# 3 Math Unit 11: Attributes of Two-D Shapes/Perimeter

Content Area: **Mathematics**
Course(s):
Time Period: **May**
Length: **2 weeks**
Status: **Published**

## Unit Overview

Students analyze, compare, and classify two-dimensional shapes by their properties. They explicitly relate and combine these classifications.
Because they have built a firm foundation of several shape categories, these categories can be the raw material for thinking about the relationships
between classes. For example, students can form larger, superordinate, categories, such as the class of all shapes with four sides, or quadrilaterals,
and recognize that it includes other categories, such as squares, rectangles, rhombuses, parallelograms, and trapezoids. They also recognize that
there are quadrilaterals that are not in any of those subcategories...The Standards do not require that such representations be constructed by Grade 3
students, but they should be able to draw examples of quadrilaterals that are not in the subcategories.

Similarly, students learn to draw shapes with prespecified attributes, without making a prior assumptions regarding their classification.

Students investigate, describe, and reason about decomposing and composing polygons to make other polygons. Problems such as finding all the
possible different compositions of a set of shapes involve geometric problem solving and notions of congruence and symmetry. They also involve the
practices of making and testing conjectures, and convincing others that conjectures are correct (or not). Such problems can be posed even for sets of
simple shapes such as tetrominoes, four squares arranged to form a shape so that every square shares at least one side and sides coincide or share
only a vertex.

Third graders focus on solving real-world and mathematical problems involving perimeters of polygons. A perimeter is the boundary of a two-dimensional shape.
For a polygon, the length of the perimeter is the sum of the lengths of the sides. Initially, it is useful to have sides marked with unit length marks, allowing students
to count the unit lengths. Later, the lengths of the sides can be labeled with numerals. As with all length tasks, students need to count the length-units and not the
end-points. Next, students learn to mark off unit lengths with a ruler and label the length of each side of the polygon. For rectangles, parallelograms, and regular
polygons, students can discuss and justify faster ways to find the perimeter length than just adding all of the lengths. Rectangles and parallelograms have
opposite sides of equal length, so students can double the lengths of adjacent sides and add those numbers or add lengths of two adjacent sides and double that
number. A regular polygon has all sides of equal length, so its perimeter length is the product of one side length and the number of sides. Perimeter problems for
rectangles and parallelograms often give only the lengths of two adjacent sides or only show numbers for these sides in a drawing of the shape. The common error
is to add just those two numbers. Having students first label the lengths of the other two sides as a reminder is helpful. Students then find unknown side lengths

in more difficult "missing measurements" problems and other types of perimeter problems.

How can two-dimensional shapes be described, analyzed, and classified?

How can perimeter be measured and found?

Students will be able to...

- describe, classify and analyze and compare shapes
- find the perimeter of a figure

## Standards

| | |
|---|---|
| MA.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.MD.D.8 | Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. |

## Materials

- EnVision Math

- 15.1 Describe Quadrilaterals
- 15.2 Classify Shapes
- 15.3 Analyze and Compare Quadrilaterals
- 15.4 Precision
- 16.1 Understand Perimeter
- 16.2 Perimeter of Common Shapes
- 16.3 Perimeter and Unknown Side Lengths
- 16.4 Same Perimeter, Different Area
- 16.5 Same Area, Different Perimeter
- 16.6 Reasoning

- ST Math
- Happy Numbers

- [3 Act Lessons](#)
- [Building Fact Fluency Kit](#)
- [Brainingcamp  Manipulatives](#)
- [Nearpod Lessons](#)
- [Brainpop Resources](#)
- [Math Diagnosis and Intervention System](#)
- [Online Resources](#)

# Technology

- 8.1.5.A.1,2,4 (solve problems, word processing, databases, spreadsheets)
- 8.1.5.F.1 (digital tools to support scientific finding)
- 8.2.5.C.1,2,3 (solve problems, troubleshoot repair tools)

# Assessment

**Formative Assessment**

- Teacher Observation
- Daily Quick Check
- Quizzes
- Exit Tickets

**Summative Assessment**

- Topic Tests
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

# Accommodations & Modifications

**Special Education**

- Follow IEP Plan which may contain some of the following examples...
- In class/pull out support with special ed teacher
- Additional time during intervention time

- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

**504**

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

**ELL**

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

**At-risk of Failure**

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices

- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

**Gifted & Talented**

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

# Interdisciplinary Connections

Topic 1 Math and Science Project - Using different presentations tools, students will collect different types of paper. Talk about the uses of
paper. Tell how strong each type of paper is.Tell how the paper feels. Tell if the paper can soak up water.

**ELA:**
NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

**Science:**
3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

# 21st Century Life Literacies & Key Skills

**Critical Thinking and Problem Solving:**

Problem-solving activities starting with the lesson "Solve and Share" and ending with higher order thinking questions that utilize the mathematical practices

**Communication and Collaboration:**

Throughout the lesson, students are provided with opportunities to discuss their ideas as they investigate mathematical

concepts.

**Creativity:**

Students have opportunities to express their creativity by solving problems their own way, participating in performance tasks, and group projects.

**Technology:**

Use of iPads, instructional apps, lab materials embedded in lessons. Programs such as BrainPop,Math Reflex, Google Slides are used to support instruction.

## Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.