Grade Level 3

Unit Name	*Unit 7:* Connecting Length, Perimeter, and Area	Unit duration (Days)	*3-4 weeks*

GA K-12 Standards

In this unit, students will use a ruler to measure length to the nearest half or quarter of an inch. Students also measure side lengths of polygons to determine the perimeter and extend their understanding of area measurement by explaining that the area of a rectangle can be determined by multiplying the side lengths.

3.GSR.7 Identify area as a measurable attribute of rectangles and determine the area of a rectangle presented in real-life, mathematical problems.
- **3.GSR.7.1** Investigate area by covering the space of rectangles presented in realistic situations using multiple copies of the same unit, with no gaps or overlaps, and determine the total area (total number of units that covered the space).
- **3.GSR.7.2** Determine the area of rectangles (or shapes composed of rectangles) presented in relevant problems by tiling and counting.
- **3.GSR.7.3** Discover and explain how area can be found by multiplying the dimensions of a rectangle.

3.GSR.8 Determine the perimeter of a polygon presented in real-life, mathematical problems.
- **3.GSR.8.1** Determine the perimeter of a polygon and explain that the perimeter represents the distance around a polygon. Solve problems involving perimeters of polygons.
- **3.GSR.8.2** Investigate and describe how rectangles with the same perimeter can have different areas or how rectangles with the same area can have different perimeters.

3.PAR.3 Use part-whole strategies to solve real-life, mathematical problems involving multiplication and division with whole numbers within 100.
- **3.PAR.3.3** Apply properties of operations (i.e., commutative property, associative property, distributive property) to multiply and divide within 100.
- **3.PAR.3.6** Solve practical, relevant problems involving multiplication and division within 100 using part-whole strategies, visual representations, and/or concrete models.
- **3.PAR.3.7** Use multiplication and division to solve problems involving whole numbers to 100. Represent these problems using equations with a letter standing for the unknown quantity. Justify solutions.

3.MDR.5 Solve real-life, mathematical problems involving length, liquid volume, mass, and time and analyze graphical displays of data to answer relevant questions.
- **3.MDR.5.1** Ask questions and answer them based on gathered information, observations, and appropriate graphical displays to solve problems relevant to everyday life.
- **3.MDR.5.4** Use rulers to measure lengths in halves and fourths (quarters) of an inch and a whole inch.
- **3.MDR.5.5** Estimate and measure liquid volumes, lengths and masses of objects using customary units. Solve problems involving mass, length, and volume given in the same unit, and reason about the relative sizes of measurement units within the customary system.

3. MP: Display perseverance and patience in problem solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

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

The [Framework for Statistical Reasoning](#) and the [Mathematical Modeling Framework](#) should be taught throughout the units. The [K-12 Mathematical Practices](#) should be evidenced at some point throughout each unit depending on the tasks that are explored. It is important to note that MPs 1, 3 and 6 should support the learning in every lesson.

Essential Questions

- (3.GSR.7.3) How can area be found by multiplying the dimensions of a rectangle.
- (3.GSR.8.1) What strategies can be used to determine the perimeter of a polygon presented in real-life, mathematical problems?
- (3.GSR.8.2) How can rectangles with the same perimeter have different areas? How can rectangles with the same area can have different perimeters?
- (3.MDR.5.1) How are tables, bar graphs, and line plot graphs useful ways to display data?
- (3.MDR.5.4) How can we measure objects to the nearest quarter inch?
- (3.MDR.5.5) In what ways can we determine the mass of an object?
- (3.MDR.5.5) How are units in the same system of measurement related?
- (3.MDR.5.5) What strategies could you use to figure out the mass of multiple objects?

Tier II Vocabulary Words- High Frequency Multiple Meaning	**Tier III Vocabulary Words-** Subject/ Content Related Words
Tiling, decompose, measurement, estimate, rectangle, polygon, dimensions, length	Inch, square units, feet, area, perimeter, half inch, quarter inch, yard, distributive property, number line, units, solutions [K-12 Mathematics Glossary](#)

Assessments

Formative Assessment(s):	**Summative Assessment:**
- 2.GSR.7 Savvas Topic 6 Assessment - 3.GSR.7.3 MIP Module 14 Formative Assessment, p. 301 - 3.GSR.8 Savvas Topic 16 Assessment - 3.GSR.8 MCS Mini	-

- 3.GSR.8.1 MIP Module 15 Formative Assessment, p. 318
- 3.GSR.8.2 Designing a Rabbit House
- 3.MDR.5.4 Savvas Topic 12 Formative Assessment (Question #20), p. 478A

It is the responsibility of each schools' grade level PLC to identify appropriate instructional lessons and resources, based on data and student needs, using the suggested pacing duration*. The following learning tasks have been vetted to align to the standards included in this unit. The GA Dept. of Education strongly recommends that any additional tasks, resources, and/or assessments used for instruction should be vetted using the* Quality Assurance Rubric*, to ensure alignment to the state standards.*

Objective or Content	Learning Experiences		Differentiation Considerations
3.GSR.7 Identify area as a measurable attribute of rectangles and determine the area of a rectangle presented in real-life, mathematical problems. *Includes **3.PAR.3** Use part-whole strategies to solve real-life, mathematical problems involving multiplication and division with whole numbers within 100	**GA DOE Learning Plans** **Watch My Garden Grow:** ***Also Includes 3.MDR.5** *In this learning plan, students will apply their understanding of area to design a flower garden representing 100 square units. Students will then create graphs to represent the area covered by each type of flower. (suggested Timeframe 3-4 days)* ● Teacher Guidance ● Student Reproducibles **Using Rulers to Find Area:** *In this learning plan, students will use a ruler to find the area of rectangles. (Suggested Timeframe 2-3 days)* ● Teacher Guidance ● Student Reproducibles **What's Missing?** In this learning plan, students will determine the unknown in a multiplication or division equation through the context of area. (Suggested TImeframe 2-3 days) ● Teacher Guidance ● Student Reproducibles **Area With Larger Numbers:** *In this learning plan, students will use base-ten blocks to create area models and find the area of rectangles. Students will decompose a factor and use the distributive property and*	**MCS Curriculum Resources** **SAVVAS enVision Topic 6: Connect Area to Multiplication and Addition** *Students develop an understanding of the concepts of area and a unit square. They learn different ways to measure the area of a rectangle. They relate area to multiplication and addition.* ● Lesson 6-1: Cover Regions ● Lesson 6-2: Area: Nonstandard Units ● Lesson 6-3: Area: Standard Units ● Lesson 6-4: Area of Squares and Rectangles ● Lesson 6-5: Apply Properties: Area and the Distributive Property ● Lesson 6-6: Apply Properties: Area of Irregular Shapes ● Lesson 6-7: Problem Solving: Look for and Use Structure **MIP Module 14: Understanding the Concept of Area** *The key ideas focused on in this module include determining area by counting square units, using multiplication to determine area, and decomposing complex figures to determine area.* ● Exploring the Area of Rectangles with Square Tiles, p. 293-294 ● Exploring the Area of Rectangles with Square Tiles, p. 294-296 ● Finding the Area in Square Centimeters, p. 296-297 ● Expressing Square Units p. 297-298	Area and Volumes: Use side or edge lengths to find the perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids.

Last Revised: May 2024

	partial products to find the answer of a one-digit by two-digit multiplication problem. (Suggested Timeframe 2-3 days)
	    ● Teacher Guidance
	    ● Student Reproducibles
	
	Who's Coming To Dinner?:
	In this learning plan, students will manipulate squares to alter the perimeter of given shapes in order to maximize seating potential. Students will then determine the size tablecloth needed for the table of their choice. (Suggested TImeframe 2-3 days)
	    ● Teacher Guidance
	    ● Student Reproducibles
		● Connecting Area to Multiplication, p. 298-299
		● Splitting Rectangles, p. 299-300
		● Additional Ideas and Supports, p. 302-305	

3.GSR.8 Determine the perimeter of a polygon presented in real-life, mathematical problems.	**Robot Racing**:
	Also Includes 3.GSR.7 and 3.PAR.3
	In this learning plan, students will use pentominoes to create new figures. Students will use the given sides to calculate the perimeter and area of each new figure. (Suggested TImeframe 2-3 days)
	    ● Teacher Guidance
	    ● Student Reproducibles
	    ● Blackline Masters
	
	Building a Dog Pen:
	Also includes 3.PAR.3
	In this learning plan, students will design a dog pen while exploring how rectangles with the same perimeter can have different areas and how rectangles with the same area can have different perimeters. (suggested Timeframe 2-3 days)
	    ● Teacher Guidance
	    ● Student Reproducibles
	
	Field Trip to the Zoo:
	Also Includes 3.GSR.7 and 3.PAR.3
	In this learning plan, students will apply their knowledge of area and perimeter to design their own zoo. (suggested Timeframe 2-3 days)
		SAVVAS enVision Topic 16: Solve Perimeter Problems
		Students recognize perimeter as a measurable attribute of plane figures and distinguish between perimeter and area.
		    ● Lesson 16-1: Understand Perimeter
		    ● Lesson 16-2: Perimeter of Common Shapes
		    ● Lesson 16-3: Perimeter and Unknown Side Lengths
		    ● Lesson 16-4: Same Perimeter, Different Area
		    ● Lesson 16-5: Same Area, Different Perimeter
		    ● Lesson 16-6: Problem Solving: Reasoning
		
		MIP Module 14: Understanding the Concept of Perimeter
		The key ideas focused on in this module include determining perimeter using addition, determining the missing side length of a figure given the overall perimeter, and exploring the relationship between area and perimeter.
		    ● Chickens on th eMove, p. 308-309
		    ● Area vs. Perimeter Anchor Charts, p. 309-310
		    ● Spaghetti and Meatballs for all, p 310-311
		    ● Color Tile Perimeter, p. 312
		    ● Finding the Perimeter of REctangles, p. 313
		    ● Ordering Animal Perimeters, p 313-314
		    ● Solving for Perimeter, p 314-315
		    ● Measuring Polygon Perimeters, p. 315
		    ● What's the Length of the Side?, p. 316-317
			Area and Volumes: Use side or edge lengths to find the perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids.

	● Teacher Guidance ● Student Reproducibles	● The Same Perimeter, p. 318 ● Additional Ideas for Support and Practice, p. 319-321 📄 **Polly Gone.pdf** *Students use the given sides of a polygon and the known perimeter to find the unknown side and length*	
3.MDR.5 Solve real-life, mathematical problems involving length, liquid volume, mass, and time and analyze graphical displays of data to answer relevant questions.	**Mathematical Modeling/Gardening:** ***Also Includes 3.GSR.7, 3.PAR.3, and 3.GSR.8*** *In this learning plan, students will engage in an interdisciplinary mathematical modeling task that focuses on measuring objects to the nearest half and quarter of an inch, finding the area of rectangles, and calculating the perimeter of polygons. (Suggested TImeframe integrated throughout the whole unit)* ● Teacher Guidance ● Student Reproducibles **Using a Ruler:** *In this learning plan, students will use simplified rulers to measure to the nearest whole, fourth and half of an inch. (Suggested Timeframe 2-3 days)* ● Teacher Guidance ● Student Reproducibles **Measure and Plot:** *In this learning activity, students will use rulers to measure side lengths of different shapes. Students will use this data to create a dot plot. Students will also measure their sitting height to the nearest ¼ inch and use collected class results to create a dot plot graph. (suggested TImeframe 2-3 days)* ● Teacher Guidance ● Student Reproducibles	**MIP Module 13: Representing and Interpreting Data and Exploring Linear Measurement** *The key ideas focused on in this module include drawing a scaled picture graph, drawing a scaled bar graph, solving one and two step problems using data from graphs, measuring to the nearest half and fourth of an inch, and creating line plots with the horizontal scale marked in wholes, halves and fourths.* ● Measuring to the Nearest ½ Inch, p. 286-287 ● Measuring to the Nearest ¼ inch, p. 287 ● Displaying Data on Line Plots, p. 288-289 ● Basket of Stuff, p. 290 ● Nick's Caterpillars, p. 290 **SAVVAS enVision Topic 12: Understand Fractions as Numbers** *In Topics 12–13, students develop an understanding of fractions including unit fractions and equivalent fractions. They represent measurement data involving fractions on a line plot.* ● Lesson 12-6: Line Plots and Length ● Lesson 12-7: More Line Plots and Length ● Lesson 12-8: Problem Solving: Make Sense and Persevere	True or False: Conduct investigations using the framework for statistical reasoning: ask, collect, analyze and interpret results using whole number data. Getting to School: Conduct investigations using the framework for statistical reasoning: ask, collect, analyze and interpret results using whole number data. Making Benchmarks: Create and use appropriate units and tools to measure length, area, volume and capacity, weight, angle, temperature, and time.

Content Resources

MCS Links:
- [MCS Math Curriculum Map](#)
- [MCS Math Instructional Framework](#)

GA DOE Links:
Access all GADOE Curriculum Resources at the following site: [GaDOE Inspire](#).

Additional Resources:
- [Area and Perimeter Explorer](#) (Virtual)
- [Area](#) (Virtual)
- [Mathigon](#)
- [Perimeter Pentominoes](#)
- [Square Area on a Grid](#)
- [Toy theater](#) (Virtual manipulatives)
- [Greg Tang Math](#)

Possible Number Sense and Strategy-Development Routine:
- [Estimation180](#)
- [Which one Doesn't belong](#)
- [Splat](#) (Instant multiple splats)
- [Same or Different](#) (multiplication & division)
- [Same or Different](#) (area)

Mathematical Discourse:
- [ESOL Math Talk Starters](#)
- [Sentence Stems](#)