

Notes/Reflections:

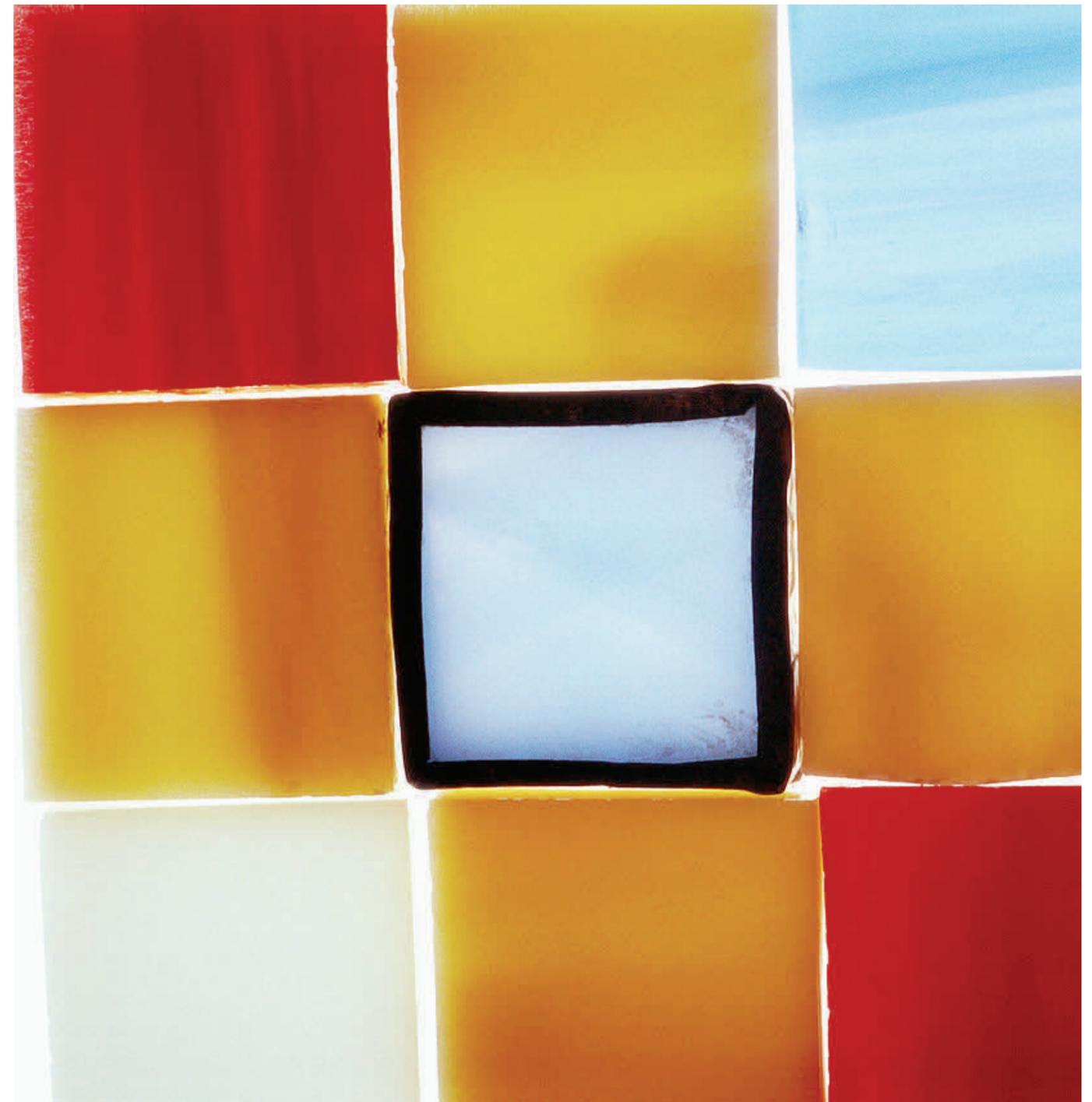
ATLANTA BALLET

Centre for Dance Education

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Embodying Math Concepts • Angles • Plane Shapes •
Geometric Solids • Coordinate Planes



Explore math themes and concepts with your students
through the process of movement!

Use movement and the creation of human structures to aid in comprehension of angles, plane shapes and geometric solids.

Essential Question:

How can dance/movement aid in comprehension of geometry concepts?

Process

- Basic movement warm-up
- Explore (with bodies) ways to create angles (right, acute, obtuse), plane shapes and geometric shapes.
- View dance photography
- Identify angles, plane shapes and geometric shapes found in photos. Outline each type in a different color crayon/marker. Discuss the attributes and classification of the shapes as appropriate for grade level.
- Break class into groups
- Students will select one type of: angle, plane shape and geometric shape and create human structures utilizing selection.
- Perform to whole group.
- Audience will identify shapes and angles within structure.

Assessment

- Students should correctly create given shape/angle.
- Students should correctly identify performed shape/angle.

Materials

- Music
- CD player
- Markers or crayons
- Dance photography
- Colored tape

Vocabulary

Pathway

The designs traced on the floor as a dancer travels across space; the designs traced in the air as a dancer moves various body parts

Space

An element of movement involving direction, level, size, focus, and pathway

Formation

The placement of dancers in a performance space

Choreography

The art of composing dances and planning and arranging the movements, steps, and patterns of dancers

Choreographer

A person who creates dances

Acute Angle

an angle less than 90 degrees but more than 0 degrees

Obtuse Angle

an angle between 90 and 180 degrees

Right Angle

An angle of 90°, as in a corner of a square

Plane Shape

A plane shape is a flat, 2-dimensional shape. Example: circle, triangle, square, etc.

Curved Shape

the trace of a point whose direction of motion changes

Angular Shape

a shape having one or more sharp angles

Classroom Tips

Set up chairs and tables in a circular format to maximize students' engagement and ability to see their peers during the activity and performance. Also establish parameters for acceptable movement choices and discuss audience behavior/etiquette with students.

Common Core Georgia Performance Standards

MATHEMATICS

GRADE 6

MCC6.G.1: Find area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

MCC6.G.3: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

MCC6.G.4: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

GRADE 7

MCC7.G.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

MCC7.G.2: Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

MCC7.G.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

MCC7.G.6: Solve real-world and mathematical problems involving area, volume and surface area of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

GRADE 8

MCC8.G.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

MCC8.G.3: Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.

MCC8.G.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

MCC8.G.7: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

MCC8.G.9: Know the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Georgia Performance Standards

DANCE

GRADES 6-8

- DMSFD.1:** Identifies and demonstrates movement elements, skills, and terminology in dance
- DMSFD.2:** Understands and models dance etiquette as a classroom participant, performer, and observer
- DMSCR.1:** Demonstrates an understanding of creative and choreographic principles, processes, and structures
- DMSCO.4:** Demonstrates an understanding of dance as it relates to other areas of knowledge

National Standards

DANCE

- Standard 1:** Identifying and demonstrating movement elements and skills in performing dance
- Standard 2:** Understanding choreographic principles, processes and structures
- Standard 4:** Applying and demonstrating critical and creative thinking skills in dance
- Standard 7:** Making connections between dance and other disciplines