Alpena Montmorency Alcona Educational Service District 6 Pacing Guide
Unit 2: Area of Polygons **17-19 Days**

Math Background:

- Research - TE p123J-123K
- Background - TE p123L-123Z

Last year, students…	This year, students will…	Next year, students will…
Understood that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	Compose and decompose rectablges to derive a formula for the area of a triangle, a parallelogram, and a trapezoid.	Know formulas for the area and circumference of a circle and use them to solve problems.
Classify two-dimensional figures in a hierarchy based on properties.	Solve real world and mathematical problems involving area.	Solve real and world and mathematical problems involving area.
Graphed points in the first quadrant of the coordinate plane.	Draw polygons in the coordinate plane given coordinates.	Draw geometric shapes with given conditions.
Graphed points in the first quadrant to solve real-world and mathematical problems.	Use coordinates to find length of a side joining points with the same first coordinate or the same second coordinate.	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.

Big Idea 1: Derive Area Formulas and Solve Problems: Parallelograms and Triangles
(About 5 days. Suggested date of completion: October 14, 2013)

Vocabulary: perimeter, area, square unit, base, height, square inch, square foot, square centimeter, right triangle, perpendicular, related rectangle, right angle, parallelogram, rhombus, related parallelogram, acute triangle, obtuse triangle, vertex, dimensions

Common Core State Standards for Mathematics [CCSS-M]

CC.6.G.1: Find the 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.
CC.6.EE.2: Write, read, and evaluate expressions in which letters stand for numbers.
CC.6.EE.2c: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations)

Common Core Standards of Mathematical Practice [SMPs]

CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.K-12.MP.4: Model with math.
CC.K-12.MP.5: Use appropriate tools strategically.
CC.K-12.MP.6: Attend to precision.
CC.K-12.MP.7: Look for and make use of structure.
CC.K-12.MP.8: Look for and express regularity in repeated reasoning.

Lesson	Focus	CCSS-M and SMPs	Additional Resources Supplemental/Reteaching Materials Essential (E) Non-essential (NE)	Hints
2.1	**I can** • Use formulas to solve problems involving perimeter and area. • Express measurements using exponents **Formative Assessment:** Ask students to explain the difference between perimeter and area. Students should be able to verbalize that area is the number of square units that cover a figure. Perimeter is the number of linear units around a figure.	G.1 EE.2 EE.2c SMP 1-8	SAB p41-46 (E) HW p31-32 (E) AC 2-1● (NE) AC 2-1 ▲ (NE) AC 2-1 ■ (NE)	Read TE p123U This lesson is almost completely a review of previous grades.
	Lesson 2.1 Notes			
2.2	**I can** • Derive formulas for the area of a right triangle. • Use formulas to solve problems involving perimeter and area. **Formative Assessment:** Ask students to explain how to find the area of a right triangle. Students should be able to explain that the area of a right triangle is one-half the area of its related rectangle, or ½ time based and height of the related rectangle.	G.1 EE.2 EE.2c SMP 1 SMP 3 SMP 4 SMP 5 SMP 6 SMP 7 SMP 8	SAB p47-50 (E) HW p33034 (E) AC 2-2● (NE) AC 2-2 ▲ (NE) AC 2-2 ■ (NE)	Read TE p123V In the “I can” statement to the left, the word *derive* is essential for this lesson. With students, talk about the meaning of the word and why it would be beneficial to derive formulas first instead of memorize them. Emphasize the physical act of cutting a right triangle from a rectangle.
	Lesson 2.2 Notes			

2.3	**I can** • Derive formulas for the area of a parallelogram using a rectangle. • Use formulas to solve problems involving perimeter and area. **Formative Assessment:** Ask students to explain how to find the area of a parallelogram. Students should be able to verbalize that the area of a parallelogram is the same as the area of the related rectangle, which can be found using the formula A=b*h	G.1 EE.2 EE.2c SMP 1 SMP 3 SMP 4 SMP 5 SMP 6 SMP 7 SMP 8	SAB p51A-54 (E) HW p35-36 (E) AC 2-3● (NE) AC 2-3 ▲(NE) AC 2-3 ■ (NE)	Read TE p123W Same notes as in lesson 2.3.
	Lesson 2.3 Notes			
2.4	**I can** • Find the area of any triangle • Identify the height of any triangle. • Recognize that the area of a triangle is always one-half the area of a parallelogram with the same height and base. • Use formulas to solve problems involving perimeter and area. **Formative Assessment:** Ask students to explain why the formula A=1/2 *b*h can be used to find the area of any triangle. Students should be able to explain that two triangles that are the same size and shape can form either a rectangle or a parallelogram, so ½ of the area of the related rectangle or	G.1 EE.2 EE.2c SMP 3 SMP 4 SMP 5 SMP 6 SMP 8	SAB p55A-58 (E) HW p37-38 (E) AC 2-4● (NE) AC 2-4 ▲ (NE) AC 2-4 ■ (NE)	Read TE p123X Same notes as in lesson 2.3.

	parallelogram, ½ *b*h, is the area of one triangle.			
	Lesson 2.4 Notes			
2.5	**I can** • Select of infer the dimensions needed to find the area and perimeter of triangles and parallelograms. • Solve real-world problems. **Formative Assessment:** Ask students to explain what dimensions are needed to find the perimeter of a figure and what dimensions are needed to find the area of a figure.	G.1 EE.2 EE.2c SMP 1 SMP 3 SMP 4 SMP 5 SMP 6	SAB p59-62 (E) HW p39-40 (E) AC 2-5● (NE) AC 2-5 ▲ (NE) AC 2-5 ■ (NE) MCC 5, 6 (NE)	Read TE p123Y
	Lesson 2.5 Notes			
Quiz 1	AG Quick Quiz 1			
Reteach	To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.			

Big Idea 2: Derive Area Formulas and Solve Problems: Trapezoids and Other Polygons
(About 6 days. Suggested date of completion: October 22, 2013)

Vocabulary: trapezoid, complex figures, pentagon, hexagon, octagon, polygon, regular polygon, ordered pair, coordinates

Common Core State Standards for Mathematics [CCSS-M]

CC.6.G.1: Find the 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.
CC.6.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.
CC.6.EE.2: Write, read, and evaluate expressions in which letters stand for numbers.
CC.6.EE.2c: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations)
CC.6.EE.3: Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y*.
CC.6.EE.4: Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*
CC.6.EE.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Common Core Standards of Mathematical Practice [SMPs]

CC.K-12.MP.1: Make sense of problems and persevere in solving them.
CC.K-12.MP.2: Reason abstractly and quantitatively.
CC.K-12.MP.3: Construct viable arguments and critique the reasoning of others.
CC.K-12.MP.4: Model with math.
CC.K-12.MP.5: Use appropriate tools strategically.
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CC.K-12.MP.7: Look for and make use of structure.
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Lesson	Focus	CCSS-M and SMPs	Additional Resources Supplemental/Reteaching Materials Essential (E) Non-essential (NE)	Hints
2.6	**I can** • Derive the formula for the area of a trapezoid. • Use formulas to solve problems involving perimeter and area. **Formative Assessment:** Ask students to describe how to find the area of any trapezoid and give a formula that can be used to find the area of any trapezoid.	G.1 EE.2 EE.2c EE.3 EE.4 SMP 1 SMP 3 SMP 4 SMP 5 SMP 6 SMP 7 SMP 8	SAB p63A-64 (E) HW p41-42 (E) AC 2-6 ● (NE) AC 2-6 ▲ (NE) AC 2-6 ■ (NE)	Read TE p123Y This lesson may take two days. Same notes as lesson 2.3. Push students' math talk in this lesson.
	Lesson 2.6 Notes			
2.7	**I can** • Decompose complex figures into simpler figures. • Solve problems involving perimeter and area. **Formative Assessment:** Ask students to generalize how to find the area of a complex figure of part of a complex figure.	G.1 EE.2 EE.2c SMP 1 SMP 3 SMP 4 SMP 5 SMP 6	SAB p65-66 (E) HW p43-44 (E) AC 2-7 ● (NE) AC 2-7 ▲ (NE) AC 2-7 ■ (NE)	Read TE p123Z Same notes as lesson 2.3. The key to this lesson is the decomposing of figures. Consider color-coding the decomposed figures to help students find the dimensions they need.

	Lesson 2.7 Notes			
2.8	**I can** • Solve constant speed problems. • Fill in missing values in a rate table. • Graph a rate table in the coordinate plane. • Given a graph, make a rate table. **Formative Assessment:** Ask students to explain how to find the area of any regular pentagon and to give a formula that can be used.	G.1 EE.2 EE.2c SMP 3 SMP 4 SMP 5 SMP 6 SMP 7 SMP 8	SAB p67-68 (E) HW p45-46 (E) AC 2-8● (NE) AC 2-8 ▲ (NE) AC 2-8 ■ (NE)	
	Lesson 2.8 Notes			
2.9	**I can** • Draw polygons in the coordinate plane. • Use coordinates to determine the side lengths of polygons. • Solve real world problems. **Formative Assessment:** Ask students to explain how to find the length of a horizontal line segment using coordinates of the endpoints.	G.1 G.3 EE.2 EE.2c SMP 1 SMP 3 SMP 4 SMP 5 SMP 6 SMP 7 SMP 8	SAB p69-74 (E) HW p47-48 (E) AC 2-9● (NE) AC 2-9 ▲ (NE) AC 2-9 ■ (NE) MCC 3, 4 (NE)	The Activity Cards provide a good resource for extra practice, since the key to this lesson is practice, practice, practice. Push students to find the length of horizontal and vertical segments without graphing.
	Lesson 2.9 Notes			

2.10	**Math Practices Lesson**	G.1 EE.2 EE.2c EE.6 SMP 1-8	SAB p75-76 (E) HW p49-50 (E) AC 2-10 ● (NE) AC 2-10 ▲ (NE) AC 2-10 ■ (NE) MCC 7, 8 (NE)	
	Lesson 2.10 Notes			
Quiz 2	AG Quick Quiz 2			
Reteach	To reteach, use the resources listed above (Essentials and Non-Essentials) as well as the Response to Intervention Resource Books.			

Unit 2: Enrichment/Intervention Loop (About 3-5 days. Suggested date of completion: October 30, 2013)
Unit Test Objectives • 2A Find the area of parallelograms. • 2B Find the area of triangles. • 2C Find the area of trapezoids. • 2D Find the area of complex figures. • 2E Find the area of regular polygons. • 2F Graph polygons in the coordinate plane and use coordinates to find lengths of sides. • 2G Solve real world problems.
Day 1: Final Formative Assessment - SAB p77-80
Day 2-4: Reteaching Activities- TE p204-206
Day 5: Assessment - Unit 2 Test AG