



**UNIT: VOLUME OF RIGHT RECTANGULAR PRISMS**  
**DISCOVERING VOLUME THROUGH CHOREOGRAPHY (Lesson 1 of 5)**

**Grade Band: 5**

**Content Focus: Dance and Math**



**LEARNING DESCRIPTION**

In this lesson, students will discover how the volume of a right rectangular prism can be found by creating choreography to represent the formula for volume.

**LEARNING TARGETS**

Essential Questions	"I Can" Statements
How can I find the volume of a rectangular prism?	I can find the volume of a right rectangular prism.
How can I create a piece of choreography that demonstrates how to find the volume of a right rectangular prism?	I can create a piece of choreography to demonstrate how to find the volume of a right rectangular prism.



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## GEORGIA STANDARDS

Curriculum Standards	Arts Standards
5.GSR.8.3 Investigate volume of right rectangular prisms by packing them with unit cubes without gaps or overlaps. Then, determine the total volume to solve problems.	ESD5.CR.1 Demonstrate an understanding of the choreographic process.  ESD5.CR.2 Demonstrate an understanding of dance as a form of communication.

## SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
5.MDA.3 Understand the concept of volume measurement. a. Recognize volume as an attribute of right rectangular prisms; b. Relate volume measurement to the operations of multiplication and addition by packing right rectangular prisms and then counting the layers of standard unit cubes; c. Determine the volume of right rectangular prisms using the formula derived from packing right rectangular prisms and counting the layers of standard unit cubes.	<b>Anchor Standard 1:</b> I can use movement exploration to discover and create artistic ideas and works.  <b>Anchor Standard 2:</b> I can choreograph a dance.

## KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"> <li>• <u>Volume</u> - The amount of space occupied by a three-dimensional object or shape</li> <li>• <u>Height</u> - The perpendicular distance from the base of a shape or object to its topmost point</li> <li>• <u>Length</u> - The distance from one end of an object to the other along its longest side</li> <li>• <u>Width</u> - The measurement of the shorter side of an object or shape when compared to its length; it is usually the horizontal dimension</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Choreography</u> - The art of designing and arranging sequences of movements, steps, and gestures to create a dance piece</li> <li>• <u>Levels</u> - One of the aspects of movement (there are three basic levels in dance: high, middle, and low)</li> <li>• <u>Locomotor</u> - a movement that travels through space</li> <li>• <u>Non-locomotor</u> - A movement that does not travel through space</li> <li>• <u>Rhythm</u> - The pattern of timed beats and movements that align with the music</li> </ul>



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- Three-dimensional figure - A figure that has length, width, and height

## MATERIALS

- Volume equations
- Music (optional) for students performances (upbeat instrumental music is recommended)
- Rubric (see “summative assessment”)

## INSTRUCTIONAL DESIGN

### Opening/Activating Strategy

- Explain to students that different levels can be used in choreography to communicate different ideas.
  - Have students get into a circle facing each other. Explain to them that they will follow your movements.
  - Start showing them one movement and have them copy you to the rhythm of a steady beat.
  - Change the movement to one of a different level. Explain to students that there are levels in dance—high, medium, low. Now, put the two movements together.
  - Next add locomotor movement moving either to the side, front, or back. Put the three movements together and have students follow along. Explain that when we put movements together, we create choreography.
  - Allow students to take turns being the “leader” showing a new movement that the class will follow. Encourage them to utilize levels and locomotor movement to add variety.

### Work Session

- Next, explain to the students that they will be using choreography to help them understand and remember how to find the volume of right rectangular prisms.
  - Address the misconception that volume is the same as area.
- Divide the students into small groups.
  - Instruct students to create a movement sequence that demonstrates the formula for finding volume.
  - Students must create a movement for length, width, height, and volume as well as a movement to show “multiply” and “equal”. Students will have seven movements total in their choreography.
  - Students must use levels and locomotor and non-locomotor movements in their choreography.
  - Monitor student work by circulating and providing guidance as needed.
- After groups have choreographed their movement sequences, assign each group three volume equations to solve. Students should use the formula to solve each equation.

### Closing/Reflection



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- As a class, ask students to share one thing they learned about finding volume through choreography. This can be done as a whole class or with a neighboring student.
- Ask students how they used choreography as a tool of communication in this lesson.

## ASSESSMENTS

### Formative

- Ask questions throughout the process to assess whether the students understand volume.
- Make observations of the choreographic process to ensure the students are using the dance vocabulary and applying it to the task in a meaningful way.

### Summative

- Student work on the three volume equations
- Rubric for choreography:

Criteria	0 Points	1 Point	2 Points	3 Points
Accuracy of Choreography	Choreography does not represent how to find the volume of a rectangular prism	Choreography partially represents how to find the volume of a rectangular prism	Choreography mostly represents how to find the volume of a rectangular prism	Choreography accurately represents how to find the volume of a rectangular prism
Creativity and Originality	Choreography lacks creativity and originality	Choreography shows some creativity and originality	Choreography displays creativity and originality to some extent	Choreography demonstrates high levels of creativity and originality
Execution and Technique	Poor execution and technique, with significant errors	Average execution and technique, with some errors	Good execution and technique, with minor errors	Excellent execution and technique, with no errors
Presentation and Performance	Presentation and performance lack clarity and confidence	Presentation and performance demonstrate some clarity and confidence	Presentation and performance show good clarity and confidence	Presentation and performance are clear, confident, and engaging
Overall Impact and Effectiveness	Choreography has minimal impact and effectiveness in conveying the concept	Choreography has some impact and effectiveness in conveying the concept	Choreography has good impact and effectiveness in conveying the concept	Choreography has strong impact and effectiveness in conveying the concept

## DIFFERENTIATION

**Accelerated:** Challenge students to create their own choreography sequence that represents a different geometric shape. Instruct them to write down the corresponding volume formula and steps to find the volume of the shape they created.

**Remedial:**



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- Create choreography for the formula to find volume as a class.
- Have students solve the volume with smaller numbers and whole numbers only.

## ADDITIONAL RESOURCES

## CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning  
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