identifies repeating units and series of units.</td>
<td>AEL 1.1 concepts: shape, direction AEL 1.2 skills and techniques: Performs combinations of movements 2.2.F: Create and state a rule for patterns that can be generated by addition and extend the pattern.</td>
<td>Dance: choreography direction movement phrase unit patterns self space general space locomotor movements non-locomotor movements Math: pattern pattern series shape</td>
<td>Looking for and using numeric patterns simplifies understanding and provides organization and unity. AMEN!</td>
</tr>
</tbody>
</table>
Enduring Understanding

Repeating body movements and shapes can represent and extend patterns.

Target: Demonstrates dance concepts.
Criteria: Dances self and general space, high and low levels, forward and backward directions, and/or side-to-side directions.

Target: Understands and represents AB pattern through math and dance.
Criteria: Creates and extends alternating units that repeat dance concepts.

Target: Creates choreography, performs and documents a dance with an AB pattern.
Criteria: Selects contrasting dance concepts (e.g. high and low); chooses movements using dance concept; repeats movements in alternating units; adds a beginning and ending shape; rehearses, performs, and notates the dance.

Teaching and Learning Strategies

1. Prepares students for dancing patterns by discussing pattern in dance, math, and everyday living. Displays dance word of the day sign: “pattern.” Prompts: This is an arts-infused lesson about patterns that links dance and math. Where do you see patterns in this room? Student: Considers and discusses the shared concepts of pattern in math and dance and life. Discussion based on prior knowledge. Embedded Assessment: Criteria-based teacher checklist

2. Leads students in BrainDance warm-up. (Originally developed by Anne Green Gilbert, video reference: Brain Dance, Variations for Infants through Seniors). Music: Eric Chappelle, #20 “Potpourri” from Music for Creative Dance, Volume III. Prompts: This version of the BrainDance includes many AB patterns. See if you can recognize them. Demonstrates the dance using the following sequence of movements:

   Tactile: Rub hands. Tap body lightly from head to toe. Stomp feet.

   Breath and Core-Distal: Breathe in through the nose and out the mouth. Repeat. Gradually increase the size of the breath, growing from the center of the body when you inhale, and shrinking when you exhale. Prompts: Shrink low, expand high, shrink low, expand high. Head-Tail: Curl the body forward from head to tailbone. Curl it backwards. Prompts: Curl forward, curl back, curl forward, curl back ... Curve from side-to-side several times.

   Upper Half: Stabilize the lower half of the body and only the top half dances. Prompts: Reach up, reach to the sides, reach up, reach to the sides.

   Lower Half: Stabilize the upper half of the body. Only the bottom half dances (stay in one spot). Prompts: Move your leg forward, and back, and forward, and back ... Switch legs.
**Body-Half Right:** Stabilize the left half of the body. *Prompts: Only the right side dances. Alternate up and down movements.*

**Body-Half Left:** Stabilize the right side of the body. *Prompts: Only the left side dances. Alternate up and down movements.*

**Swing:** *Prompt: Swing upper body up and down several times.*

**Cross-Lateral:** *Prompts: Reach across the body with one hand and then the other. Repeat several times. Do the same with a foot. Repeat several times. Repeat hand cross-lateral movements and then foot cross-lateral movements.*

**Spin and Jump:** *Prompts: Spin clockwise. Stop and jump in place. Spin counterclockwise. Stop and jump in place.*

**Reflection:** *What AB patterns did you observe in the BrainDance?*

**Student:** Participates in warm-up according to teacher prompts.

3. **Reviews dance concepts of self/general space, high/low levels, forward/back directions, side-to-side directions, and shapes.** Displays dance word signs for each concept. Uses two different percussion instruments to cue a **Move and Freeze** exploration of the concepts. *Prompts: When you hear the drum, dance in self-space, staying in one spot. When the drum stops, freeze in a shape. When you hear the bell, dance in the general space, traveling through all the empty space in the room. When the bell stops freeze in a shape. Alternate self and general space in an AB pattern. Do the same with high/low levels, forward/back directions, and side-to-side directions.*

**Student:** Explores concepts, moving and freezing to musical cues in AB patterns.

4. **Demonstrates and directs the AB Pattern Circle.** Guides students to stand in a large circle. Makes a high shape. Asks student to the right to make a low shape. Continuing counterclockwise, directs students to make shapes alternating high and low to extend the pattern, until there is a full circle of shapes. Repeats the Pattern Circle using self-space and general space. (Use only a little general space, for example a student could start in her spot in the circle, dance to the center and return to her spot.) Using self-space, repeats the Pattern Circle with forward and backward directions and again with side to side directions. **Music:** This exploration could be done in silence or using music with a steady beat and a moderate tempo like “Up and At ‘Em” #11 or “Back At Ya” #8 which has an alternating eight-count phrase, both from *Music for Creative Dance, Contrast and Continuum, Volume IV.* **Prompts:** What other patterns could we dance as a Pattern Circle?

**Student:** Extends patterns in a circle of shapes.

**Embedded Assessment:** Criteria-based teacher checklist: room scan, reverse checklist

5. **Guides students through the Pattern Dance Choreography process.**

   a. **Demonstrates creating an AB pattern** for a brief dance study. Picks a card with the concepts, e.g. “high/low levels.” (Prior to the class create a set of concept cards: “high and low levels,” “self and general space,” “forward and backward directions,” “side-to-side or right and left directions.” For early readers, you could add pictures.) With a small group of students, decides which movements will be high and which will be low. Puts the movements together, alternating high and low in an AB pattern. Repeats the pattern at least three times. Begins and ends in a shape. **Demonstrates how to notate the pattern on the student worksheet.** *Prompts: How would you describe the pattern that we used?*

   b. Divides the class into small groups of about four. **Prompts:** Pick a card. Decide which movements you will do. Create a beginning and ending shape. Practice your dance. Repeat your AB pattern at least three times. (Music: You could alternate using the two percussion instruments, or use the musical selections suggested above.)
Student: Creates, and rehearses an AB pattern dance.

Embedded Assessment: Criteria-based self assessment (student worksheet)

6. Leads students through a performing and responding process. Reviews performer and audience behavior. Prompts: Performers what do you want from your audience? Audience what do you want from your performers? Guides each group to perform its dance and after each group, asks the performers to describe their dance. Prompts: How did you use an AB pattern in your dance?

Student: Performs and describes AB Pattern Dance.

Embedded Assessment: Criteria-based rubric and self-assessment (student choreography worksheet)

7. Reflects with students. Prompts: What other patterns could you dance? How would you dance them?

Student: Reflects and responds.

Embedded Assessment: Criteria-based reflection

Extension (for third-fifth grade students):

Pattern in numbers and movements. Leads a series of movements that create a numerical pattern. Prompts: Clap high twice. 1,2. Stop. Clap low four times. 1,2,3,4. Stop. Clap high six times. 1,2,3,4,5,6. Stop. Clap low eight times. 1,2,3,4,5,6,7,8. Stop. What number pattern did we use? (+2) What would be next in this pattern? (Clap high ten times.) Write the pattern on big paper or a blackboard. Now let's try another pattern. I’ll count to help you do one movement per beat. Demonstrates reaching up 6 times, stopping, reaching down five times and stopping. Prompts: Now do it with me. Reach up six times. 1,2,3,4,5,6. Stop. Reach down five times. 1,2,3,4,5. Stop. Reach up four times. 1,2,3,4. Stop. Reach down three times. 1,2,3. Stop. What number pattern did we use? (-1) What would be next in this pattern? (Reach up two times) Writes the pattern. Repeats this process using other number patterns and movements suggested by students. Small groups could develop pattern dances and other students could guess the rule of the pattern and what would come next in the pattern.

Student: Performs claps in a pattern by adding two claps each time. Performs 'reaches' in a pattern by subtracting one reach with each repetition. Suggests and performs other number patterns and movements.
<table>
<thead>
<tr>
<th>Vocabulary</th>
<th>Materials and Community Resource</th>
<th>WA Essential Learnings &amp; Frameworks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arts Infused:</strong> Math and Dance pattern, AB patterns</td>
<td><strong>Performances:</strong> Broadway Center for the Performing Arts, Tacoma, WA: Do Jump, Peking Acrobats</td>
<td><strong>Essential Learnings</strong>&lt;br&gt;<strong>AEL 1.1 concepts:</strong> pattern, space, levels, shape, directions <strong>AEL 1.1.2 principles of organization:</strong> repetition <strong>AEL 1.2 skills and techniques:</strong> small group choreography <strong>AEL 2 applies creative process:</strong> creates, performs, and responds to AB pattern dance</td>
</tr>
<tr>
<td><strong>Arts:</strong> directions, general space, high level, low level, self-space</td>
<td><strong>Word of the day sign:</strong> Pattern <strong>Large dance word signs for display:</strong>&lt;br&gt;• self and general space&lt;br&gt;• high and low levels&lt;br&gt;• forward and backward directions&lt;br&gt;• side-to-side directions&lt;br&gt;<strong>Set of dance concept cards for small group choreography</strong> (high/low level, self/general space, etc.)&lt;br&gt;<strong>Student pattern choreography worksheets</strong>&lt;br&gt;<strong>Teacher assessment worksheet</strong>&lt;br&gt;<strong>Two percussion instruments</strong>&lt;br&gt;<strong>Music:</strong> <em>Music for Creative Dance, Contrast and Continuum, Volumes III and IV</em></td>
<td><strong>Arts State Frameworks</strong>&lt;br&gt;<strong>Grade 1:</strong> repeats patterns of movement (repetition) <strong>Grade 3:</strong> creates basic movement sequences <strong>Grade 4:</strong> improvises movement using the elements of dance <strong>Grade 5:</strong> creates a simple dance</td>
</tr>
<tr>
<td><strong>Performance Materials:</strong></td>
<td><strong>WORLD SERIES OF DANCE, SEATTLE, WA:</strong>&lt;br&gt;<strong>MOMIX, Lar Lubovitch Dance Company, Compagnie La Calebasse</strong></td>
<td><strong>Math State Frameworks</strong>&lt;br&gt;<strong>Kindergarten:</strong> creates an AB pattern <strong>Grade 1:</strong> creates a variety of repeating patterns <strong>Grade 2:</strong> translates a pattern from one representation to another <strong>Grade 3:</strong> describes the pattern in a number sequence <strong>Grade 4:</strong> creates a number pattern and explains what makes it a pattern <strong>Grade 5:</strong> explains why a given rule fits a pattern</td>
</tr>
<tr>
<td><strong>Arts Impact Core II Art-Infused Summer Institute – Dance – Patterns in Dance and Math</strong></td>
<td><strong>PACIFIC NORTHWEST BALLET, SEATTLE, WA:</strong>&lt;br&gt;<strong>Eyes on Dance, Jewels</strong></td>
<td><strong>Math State Frameworks</strong>&lt;br&gt;<strong>Kindergarten:</strong> creates an AB pattern <strong>Grade 1:</strong> creates a variety of repeating patterns <strong>Grade 2:</strong> translates a pattern from one representation to another <strong>Grade 3:</strong> describes the pattern in a number sequence <strong>Grade 4:</strong> creates a number pattern and explains what makes it a pattern <strong>Grade 5:</strong> explains why a given rule fits a pattern</td>
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</table>
**ASSESSMENT RUBRICS**

<table>
<thead>
<tr>
<th>Patterns in Dance and Math</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>Creates choreography</td>
<td>Consistently repeats both parts of contrasting dance concepts as a pattern (e.g. high and low – high and low – high and low)</td>
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<thead>
<tr>
<th>Patterns in Dance and Math</th>
<th>3</th>
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<tbody>
<tr>
<td>Dances two contrasting dance concepts (e.g. high and low levels)</td>
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<tr>
<th>Patterns in Dance and Math</th>
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<tbody>
<tr>
<td>Selects both parts of contrasting dance concepts and links to specific movements (e.g. identifies high level reaches and low level shakes)</td>
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<thead>
<tr>
<th>Patterns in Dance and Math</th>
<th>1</th>
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<tbody>
<tr>
<td>Selects one part of contrasting dance concepts (e.g. moves in high space)</td>
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</table>

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**ASSESSMENT WORKSHEET**

<table>
<thead>
<tr>
<th>Students</th>
<th>DANCE Concepts: Pattern Circle as part of a group</th>
<th>DANCE and MATH Rubric: 1-4 points</th>
<th>Patterns Choreography</th>
<th>DANCE Math Pattern</th>
<th>Total Points 10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High/low level</td>
<td>Self/ general space</td>
<td>Forward/ backward directions</td>
<td>Side-to-side directions</td>
<td>Creates and extends alternating units that repeat dance concepts</td>
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<td>Total</td>
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</table>

**Criteria-based Reflection Questions:** (Note examples of student reflections.)

**Self-Reflection:** What did you need to do to create an AB pattern in your dance?

**Peer to Peer:** Describe the patterns in the dances you observed. What other patterns could you dance? How would you dance them?

**Thoughts about Learning:**

Which prompts best communicated concepts? Which lesson dynamics helped or hindered learning?

**Lesson Logistics:**

Which classroom management techniques supported learning?

---

Arts Impact Core II Art-Infused Summer Institute – Dance – Patterns in Dance and Math

4-1
ARTS IMPACT INSTITUTE LESSON PLAN—Core Program Year 2 Art-Infused
DANCE LESSON – Patterns in Dance and Math

ASSESSMENT RUBRICS

<table>
<thead>
<tr>
<th>Patterns in Dance and Math</th>
<th>4</th>
<th>3</th>
<th>2</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Creates choreography</td>
<td>Consistently repeats both parts of contrasting dance concepts and links to specific dance concepts (e.g., identifies high level reaches and low level shakes)</td>
<td>Dances two contrasting dance concepts (e.g., high and low levels)</td>
<td>Selects both parts of contrasting dance concepts and links to specific movements (e.g., identifies high level reaches and low level shakes)</td>
<td>Selects one part of contrasting dance concepts (e.g., moves in high space)</td>
</tr>
</tbody>
</table>

SELF-ASSESSMENT WORKSHEET

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>DANCE Concepts: Pattern Circle as part of a group</th>
<th>DANCE and MATH Rubric: 1-4 points</th>
<th>Patterns Choreography</th>
<th>MATH Pattern</th>
<th>Total Points 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>High/low level</td>
<td>Self/general space</td>
<td>Forward/backward directions</td>
<td>Side-to-side directions</td>
<td>Creates and extends alternating units that repeat dance concepts</td>
<td>Chooses movements using dance concept adds a beginning and ending shape; rehearses and performs the dance</td>
</tr>
</tbody>
</table>

Criteria-based Reflection Questions:

Self-Reflection: What did you need to do to create an AB pattern in your dance?

Peer to Peer: Describe the patterns in the dances you observed.

What other patterns could you dance?

How would you dance them?
# Student Pattern Choreography Worksheet

<table>
<thead>
<tr>
<th>Name: ____________________________</th>
<th>Date: ____________</th>
</tr>
</thead>
</table>

## Words

<table>
<thead>
<tr>
<th>Describe your beginning shape.</th>
<th>What is your dance concept for the “A” section? (e.g. high, self-space, forward)</th>
<th>What is your dance concept for the “B” section? (e.g. low, general space, backwards)</th>
<th>Describe your ending shape.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

## Words and/or Pictures

<table>
<thead>
<tr>
<th>Draw your beginning shape.</th>
<th>What movements will you do for your “A” section?</th>
<th>What movements will you do for your “B” section?</th>
<th>Draw your ending shape.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

## Words or Pictures, and a Number

<table>
<thead>
<tr>
<th>Write or draw your pattern.</th>
<th>How many times did you repeat your pattern?</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

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*Arts Impact Core II Art-Infused Summer Institute – Dance – Patterns in Dance and Math*  
4-1
Dear Family:

Today your child participated in a dance and math lesson. We talked about patterns in dance, math, and everyday life.

- We danced using self and general space, high and low levels, forward and backward directions, and side-to-side directions.

- We created, performed, and wrote about an AB pattern dance. We selected contrasting dance concepts (e.g. high and low), chose movements using our own choice of a contrasting pair of dance concepts, alternated movements in an AB pattern, and added a beginning and ending shape.

- We learned how dancers can use mathematical patterns to make a dance.

You could look for patterns in your home and in your yard. You could write or dance the math patterns. How could you use them to make a dance, a song, a drawing?

**Enduring Understanding**

Repeating body movements and shapes can represent and extend patterns.
ARTS IMPACT
SUMMER SCHOOL
ATH/DANCE LESSON – THIRD GRADE

Analyzing and Using Numeric Patterns

Artist/Mentor: Debbie Gilbert; Teacher: Rachal Marcus

**Problem to Solve:** How does use of numeric pattern create structure and unity?

**Understanding:** Looking for and using numeric patterns simplifies understanding and provides organization and unity.

**Brief Description of Task/Project**
Students learn Fanga, a Liberian dance of welcome. Students analyze the patterns in that dance and choreograph original dances using the same patterns.

**Target Learning and Assessment Strategies**

<table>
<thead>
<tr>
<th>Knowledge and skills: The student:</th>
<th>Evidence of Student Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target:</strong> Analysis numerical patterns.</td>
<td>choreography notation of choreography</td>
</tr>
<tr>
<td><strong>Criteria:</strong> Identifies repeating units and series of units.</td>
<td></td>
</tr>
<tr>
<td><strong>Target:</strong> Dances a traditional dance with numeric patterns.</td>
<td></td>
</tr>
<tr>
<td><strong>Criteria:</strong> Repeats three movement phrases each repeated four times and uses similar directions of movement.</td>
<td></td>
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<tr>
<td><strong>Target:</strong> Creates choreography using patterns.</td>
<td></td>
</tr>
<tr>
<td><strong>Criteria:</strong> Creates, notates, and dances a pattern of 3 movement phrases (each repeated 4 times) and an ending shape held for 8 counts.</td>
<td></td>
</tr>
</tbody>
</table>

**Instructional Strategies for the Teacher and Student**

1. **Teacher:** Prepares students for adventures in dancing at summer school by creating agreements/rules for dance behavior. 
   - Prompt: How can we be safe and creative at the same time? Teaches BrainDance Warm-up.
   - **Student:** Contributes to group agreements. Warms up.

2. **Teacher:** Discusses pattern in dance, math, and everyday living.
   - **Student:** Considers the shared concepts of pattern in math, dance, and life.

3. **Teacher:** Teaches the traditional dance: Fanga. 
   - Prompts: The dance you will learn is called Fanga. It originated in Liberia in West Africa and now it is done all over the world, from Nigeria to Hawaii. Fanga is a dance of welcome. As we learn the dance, notice the pattern of the number of times you repeat each movement. It will help you remember the dance.
   - **Student:** Learns the Fanga dance.

4. **Teacher:** Analyzes the patterns in the dance. 
   - Prompts: Fanga is a dance composition, which means that it is a group of steps with a beginning, a middle, and an end. What happens in the beginning of the dance? How many times do we repeat that movement phrase? ... (continues to analyze each movement phrase in Fanga dance).
   - **Student:** Describes patterns in Fanga.

5. **Teacher:** Guides small group choreography. 
   - Divides class into groups of about four. 
   - **Prompt:** Your job is to create an original dance using the same numerical pattern as Fanga.
   - **Student:** Choreographs three movement phrases and an ending shape that correspond to the pattern. Rehearses.

6. **Teacher:** Directs students to write down their choreography. 
   - **Student:** Writes choreography. **Embedded Assessment:** written choreography.

7. **Teacher:** Supports students through the performing and responding process. 
   - After each dance, asks audience to describe the pattern they saw in the dance. 
   - **Prompts:** Performers, what do you want from your audiences? Audience, what do you want from our performers?
   - **Student:** Performs and describes dances. **Embedded Assessment:** Criteria-based peer assessment. Criteria-based teacher assessment worksheet and rubric.
8. **Teacher:** **Guides reflection:** Uses Link-Ups for reflecting. **Prompts:** How did you use patterns in your dance? Where do you find numerical patterns in your daily life? How are patterns helpful?

**Student:** Reflects and responds.

---

**Vocabulary**
- choreography
- direction
- pattern
- pattern series
- movement phrase
- shape
- unit patterns
- self-space
- general space
- locomotor movements
- non-locomotor movements
- dance composition
  (beginning, middle, end)

**Selected Resources**

**Classroom resources:**
- Dance concept charts, word cards
- Music resources: Dancing Math by Crone Thunder;
  Music for Creative Dance, Contrast and Continuum, Volume III

**Student Applications of Learning**
Student recognizes and uses pattern for structure/organization and unity.

**Essential Learnings**
- **MEL 2.1** investigate situations: searching for patterns and exploring a variety of sources
- **AEL 1.1** concepts: shape, direction
- **AEL 1.2** skills: performs combinations of movements
### Target Learning and Assessment Strategies

**Knowledge and skills:** The student:

**Target:** Analyzes numerical patterns.
- **Criteria:** Identifies repeating units and series of units.

**Target:** Dances a traditional dance with numeric patterns.
- **Criteria:** Repeats three movement phrases each repeated four times and uses similar directions of movement.

**Target:** Creates choreography using patterns.
- **Criteria:** Creates, notates, and dances a pattern of 3 movement phrases (each repeated 4 times) and an ending shape held for 8 counts.

#### CHOREOGRAPHY

<table>
<thead>
<tr>
<th>Analyzing and Using Numeric Patterns</th>
<th>4</th>
<th>3</th>
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<th>1</th>
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<tbody>
<tr>
<td>Creates and records choreography</td>
<td>Creates and records a traditional pattern (Fanga) in an original small group dance (Fanga: 3 movement phrases each repeated 4 times and end shape held for 8 counts)</td>
<td>Incorporates part of a traditional pattern (Fanga) in an original small group dance</td>
<td>Notates traditional pattern (Fanga)</td>
<td>Recognizes traditional pattern (Fanga)</td>
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<tr>
<td>Performs choreography</td>
<td>Performs a traditional pattern (Fanga) in an original small group dance choreography fluently</td>
<td>Performs a traditional pattern (Fanga) in an original small group dance choreography</td>
<td>Performs a traditional pattern (Fanga)</td>
<td>Moves in front of a group</td>
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#### ASSESSMENTS WORKSHEET

<table>
<thead>
<tr>
<th>CREATE AND RECORD - Rubric (Weighted Score) Mathematical – Artistic Response</th>
<th>PERFORM – Rubric (Weighted Score) Mathematical – Artistic Response</th>
<th>Total Points</th>
</tr>
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<tbody>
<tr>
<td>recognizes and identifies repeating units in Fanga; notates traditional pattern; incorporates part of a traditional pattern in an original small group dance; creates and records a traditional pattern in an original small group dance (Fanga: 3 movement phrases each repeated 4 times and end shape held for 8 counts)</td>
<td>moves in front of a group; performs a traditional pattern in an original small group dance choreography; performs a traditional pattern in an original small group dance choreography fluently</td>
<td>8</td>
</tr>
<tr>
<td>1-4</td>
<td>1-4</td>
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1. 
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Total

**Percentage**

**Mean**

**Median**

*Teacher Comments:*

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**ARTS IMPACT**

**MATH/DANCE LESSON – THIRD GRADE**

**Analyzing and Using Numeric Patterns**
Dear Family:

Today your child participated in a math lesson and analyzed and used **numeric patterns**.

1. We considered the shared concept of **pattern** in math and dance.

2. We learned and danced the **traditional** patterns and movement of a Liberian dance, **Fanga**, a series of phrases moving in different **directions**: forward/backward, side to side while moving feet and arms in movement with traditional **meaning** of welcome.

3. We analyzed three **movement phrases** and an ending **shape**. We created three movement phrases with an ending shape. We **notated** our dances on paper and used them at first but were careful to create a pattern we could repeat from memory.

4. We rehearsed our dances of patterns and performed them for each other.

At home you could create a series of numeric patterns and assign a movement to each. You could look for patterns of movement in routine tasks.

**UNDERSTANDING**

*Looking for and using numeric patterns simplifies understanding and provides organization and unity.*
SEQUENCE FOR TEACHING STRATEGIES IN NUMERIC PATTERNS (DANCING FANGA)

'N INTRODUCTION TO DANCE (on the first day of summer school)

1) Creates agreements/rules for dance behavior. Charts agreements. Prompt: How can we be safe and creative at the same time?

2) BRAINDANCE WARM-UP
Teaches BrainDance Warm-up. (originally developed by Anne Green Gilbert, video reference: BrainDance, Variations for Infants through Seniors) Music: Potpourri from Music for Creative Dance, Volume III. The dance uses the following sequence of movement patterns: Tactile, Breath and Core-Distal, Head-Tail, Upper Half, Lower Half, Body-Half Right, Body-Half Left, Swing, Cross-Lateral, Spin And Jump.

LINK-UPS FOR REFLECTION

3) Guides reflection: Prompts: Cross your ankles. Hold your arms out in front of you. Turn your thumbs down. Cross one hand over the other so the palms are facing each other. Link up (interlace) your fingers. Bring your hands down and into your chest (“turn inside out”). Take a quiet moment to listen to your breath and think of your answer to the reflection question. Think about how you were safe and creative at the same time. How did you do that?

DAY ONE

TRADITIONAL FANGA
Excerpted from Cultural Diversity and Creative Dance by Debbie Gilbert of the Whistlestop Dance Company, copyright 1992, Debbie Gilbert. This African dance exploration was developed in collaboration with Afua and Adeyemi Harris of Adefua African Music and Dance Company.


2) Introduces the concept of space. Prompts: The dance element of space is the area that is covered by our dance movements. Dancers use self-space and general space. Demonstrates the dance concepts – self-space (dancing in one spot) and general space (moving through all the empty space in the room). Asks the students to describe what they see. Prompt: What is the difference between self-space and general space? Leads exploration of self and general space with Move and Freeze. Describes locomotor movement (movement in general space like walk or skip) and non-locomotor movement (movement in self-space like twist or stretch).

Prompts: When you dance in general space, you dance through all the empty spaces in the room. You are using locomotor movements. Locomotor movements move the body through space. Running is a locomotor movement, but we don’t have enough space to run safely. When you dance in self-space, you stay in one spot. You are using non-locomotor movements. When you are using non-locomotor movements, your actions do not cover space – they don’t travel. When you freeze, you are making a shape. Repeats Move and Freeze using locomotor or non-locomotor words from the dance concept chart or word cards to cue movement. Prompt: The dance that you will learn now has both locomotor movements and non-locomotor movements.

3) Introduces the traditional dance: Fanga. Prompts: The dance you will learn is called Fanga. It originated in Liberia in West Africa and now it is done all over the world, from Nigeria to Hawaii. Fanga is a dance of welcome.

“Fanga is a greeting. The dance says, We greet you from the heaven and the earth and from the heart. We welcome you with open hands.” Adeyemi Harris

“Remember that someone from Africa may see you doing this dance. This dance is a true welcome of Africa. Do it the best that you can.” Afua Harris

(Music: Crone Thunder’s Dancing Math. “Fanga” is also on More Drums of Passion, by Babatunde Olatunji)

4) Teaches the dance steps:

a. NORTH AND SOUTH: As you do 4 steps forward, you will repeat the following arm gesture 4 times. Bend your arms at the elbows with your hands near your mouth, elbows out, and palms towards your face. Next reach the arms on an up and forward diagonal. Bend them on the “and”, the upbeat, so that when you do bend, reach, bend, reach, bend, reach, bend, reach, you count 1, 2, 3, & 4. After 4 steps forward, you do 4 backwards, and your arms reach on a down and forward diagonal. Practice alternating four forward (north) and backward (south) in general space. Repeat forward and back 4 times.

b. EAST AND WEST: With your body facing forward, take three side steps to the right and then touch your left foot beside the right (step, step, step, touch). Repeat to the left in general space. Your arms begin from the heart, palms up, gradually reaching to the right as you move that direction. They do the same to the left. Your eyes follow your hands. Practice alternating right (east) and left (west). Repeat right and left 4 times.

c. HEEL STEP: This is a loose, and joyous step. Put your weight on your right heel, and then full foot. Do it on the left. Let your arms swing naturally. Stay in one spot (self-space). Repeat right and left heel step 4 times.
d. SHAPE ENDING: (dancers’ choice). Hold this shape for 8 counts in self-space.

5) Divides the class into two groups; audience and performers. Discusses appropriate behavior. Prompts: Performers, what do you want from your audience? Audience, what do you want from the performers? Asks performers to dance the Fanga dance. Asks audience to look for patterns in the dance. Asks students to trade roles.

6) Guides reflection: Describes Link-Ups for reflecting. Prompt: Cross your ankles. Hold your arms out in front of you. Turn your thumbs down. Cross one hand over the other so the palms are facing each other. Link up (interlace) your fingers. Bring your hands down and into your chest ("turn inside out"). Take a quiet moment to listen to your breath and think of your answer to the reflection question. (This is from Brain Gym by Dennison where it is called Hook-ups). Prompts: Close your eyes and remember the dance from beginning to end. Do you see any patterns? Describe them.

7) Directs students to write the dance in journals.

**DAY TWO**

1) Reviews traditional Fanga dance. Everyone dances. Prompt: Pay close attention to the patterns in the dance. After we have done the dance, I’ll ask you what they are.

2) Introduces vocabulary. Prompts: Fanga is a dance composition, which means that it is a group of steps with a beginning, a middle, and an end.

3) Analyzes the patterns in the dance. Prompt: What happens in the beginning of the dance? How many times do we repeat that movement phrase? What happens next? How many times do we repeat that movement phrase? What happens next? How many times do we repeat that movement phrase? How does the dance end?

4) Writes the choreography with student input. Uses words, numbers, pictures. Prompt: Look for the patterns. A movement phrase is a few moves put together, like when you put a few words together when you are writing a phrase.

   a. MOVEMENT PHRASE ONE: North and South (4 forward and 4 back - general space) – repeat 4 times
   b. MOVEMENT PHRASE TWO: East and West (2 steps forward, 2 back - general space) – repeat 4 times
   c. MOVEMENT PHRASE THREE: Heel step on right & left (stays in one spot - self-space) – repeat 4 times
   d. ENDING SHAPE: Hold for 8 counts

5) Guides small group choreography. Divides class into groups of about four. Prompt: Your job is to create an original dance using the same numerical pattern as Fanga. Prompts: Today you’ll create movement phrase one. Put some movements together that go forward and backward into a phrase and repeat the phrase four times. Keep the movement phrase short and simple so everyone in your group can do it and remember it. We’ll only be working on this for a few days so your dances will need to be less complex than the traditional Fanga. It may have taken years to create that dance. You can look up at the locomotor moves on the Dance Concept Charts for ideas. Locomotor movements are movements that move the body through space or travel. That means they are happen in general space, just like the first movement phrase in Fanga. You could also use word cards to start: e.g. 2 skips forward, 2 jumps back – repeat 4 times.

   a. MOVEMENT PHRASE ONE: use forward and back directions in general space – repeat 4 times

6) After students have created and practiced movement phrase one, asks students to write down their movement phrase.

7) Leads students through the performance process for the first draft of their dances. Prompts: What do performers want from their audiences? What do audiences want from their performers?


**DAY THREE**

Note: A math extension to reinforce math connections – calculates total number of counts in Fanga.

**Note: Continues to reinforce math connections and dance vocabulary throughout.**

1) Reviews traditional Fanga dance. Everyone dances.

2) Asks small groups to review their movement phrase one and add movement phrases two and three and an ending shape. Prompt: The second movement phrase goes side to side and is repeated 4 times. It happens in general space and uses locomotor movements because it moves through the space. The third movement phrase stays in one spot – self-space and is repeated four times. Since that phrase is in self-space, which doesn’t cover space, you’ll use non-locomotor movements. The ending shape is held for 8 counts. (e.g. 2 skips forward, 2 jumps back – repeat 4 times; 2 steps to the right with sharp arms, 2 steps to the left with sharp arms – repeat 4 times; turn with Egyptian arms – repeat 4 times; group egg shape – hold 8 counts)
a. MOVEMENT PHRASE ONE: use forward and back directions in general space – repeat 4 times
b. MOVEMENT PHRASE TWO: use side to side directions in general space – repeat 4 times
c. MOVEMENT PHRASE THREE: move in self-space – repeat 4 times
d. ENDING SHAPE: hold for 8 counts

3) Directs small groups to write down their dances. **Use words, numbers, pictures.** They can write them in markers on big paper and then they can look at them while they perform. Even though the small group is working together, each individual student should notate the choreography as well, perhaps in a journal. Small groups should support each other throughout the writing process. **Embedded assessment:** Criteria-based comparison of written choreography with dance

4) Supports students through the performing and responding process of this draft of their dances. Tells students that it is OK to look at their written choreography to help them remember while they dance. After each dance, asks dancers to describe their pattern. **Prompts:** Let's review appropriate behavior for showing dances. Performers, what do you want from your audiences? Audience, what do you want from your performers?

5) Guides reflection: Uses Link-Ups for reflecting and review. **Prompts:** Let's review the dance vocabulary we used to create our dance. What is space? General space? Self space? A locomotor movement? A non-locomotor movement? A dance composition?

**DAY FOUR**

**Note:** Continues to reinforce math connections and dance vocabulary throughout.

1) Reviews traditional Fanga dance. Everyone dances.

2) Students rehearse. Helps students refine the dances. (e.g. Dance follows the pattern. Students hold a shape without moving. Students use full bodies. Students maintain concentration throughout the dance. Students perform all movements clearly and with commitment.)

3) Leads students in performance of their dances.

4) Guides student response to performance. **Prompts:** Can you describe how each dance follows the pattern? **Assesses learning. Embedded Assessment:** Criteria-based peer assessment, criteria-based teacher assessment worksheet, rubric

5) Guides reflection: Uses Link-Ups for reflecting. **Prompts:** Congratulations choreographers, you have all created dance compositions – groups of steps with a beginning, a middle, and an end. You used a pattern. Where do you find numerical patterns in your daily life? How are patterns helpful?

**Note:** Throughout the summer continue to reinforce math connections and dance vocabulary. Continue to rehearse and refine dance to build mastery and prepare for performance at the celebration.