

Unit 4 Representing Data , Geometry , Perimeter and Area

Content Area: **Mathematics**
Course(s):
Time Period: **Generic Time Period**
Length: **6 weeks**
Status: **Published**

Standards

TECH.8.1.5.A.CS1	Understand and use technology systems
MA.3.3.MD.C.7b	Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
LA.3.SL.3.1.B	Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
LA.3.SL.3.1.C	Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
LA.3.SL.3.1.D	Explain their own ideas and understanding in light of the discussion.
MA.3.3.MD.C.7c	Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
MA.3.3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
MA.3.3.MD.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
MA.3.3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
PFL.9.1.4.B.5	Identify ways to earn and save.
MA.3.3.MD.C	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
LA.3.L.3.4.D	Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
LA.3.L.3.6	Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).
MA.3.3.MD.C.7d	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
MA.3.3.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

MA.3.3.MD.C.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
MA.3.3.MD.A	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
MA.3.3.MD.C.5a	A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
MA.3.3.MD.C.5b	A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
MA.3.3.G.A.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
MA.3.3.G.A.2	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
MA.3.3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and non-standard units).
MA.3.3.MD.C.7	Relate area to the operations of multiplication and addition.
LA.3.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others’ ideas and expressing their own clearly.
LA.3.SL.3.1.A	Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
MA.3.3.MD.C.7a	Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
PFL.9.1.4.B	Money Management
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems
TECH.8.1.5.A.CS2	Select and use applications effectively and productively.

Essential Questions

How can you solve problems involving perimeter and area?

How can you find perimeter?

How can you find area?

What might you need to estimate or measure perimeter and area?

What are some ways to classify and describe two dimensional shapes?

How can you describe angles and sides of polygons?

How can you use sides and angles to describe quadrilaterals and triangles?

How can you use properties of shapes to classify them?

How can you divide shapes into equal parts and use unit fractions to describe the parts?

How can you represent and interpret data?

What are some ways to organize data so its easy to use?

How can analyzing data in graphs help you solve problems?

Student Learning Objectives

Chapter 11

Critical Area - Developing understanding of the structure of rectangular arrays and of area

- Estimate, measure and find perimeter of polygons.
- Find the unknown length of a side of a polygon when you know its perimeter.
- Explore perimeter and area as it attributes of polygons.
- Solve area problems by using the strategy find a pattern.
- Apply the Distributive Property to find the area of combined rectangles.
- Compare rectangles that have the same perimeter or have the same area.

Chapter 12

Critical Area- Describing and analyzing two dimensional shapes

- Identify and describe the attributes of plane shapes
- Describe angles, line segments in plane shapes
- Describe, classify, and compare quadrilaterals based on their sides and angles and draw quadrilaterals
- Describe and compare triangles based on the number of sides that have equal length and by their angles
- Solve roblems by using the strategy draw a diagram to classify plane shapes
- Partition shapes into parts with equal areas and express the areas and express the area as a unit fraction of a whole

Chapter 2

- Organize data in tables and solve problems using the strategy Make a Table

- Read and interpret data in a scaled picture graph and draw a picture graph to show data in a table
- Read and interpret data in a scaled draw a scaled bar graph to show data in a table or picture graph
- Solve one and two step compare problems using data represented in scaled bar graphs
- Read and interpret data in a line plot and use data to make a line plot

Materials

Go Math Print Resources:

Student Edition 11, 12, 2

Practice and Homework (in the Student Edition)

Reteach (in the Chapter Resources)

Enrich (in the Chapter Resources)

Grab-and-Go Centers Kit

Chapter 11 Activity Cards 1,6,10,15,18

Chapter 12 Activity Cards 11, 18

Chapter 2 Activity Card 2

Readers

Chapter 11- The Homework; Party Plans by Numbers

Chapter 12- he Whole Picture

Chapter 2 - Class Trip; Diego's Perfect Fit

Games

Chapter 11 - Guess my Numbers; Multiplication Bingo; Number Cube Products

Place Value Manipulative

Math White boards

Go Math Digital Resources:

iStudent Edition

eTeacher Edition

Personal Math Trainer

Math on the Spot Video

Real World Video

Animated Math Models

iTools

HMH Mega Math

i Pad

Computer

Place Value Manipulative

Math White boards

Achieve the Core:

<http://achievethecore.org/page/2853/go-math-k-5-guidance-documents>

Activities

Chapter 11

Vocabulary - Picture It

11.1 Model Perimeter

11.2 Find Perimeter

11.3 Find Unknown Side Lengths

11.4 Understand Area

11.5 Measure Area

11.6 Use Area Models

11.7 Area of Triangles

11.8 Area of Combined Rectangles

11.9 Same Perimeter, Different Areas

11. 10 Same Area, Different Perimeters

Critical Area Review Project- Zoo Animal Habitat

Chapter 12

Unit Project- Make a Mosaic

Vocabulary - Going to a Museum

12.1 Describe Plane Shapes

12.2 Describe Angles in Plane Shapes

12.3 Identify Polygons

12.4 Describe Sides of Polygons

12.5 Classify Quadrilaterals

12.6 Draw Quadrilaterals

12.7 Describe Triangles

12.8 Classify Plane Shapes

12.9 Relate Fractions, Shapes and Area

Critical Area Review Project- Gems and Jewelry

Chapter 2

Vocabulary - Picture It

2.1 Organize Data

2.2 Use Picture Graphs

2.3 Make Picture Graphs

2.4 Use Bar Graphs

2.5 Make Bar Graphs

2.6 Solve Problems using Data

2.7 Use and Make Line Plots

Other Educational Resources

[3.MD.C.7d Three Hidden Rectangles](#)

[3.OA.D.8 The Stamp Collection](#)

[3.NBT.A.2, 3.MD.B.3, 3.OA.A.3 Classroom Supplies](#)

Assessment

MAP Assessment

Diagnostic:

Show What You Know

Digital Personal Math Trainer

Formative:

Lesson Quick Check

Mid-Chapter Checkpoint

Digital Personal Math Trainer

- Assessment Animation
- Assessment Video

Summative:

Chapter Review/Test

Chapter Test

Performance Assessment Task

Digital Personal Math Trainer

Fact Fluency

- Fluency Standard Lessons (Student Edition)
- Fluency Builder(Teacher Edition)
- Strategies and Practice for Skills and Facts Fluency
- Teacher Resource Book
- HMH Mega Math
- Personal Math Trainer: Standards Quizzes
- Animated Math

- Fast Math
- Mad Minute
- Flashcards
- Multiplication Websites

MA.3.3.NBT.A.2

Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

MA.3.3.OA.C.7

Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Standards for Mathematical Processes

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.

Accommodations and Modifications

Personal Math Trainer

- Leveled quizzes and tests
- Leveled performance tasks
- Grab & Go Differentiated Centers
- Intensive Intervention Resource
- Strategic Intervention Resource
- Reteach activities
- RTI tiered resources and activities
- Math on the Spot videos