Unit 06: Perimeter & Area

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **FY**
Status: **Published**

Standards Alignment

New Jersey Student Learning Standards

MA.G-SRT	Similarity, Right Triangles, and Trigonometry
MA.G-SRT.D	Apply trigonometry to general triangles
MA.G-SRT.D.9	Derive the formula $A = (1/2)ab\ sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
MA.G-GPE	Expressing Geometric Properties with Equations
MA.G-GPE.B	Use coordinates to prove simple geometric theorems algebraically
MA.G-GPE.B.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
MA.G-MG	Modeling with Geometry
MA.G-MG.A	Apply geometric concepts in modeling situations
MA.G-MG.A.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

Integration of Career Readiness, Life Literacies and Key Skills

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology / Integration of Computer Science and Design Thinking

TECH.8.1.8	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.8.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.8.A.1	Demonstrate knowledge of a real world problem using digital tools.

Interdisciplinary Connections: NJSLS for ELA, Social Studies, Science and/or Math Section

MATH.K-12.1	Make sense of problems and persevere in solving them
LA.K-12.NJSLSA.R	Reading
MATH.K-12.2	Reason abstractly and quantitatively
LA.K-12.NJSLSA.R3	Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
MATH.K-12.5	Use appropriate tools strategically
MATH.K-12.8	Look for and express regularity in repeated reasoning
LA.RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).

Integration of Diversity, Equity and Inclusion; Climate Change; Informational and Media LiteracyNew Section

see Crosswalks

21st Century Life and Careers

Stage I: Desired Results

Transfer/Overview/Rationale

Transfer / Overview / Rationale

Unit Rationale

The purpose of this unit…

This unit provides a foundation for more advanced mathematics such as algebra, trigonometry, and calculus. In addition it allows students to apply their knowledge of area and perimeter to real world situations (professionals: engineers, architects, designers, and more)

Meaning

Essential Questions

Essential Questions

- How do we measure perimeter and area of geometric shapes?
- Why do we need to learn how to measure in everyday life?
- What are some different strategies that we can use to find area and perimeter?

Enduring Understanding/Indicators of Understanding

Enduring Understanding/Indicators of Understanding

- Area and perimeter can be utilized in many real life scenarios.
- Measurements are important in daily life for things such as landscaping, flooring, remodeling, and more.

Acquisition (Student Learning Objectives)

Knowledge

Knowledge

Students will know…

Definitions:

- Perimeter
- Area

Concepts:

- Determine the perimeter and area of triangles and quadrilaterals using the appropriate formulas.
- Apply formulas for perimeter and area to real-world situations.
- Explain, solve, and apply formulas for area and perimeter
- Explore areas in the coordinate plane

Skills

Skills

Student will be skilled at …

- Knowing how to use a measuring device (ruler)
- Reading map keys to determine accurate length x width
- Finding perimeters and areas in their everyday life settings
- Applying perimeter and area concepts into floor plans including square footage.
- Collaborating with peers on different ways to go about finding area and perimeter depending on the shape

Stage 3: Learning Plan

Resource and Mentor Texts

Resources and Mentor Texts

Google

- Classroom
- Docs

Pinterest

YouTube

Kuta Software

Kahoot

IXL

Prentice Hall Geometry textbook

Pacemakers Geometry textbook

AGS Geometry textbook

Graphing calculator

http://www.lauracandler.com/filecabinet/math/geometry.php

http://anchoredin3rdgrade.blogspot.com/2013/01/more-adjectives-name-perimeter-project.html?showComment=1359337088490

https://www.pinterest.com/pin/544583779920839950/

https://www.pinterest.com/pin/386254105511751638/

https://reliefteachingideas.com/2013/06/27/area-dice-game/

Formative Assessment Strategies

Formative Assessment Strategies

- Analysis of kahoot, socrative, and IXL results
- Scavenger hunt self checking assessment
- Quizzes: Unit 6 quiz 1, Unit 6 Quiz 2
- Test: per content area or full unit
- Exit Tickets- 1 to 3 problems related to the day's activities with a survey portion to evaluate the student's own feeling of understanding
- Homework through Google Classroom or documents
- Hands on projects during class time or for homework
- Class participation/Classwork: show of hands, thumbs up or down, whiteboard responses, text through remind, etc.
- Observation throughout unit: communication with classmates/teachers/paraprofessionals

Learning Activities/Unit of Study

Learning Activities/Unit of Study

- Do Now problems related to previous learned skills.
- Review/Check Homework - (group check, partner check, whiteboard check)
- Work together to understand and practice the skill - partner work/larger group work to read lesson, and practice skills through "On Your Own" problems incorporated throughout each lesson
- Stations - (Small group instruction, skills practice - scavenger hunts, online games, board work)
- Board/White Board Work - (solve problems/practice skills at board, or at seat with individual white boards)
- Kahoot to reinforce skills

- Review and practice skills using a variety of materials - (communicators, chromebook, games, activities, discussion)
- Thumbs up/down/sideways - quick formative assessment to gauge students level of understanding
- Foldables - create an organized study guide per chapter
- Jeopardy style review games
- Relay races--each student does one part of a problem, hands it to the next student to check then completes the next part, etc.
- Socrative--non-multiple choice technology option where students can either “race” or work at the teacher-pace
- Videos by YouTube to introduce or reinforce concepts in an engaging and comical way
- Online games on chromebooks
- Exploration activities around the room and or school.
- IXL practice problems on their cell phones or chromebooks with and without a partner
- Interactive projects during and after class time.
- Board games: Math- Jenga, Mathopoly, Uno, etc.
- Basketball review games
- Notebook for foldables and notes that are taken throughout the units

Modifications and/or Accommodations

Suggested Modifications (ELL, Sp. Ed, GIfted, At-risk of Failure)

English Language Learners

Native language support: The teacher provides auditory or written content to students in their native language.

Adjusted Speech: The teacher changes speech patterns to increase student comprehension. This could include facing the students, paraphrasing, clearly indicating the most important ideas, and speaking more slowly.

Visuals: The teacher uses graphics, pictures, visuals, and manipulatives. This helps ELL students better understand and comprehend the subjects at hand.

Front-Loading Vocabulary: The teacher front loads vocabulary. This means providing students with a list of important vocabulary words they will need to know for a book, lesson, etc. prior to the lesson being taught. Including pictures to go with the vocabulary words is also very beneficial for the students.

Special Education Students

Chunking: The teacher presents information in a way that makes it easy for students to understand and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy

to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Oral Reading: The teacher will read work orally to students. Class work such as tests and literature circles may need to be read aloud to the student.

Timers: The teacher will use timers as an instructional tool. The use of timers is beneficial for students who have trouble completing tasks. Timers can be helpful so the student is aware of how much time they have to complete an assignment.

Students with 504 Plans

Chunking: The teacher presents information in a way that makes it easy for students to understand and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Gifted & Talented Strategies

Extensions/Enrichments: Teachers will provide gifted and talented students with extension/enrichment projects. Students will be challenged to further their understanding, to apply acquired knowledge, and/or to produce something in reference to acquired knowledge.

Modify/Change Activities: Teachers will monitor and modify activities to accommodate those students who need to be challenged further. Additional reading, problem-solving, writing, or project work is necessary for those students who are ready to move on at a rate more accelerated than their peers. In this way, G & T students are provided the same opportunity for support as special needs students.

Students at Risk of School Failure

Directions or Instructions: Make sure directions and/or instructions are given in limited numbers. Give directions/instructions verbally and in simple written format. Ask students to repeat the instructions or directions to ensure understanding occurs. Check back with the student to ensure he/she hasn't forgotten.

Peer Support: Peers can help build confidence in other students by assisting in peer learning. Many teachers use the 'ask 3 before me' approach. This is fine, however, a student at risk may have to have a specific student or two to ask. Set this up for the student so he/she knows who to ask for clarification before going to you.

Alternate or Modified Assignments: Always ask yourself, "How can I modify this assignment to ensure the students at risk are able to complete it?" Sometimes you'll simplify the task, reduce the length of the assignment or allow for a different mode of delivery. For instance, many students may hand something in, the at-risk student may jot notes and give you the information verbally. Or, it just may be that you will need to assign an alternate assignment.

Increase One to One Time: When other students are working, always touch base with your students at risk and find out if they're on track or needing some additional support. A few minutes here and there will go a long way to intervene as the need presents itself.

Contracts: It helps to have a working contract between you and your students at risk. This helps prioritize the tasks that need to be done and ensure completion happens. Each day write down what needs to be completed, as the tasks are done, provide a checkmark or happy face. The goal of using contracts is to eventually have the student come to you for completion sign-offs.

Hands On: As much as possible, think in concrete terms and provide hands-on tasks. This means a child doing math may require a calculator or counters. The child may need to tape record comprehension activities instead of writing them. A child may have to listen to a story being read instead of reading it him/herself.

Tests/Assessments: Tests can be done orally if need be. Break tests down in smaller increments by having a portion of the test in the morning, another portion after lunch and the final part the next day.

Seating: Seat students near a helping peer or with quick access to the teacher. Those with hearing or sight issues need to be close to the instruction which often means near the front.