Unit 08: Two-Dimensional Geometry

Content Area: **TEMPLATE**
Course(s):
Time Period: **Full Year**
Length: **5 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

In this unit, students will deepen their understanding of the area and perimeter of rectangular and non-rectangular shapes. They will develop and use formulas for finding the area and perimeter of rectangles. They will also discover how the area of a parallelogram and a triangle are related to the area of a rectangle and use this knowledge to develop formulas for finding the area of a parallelogram and a triangle.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Essential Questions:

- What does it mean to measure area and perimeter?
- How are the area of a parallelogram and triangle related to the area of a rectangle?
- Is it possible to find the perimeter and/or area of an irregular figure?

Essential Understandings:

- Spatial sense and geometric modeling can help to describe and interpret our physical environment and to solve problems.
- Side lengths and angle measure determine the shapes of triangles, rectangles, parallelograms and other polygons.
- Polygon properties are important in design of natural and man-made objects.
- How to solve practical problems using perimeter and area.

CONTENT AREA STANDARDS

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.6.G.A.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.

MA.6.G.A.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.

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

LA.K-12.NJSLSA.SL1	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
LA.K-12.NJSLSA.L1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CS.K-12.3	Recognizing and Defining Computational Problems
CS.K-12.4	Developing and Using Abstractions
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.

STUDENT LEARNING TARGETS

Declarative Knowledge

Students will understand:

- That area is the number of squares needed to cover a plane figure.
- How to manipulate polygons to discover formulas for area.
- Why a formula works and how a formula relates to the measure (area) and the figure

Procedural Knowledge

Students will be able to:

- Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.
- Apply composing and decomposing area techniques in the context of solving real-world and mathematical problems.
- Draw polygons in the coordinate plane given coordinates for the vertices.
- Find the length of a side of a polygon joining points with the same first coordinate or the same second coordinate in a coordinate plane.

- Apply coordinate techniques in the context of solving real-world and mathematical problems.

EVIDENCE OF LEARNING

Formative Assessments

- Observations/Checklists
- Classwork
- Do Now Questions/Exit Tickets
- Self Assessment Questions
- IXL Skills Practice
- Student Proficiency Scale

Summative Assessments

- Portfolio Artifacts

Averages are based upon participation/preparation, classwork, and quizzes. Student marking period grades are either O (outstanding), S (satisfactory), or U (unsatisfactory).

RESOURCES (Instructional, Supplemental, Intervention Materials)

- *CMP3 Covering & Surrounding*
- Savvas Realize (teacher and student resources)
- Khan Academy
- IXL- Recommended Skills Practice
    - FF.2 Area of Rectangles and Squares
    - FF.4 Area of Parallelograms
    - FF.6 Area of Triangles
    - FF.11 Area of Compound Figures
- MathXL for School
- Illustrative Mathematics Performance Tasks
- NCTM Illuminations
- Quiz Review Sheet (see classroom teacher)

INTERDISCIPLINARY CONNECTIONS

- Computations
- Financial/Economic/Business/Entrepenerial Literacy

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.