



# artsNOW

Integrated learning solutions

## PROBLEM SOLVING WITH MOVEMENT

Grade Band: 4-5

Content Focus: Dance & Math



### LEARNING DESCRIPTION

In this lesson, students will explore problem solving through creating dances and discover why problem solving skills are so important for choreographers.

### LEARNING TARGETS

Essential Questions	"I Can" Statements
How can math be used to inspire choreography?	<p>I can identify and perform the Elements of Dance.</p> <p>I can decipher a given word problem.</p> <p>I can solve a given word problem.</p> <p>I can create and perform choreography that demonstrates the solution to a given word problem.</p>



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## GEORGIA STANDARDS

Curriculum Standards	Arts Standards
<p><i>*This lesson can be used with <b>any math standard</b> that lends itself to being expressed as a word problem.</i></p>	<p><b>Grade 4:</b>            ESD4.CR.1 Demonstrate an understanding of the choreographic process.</p> <p>ESD4.CR.2 Demonstrate an understanding of dance as a form of communication.</p> <p>ESD4.PR.1 Identify and demonstrate movement elements, skills, and terminology in dance</p> <p>ESD4.RE.1 Demonstrate critical and creative thinking in dance.</p> <p><b>Grade 5:</b>            ESD5.CR.1 Demonstrate an understanding of the choreographic process.</p> <p>ESD5.CR.2 Demonstrate an understanding of dance as a form of communication.</p> <p>ESD5.PR.1 Identify and demonstrate movement elements, skills, and terminology in dance</p> <p>ESD5.RE.1 Demonstrate critical and creative thinking in dance.</p>

## SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
<p><i>*This lesson can be used with <b>any math standard</b> that lends itself to being expressed as a word problem.</i></p>	<p><b>Anchor Standard 1:</b> I can use movement exploration to discover and create artistic ideas and works.</p> <p><b>Anchor Standard 2:</b> I can choreograph a dance.</p> <p><b>Anchor Standard 3:</b> I can perform movements using the dance elements.</p> <p><b>Anchor Standard 7:</b> I can relate dance to other arts disciplines, content areas, and careers.</p>

## KEY VOCABULARY



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Content Vocabulary	Arts Vocabulary
<p><i>*Specific content vocabulary will depend on the math concept students are learning.</i></p>	<ul style="list-style-type: none"> <li>● <u>Choreography</u> - The art of composing dances and planning and arranging the movements, steps, and patterns of dancers</li> <li>● <u>Choreographer</u> - A person who creates dances</li> <li>● <u>Non-locomotor</u> - This refers to a movement that does not travel through space</li> <li>● <u>Locomotor</u> - This refers to a movement that travels through space</li> <li>● <u>Steady beat</u> - An unchanging, continuous pulse</li> <li>● <u>Elements of Dance</u> - Body, action, space, time and energy</li> </ul>

## MATERIALS

- Sound source and music with a steady beat
- Paper and pencils
- Written word problems on cards

## INSTRUCTIONAL DESIGN

Opening/Activating Strategy
<p><i>Classroom Tips: Allow for some open space to create and perform. Review audience etiquette expectations before students perform for their peers.</i></p> <ul style="list-style-type: none"> <li>● Play Pass the Movement with students. <ul style="list-style-type: none"> <li>○ Begin by having students stand in a circle.</li> <li>○ The objective of the game is to create a sequence of movements by passing a dance move around the circle or group, with each student adding their unique twist.</li> <li>○ Each student will create a simple movement and "pass" it to the next student, who will then repeat the movement and add their own.</li> <li>○ Choose one student to start the game. This student will perform a simple movement, such as a clap, a jump, a spin, or a wave. Encourage students to focus on creating shapes and angles with their bodies.</li> <li>○ The starting student then "passes" this movement to the next student by making eye contact and gesturing towards them.</li> </ul> </li> </ul>



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- The next student repeats the initial movement and then adds their own unique movement.
- This student then "passes" the combined movements to the next student.
- Each subsequent student repeats the previous movements in the correct order and adds their own new movement.
- Continue passing the movement around the circle or along the line until all students have had a turn.
- Once the movement has gone all the way around, have the group perform the entire sequence together from start to finish.

### Work Session

- Tell students that they will be using the Elements of Dance to enact the solution to a word problem.
- Begin by engaging students in movement that introduces students to the Elements of Dance: Body, action, space, time and energy.
  - Have students arrange themselves in the classroom with enough personal space to move freely without touching a neighbor.
  - Turn on instrumental music with a steady beat.
  - Element of Body: First, have students bring awareness to their bodies by leading them through gentle stretches starting from the head and moving to the toes (e.g., head circles, shoulder shrugs, toe touches, etc.). Then, ask them to make different shapes with their bodies.
  - Element of Time: Next, bring students' awareness to the rhythm of the music by having them march in place to the beat, gently swinging their arms by their sides.
  - Element of Energy: Now, direct students to explore energy variations with different movement qualities such as sharp movements—quick, precise actions like punches or snaps, and smooth movements—slow, flowing actions like waves or circles with arms.
  - Element of Space - Levels: Bring students' attention to levels (high, middle, low) with movements such as stretching up high and moving on tiptoes, crouching in a small ball close to the floor, and bouncing in place at a middle level.
  - Element of Action - Locomotor/non-locomotor: Tell students that these movements they just performed were non-locomotor, meaning that they didn't move to a new location. Direct students to perform a movement that requires moving from one place to another, such as step-together, step-together moving side to side.
  - Have students practice what they just learned by saying words such as "locomotor" and have students create a spontaneous locomotor movement.
  - Have students return to their seats.
- Next, divide the class into small groups. Assign each group a word problem (it can be the same word problem or different word problems depending on students' levels).
  - For example, "You must choreograph a dance combination that is 4 counts of 8 in length. The dance must have an equal number of locomotor and non-locomotor movements."
  - Students should solve the word problem mathematically. For example, "What is the total number of counts in the dance (32)? How many locomotor movements will you have (16)? How many non-locomotor movements will you have (16)?"
  - Next, students will create choreography to answer the word problems. Students can arrange their choreography as they would like as long as it meets the criteria of the word problem.



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- Example 1: First 4 counts - locomotor movement, second 4 counts - non-locomotor, third 4 counts - locomotor, fourth 4 counts - non-locomotor, fifth 4 counts - locomotor movement, sixth 4 counts - non-locomotor, seventh 4 counts - locomotor, eighth 4 counts - non-locomotor.
- Example 2: First 4 counts - non-locomotor, second 4 counts - locomotor, third 4 counts - locomotor, fourth 4 counts - non-locomotor, fifth 4 counts - locomotor, sixth 4 counts - locomotor, seventh 4 counts - non-locomotor, eighth 4 counts - non-locomotor.
- Both dances have 32 counts total, 16 of which are locomotor and 16 of which are non-locomotor.

### Closing/Reflection

- The students will perform their movement phrases for their classmates. Discuss appropriate audience participation and etiquette prior to performances.
- After students perform, groups will read their word problem to the class, show their solution and how it went with their performed choreography.
- If all groups used the same word problem, discuss how different groups created different choreography based on the same criteria.

## ASSESSMENTS

### Formative

Teachers will assess students' understanding of the content throughout the lesson by observing students' participation in the activator, ability to make different types of movements using the Elements of Dance, ability to understand and correctly solve the word problem, and collaboration in group choreography.

### Summative

#### CHECKLIST

- Students can identify and perform the Elements of Dance.
- Students can decipher the given word problem.
- Students can solve the given word problem.
- Students can create and perform choreography that correctly demonstrates the solution to the given word problem.

## DIFFERENTIATION

**Acceleration:** Raise the challenge of the word problem by including more steps, such as a minimum of four different types of movements that students will select and perform.

#### Remediation:

- Scaffold the lesson by solving a word problem as a class and creating choreography as a class before individual group choreography.
- Differentiate the level of word problems depending on student ability.



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## ADDITIONAL RESOURCES

NA

*\*This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*

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## **ATLANTA BALLET**

Centre for Dance Education

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