Unit 5: Domain: Geometry

Content Area: **Mathematics**
Course(s): **Mathematics**
Time Period: **Marking Period 4**
Length: **3-4 Weeks**
Status: **Published**

Unit Overview

In this unit, students will understand that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Standards

MA.4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
MA.4.MD.C.5a	An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
MA.4.MD.C.5b	An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
MA.4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
MA.4.MD.C.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
MA.4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
MA.4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
MA.4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Essential Questions

- How can you describe the relationship between two lines?
- How can you describe the relationship between two lines?
- How do points, lines, and rays differ?

Application of Knowledge and Skills...

Students will know that...

- Some attributes of objects are measurable and can be quantified using unit amounts
- Two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes. An object's location in space can be described quantitatively

Students will be skilled at...

- Determining if a plane figure has line symmetry and, if so, how many lines of symmetry it has
- Finding unknown angle measures by adding and subtracting
- Identifying and classifying triangles
- Identifying and describing points, lines, and planes
- Identifying polygons
- Identifying quadrilaterals
- Learning geometric terms to describe parts of lines and types of angles
- Measuring and drawing angles
- Using smaller angles to measure a larger angle by repeating the unit
- Using unit angles and fractions of a circle to find angle measures

Assessments

- Basic Facts Timed Tests
- Benchmark Tests
- End of Year Test (administered after completing program)
- Placement Test (administered prior to beginning program)
- Task Cards
- Topic Math Projects
- Topic Quick Check
- Topic Tests

Activities

Problem of the Day-Present a daily problem that serves as a review from the previous day's lesson.

Vocabulary- Have students create a chart for each new vocabulary word that includes the word's meaning and

an example or use vocabulary cards as flash card game

Station activities- Each section has center activities to reinforce skill (leveled) - please see Domain 1 unit for individual directions for each station activity

- **Display the Digits**
- **Toss and Talk**
- **Clip and Cover**
- **Think Together**
- **Teamwork**
- **Display the Digits**
- **Quick Questions**

STEM - Certain sections have Going Digital integrating technology and the use of calculators

Interactive Learning - Problem-Based Interactive learning activities at the beginning of each topic

Projects - There is a math project for each topic (See Cross-Disciplinary Instruction for projects and page numbers)

Practice work - Communicator practice can be done using Independent work and problem- solving practice problems in each section.

- Play SCOOT for certain sections or review for topic tests
- Task cards and use answer sheets for assessment

Ticket to Leave - Quick Checks on each sections

Activities to Differentiate Instruction

General strategies for modification of this curriculum for students with special needs, ELL, and gifted learners:

- **General strategies:**
  - preferential seating
  - manipulatives
  - modified workbook pages
  - practice or enrich homework pages
- **Center activities** - There are leveled center activities for each section. There is a separate activity for

"Intervention", and then "On-Level" and "Advanced" are in spiral book.

- **Leveled practice pages** - There are three leveled (Reteaching, Practice, and Enrichment) sheets that can be used for practice or homework.
- **Math Concept Readers:** These readers allow the student to read the story at different levels- above level, on level, and below level. (also available on line with audio) Complete the Think and Respond and Write Math questions at the conclusion of each book.
- **Assessment**- Using Quick Check Review can determine differentiated instruction levels using sample answers and using the rubric at the Close/ Assess and Differentiate section in the teacher edition.

Content specific modification for students with special needs, ELL, and gifted learners:

- **Topic 16**
  - **Below level students:**
    - Below level students may have difficulty understanding the classification of plane and solid figures.
    - Be certain to discuss the attributes of the figures and how they relate to their names, such as the root of the word equilateral, "equi" meaning equal and "lateral" meaning sides.
  - **Students with special needs:**
    - Some students may better understand solid figures by using architectural elements to reinforce their recognition of shapes.
    - Have students research and find two different solid shapes used for buildings.
  - **ELL**
    - Students who have difficulty speaking English may find it easier to show what they have learned, instead of telling it. Practice vocabulary and attributes of shapes with students.
    - **Emerging:** Draw a figure on the board, such as a square of a prism. Have students describe the figure using its attributes.
    - **Expanding:** Have students pantomime solids using their attributes. Have other group members guess the name of the solid.
    - **Bridging:** Have students pantomime solids using their attributes. Have other group members guess the name of the solid.
  - **Advanced/Gifted:**
    - Students who understand how to classify quadrilaterals and triangles based upon their attributes are ready to explore the relationships between the different classifications.
    - Discuss higher-level thinking concepts such as how an equilateral triangle is also an acute triangle or how a square is a rhombus.

Integrated/Cross-Disciplinary Instruction

Reading and Writing: The Math Concept Readers allow the student to read the story at different levels- above level, on level, and below level. Complete the Think and Respond and Write Math questions at the conclusion of each book.

Topic 16: Social Studies: United States- drawing major highways that form various geometric terms - pg

Resources

Topics Categories in book form:

Topic 16: Lines, Angles, and Shapes

Master Enrichment pages

Master Reteaching pages

Master Practice pages

Student Edition workbook

On line Resources available at www.pearsonrealize.com

- Teacher Edition (TE) Textbook
- Student Edition (SE) Textbook
- Tests on line
- Concepts videos
- Math Tools

21st Century Skills

CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready

	individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.