Common Core Geometry in Bridges, Grades K–2

Kindergarten	Grade One	Grade Two
Instructional Focus: • Identify & describe 2-D & 3-D shapes in the environment & in isolation, regardless of orientation, color, or size • Identify & describe positions of objects (above, below, etc.) • Analyze & compare 2-D & 3-D shapes using informal language • Draw & model shapes; compose shapes to form larger shapes	**Instructional Focus:** • Identify defining attributes of 2-D shapes; build & draw shapes to possess defining attributes • Compose 2-D or 3-D shapes to create composite shapes • Explore symmetry & congruent shapes • Partition circles & rectangles into 2 and 4 equal shares	**Instructional Focus:** • Recognize & draw shapes having specified attributes • Identify triangles, quadrilaterals, pentagons, hexagons, cubes • Explore area: partition rectangles into rows and columns of same-sized squares and count to find the total number • Partition circles & rectangles into 2, 3, and 4 equal shares
Resources in Bridges: Vol 1: Sessions 2, 7, 10-12, 14, 15, 33-36, 38, 39, 44, 45, 53, 54 Vol 2: Sessions 117–120 Number Corner: September, Nov., Dec., Jan., & Feb. Supplement Sets C1, C2, C3, C4, C5, C6	**Resources in Bridges:** Bridges: Unit 5, Unit 6 Supplement Sets: C1, C2, C3, C4, C5, C6, C7, C8 Number Corner: Sept. Thurs. Thinking, Jan. Wed. Workout, Nov.-Apr. Calendar Grid	**Resources in Bridges:** Bridges: Unit 1, Unit 3, Unit 4, Unit 7 Number Corner: Dec, Jan, Mar, May Calendar Grid; September–January Magnetic Tile

Kindergarten

Kindergartners
• **Find, identify and describe 2-D and 3-D shapes in the environment using informal language.**

cube

– wood cube
– building block
– toy box
– Jay's polydron cube
– a tissue box
– Jack-in-the-box

A cube is square everywhere. It has 6 sides. It can't roll.

• **Sort 2-D and 3-D shapes in many different ways**

• **Draw and build 2-D and 3-D shapes using a variety of materials including geoboards & bands, pattern blocks, and polydrons**

• **Combine shapes and take shapes apart to make other shapes**

• **Learn to describe the position of an object relative to another object**

The teddy bear is in front of the box.
It's also beside the box.
It is close to the box, not far away.

2

Grade One

First Graders
• **Identify 2-D and 3-D shapes in the environment and in isolation and begin to describe them in terms of their properties.**

cube

– Unifix cube
– wooden block
– alphabet block
– tissue box
– package
– polydron cube

A cube has a square on every side (face).

• **Sort 2-D and 3-D shapes by basic attributes, such as faces and curved surfaces**

• **Begin to think about how many of one shape it takes to build another.**

How many triangles does it take to build this design?

2	2
2	2

= 8 △'s

How did you figure it out?
2 4 6 8

$2 + 2 = 4$
$4 + 4 = 8$

• **Begin to test shapes for symmetry and congruence**

• **Continue to draw and build 2-D and 3-D shapes using a variety of materials**

Grade Two

Second Graders
• **Observe, describe, and classify 2-D and 3-D shapes by their properties**

Corner
Edge
Face

Block	Faces	Edges	Corners
cube			
rectangular prism			
triangular prism			
rectangular prism			

• **Begin to measure shapes using other shapes**

• **Begin to develop definitions of shapes**

pentagon
5 sides
all sides equal
looks like a house
5 lines of symmetry
not a triangle or a square
no curves—all straight sides
if you draw a line from one corner to another, you can get a triangle and a trapezoid.

• **Compose shapes to form symmetrical figures**

• **Use models to change the properties of various shapes**

Common Core Standards Addressed:
CCSS K.G.1, K.G.2, K.G.4, K.G.5, K.G.6

Common Core Standards Addressed:
CCSS 1.G.1, 1.G.2, 1.G.3

Common Core Standards Addressed:
CCSS 2.G.1, 2.G.2, 2.G.3

Common Core Geometry in Bridges, Grades 3–5

| Grade Three	Grade Four	Grade Five
Instructional Focus: • Understand that shapes in different categories may share attributes, and that shared attributes can define a larger category • Triangles, quadrilaterals, pentagons, hexagons & octagons • Parallel & perpendicular lines, congruence, symmetry, area, perimeter, right angles	**Instructional Focus:** • Draw & identify points, lines, line segments, rays, angles, parallel & perpendicular lines • Angle identification & measurement • Classify 2-D shapes by sides & angles • Reflective (line) symmetry • Area & Perimeter	**Instructional Focus:** • Coordinate grids • Understand that attributes belonging to a category of 2-D figures also belong to all subcategories of that category • Classify 2-D figures in a hierarchy based on properties • Volume • 3-D Shapes • Area of polygons
Resources in Bridges: Bridges: Unit 3, Unit 6 Number Corner: November & April Calendar Grid, March Data Collector Supplement Sets: C2, C4, D2, D5, D6	**Resources in Bridges:** Bridges: Unit 1, Unit 4 Number Corner: November & April Calendar Grid Supplement Sets: C1, C3, D6	**Resources in Bridges:** Bridges: Unit 1, Unit 3, Unit 7 Number Corner: Sep, Oct, Jan, Mar, April Calendar Grid Supplement Sets: A10, C1, D2

Third Graders
• Observe, describe, and classify 2-D and 3-D shapes by their properties

• Continue to explore symmetry

• Describe and classify triangles by their side lengths

• Describe and classify quadrilaterals using attributes such as parallel and perpendicular lines, symmetry, and right angles
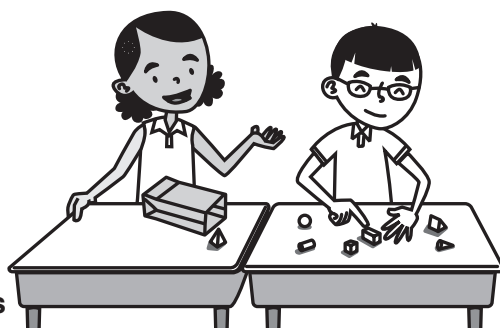
Trapezoid B
• 4 sides
• none of the sides are congruent
• 1 pair of parallel sides
• 2 right angles
• 1 obtuse angle
• 1 acute angle
• 2 pairs of perpendicular line segments
• looks like a robot shoe
• looks like a rectangle and a triangle put together
• it's not symmetrical
• there aren't any dents – it's not concave

Texas Grade Three Supplement Blackline Run a single copy on a transparency.

Rectangle Z

What is the area of Rectangle Z in square units this size?

Z

Estimates:
30, 25, 16, 15, 20, 24, 32, 28

• Estimate and measure perimeter and area of rectangles

Fourth Graders

• Measure shapes (side lengths, angle measures, perimeter, area)

Set D6 Measurement: Area & Perimeter Blackline Run a half-class set and cut the sheets in half.
Name _____ Date _____

Measuring Hexarights

Find the area and perimeter of the hexarights below. Show all your work.

2 cm
2 × 3 = 6 sq cm
3 cm
6 cm
2 cm
3 × 4 = 12 sq cm   3 cm
4 cm
6 + 2 + 3 + 3 + 4 = 18 cm
P = 18 cm   A = 18 sq cm

8 cm
1 × 7 = 7 sq cm
7 cm
1 × 4 = 4 sq cm   4 cm
3 cm
1 cm
1 + 8 + 4 + 1 + 3 + 7 = 24 cm
P = 24 cm   A = 11 sq cm

60°   60°
180°
3 × 60 = 180

Set C3 Geometry: Triangles & More Blackline Run one copy on a transparency.
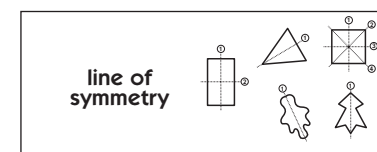
Start with a Point page 3 of 4

9 Now make a dot 2 ½ inches away from point C. Make sure it doesn't land anywhere along line CD. Label it point E.

C   D
    E

10 Use your ruler and pencil to draw ray CE.

C   D
    E

This is angle ∠C. Is your angle acute, obtuse, or right? How do you know?

11 Get another piece of paper. Draw and label:
• Point F
• Point G
• Point H (not along line FG)
• Ray FG
• Ray FH
What is the name of this figure?

• **Draw and identify elements of shapes: points, lines, line segments, rays, angles, line types**

• **Investigate line symmetry in a more formal way than in previous years**

line of symmetry

Fifth Graders
• **Use models and drawings as tools to think with, and begin to look for generalizations and counterexamples**

• **Investigate the converse of certain relationships for validity. For example, the converse of, "If it is a square, it must have four right angles," is, "If it has four right angles, it must be a square.**
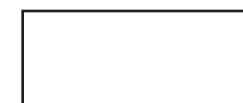
Now wait a minute. I don't think that works. This quadrilateral has four right angles, but it's not a square.

• **Make property lists, and discuss which properties are necessary and which are sufficient conditions for a specific shape or concept**

• **Find the volume of rectangular prisms**

Rectangular Solids with Volume = 12 cm³

Length = 2 cm	Length = 6 cm	Length = 12 cm
Width = 2 cm	Width = 2 cm	Width = 1 cm
Height = 3 cm	Height = 1 cm	Height = 1 cm
$2 \times 2 \times 3 = 12$ cm³	$6 \times 2 \times 1 = 12$ cm³	$12 \times 1 \times 1 = 12$ cm³

Base (a special face: the top and bottom)
Edge: where 2 faces meet
Face: flat surface
Base
Vertex: corner point

Rectangular Prism
• 6 faces all rectangular (2 are bases)
• 12 edges
• 8 vertices
• 2 congruent parallel rectangular bases
• 2 pairs of congruent parallel faces
• every pair of faces that meets is perpendicular
• lots of parallel and perpendicular edges

height (h)
h
base (b)
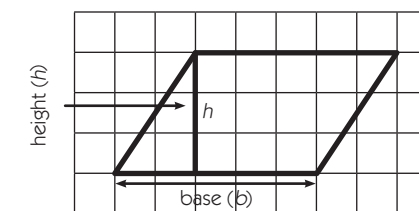
• **Find the perimeter and area of non-rectangular quadrilaterals and triangles**

| **Common Core Standards Addressed:**
CCSS 3.G.1, 3.G.2 | **Common Core Standards Addressed:**
CCSS 4.MD.5, 4.MD.6, 4.MD.7, 4.G.1, 4.G.2, 4.G.3 | **Common Core Standards Addressed:**
CCSS 5.MD.3, 5.MD.4, 5.MD.5, 5.G.1, 5.G.2, 5.G.3, 5.G.4 |