Unit 4 : Geometry

Content Area: **Mathematics**
Course(s): **Math - Grade 5**
Time Period: **4th Marking Period**
Length: **2 Weeks**
Status: **Published**

Unit Overview

Students will classify two dimensional figures into categories based on their properties.

Benchmarks:

At the end of Unit 1, students completed the second benchmark assessment (LinkIt Form B SGO) covering all units. Use these scores to determine previous knowledge of geometry, and identify strengths and weaknesses within the unit.

Transfer

Students will be able to independently use their learning to...

Understand the attributes belonging to a category of two-dimensional figures and the subcategories of the category.

For more information, read the following article by Grant Wiggins.

http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60

Meaning

Understandings

Students will understand that...

- Geometric properties can be used to construct geometric figures.
- Geometric relationships provide a means to make sense of a variety of phenomena.
- Everyday objects have a variety of attributes, each of which can be measured in many ways.
- How to classify polygons
- How to classify triangles
- How to classify quadrilaterals
- How to use attributes to describe two-dimensional figures

Essential Questions

Students will keep considering...

- How does geometry help me solve problems in everyday life?

Application of Knowledge and Skill

Students will know...

Students will know..

- and understand the attributes of two-dimensional figures and classify them into categories based on their properties

Students will be skilled at...

Students will be skilled at...

- Relating volume to multiplication and addition in real-world situations
- Classifying two dimensional figures in a hierarchy based on their properties

Academic Vocabulary

polygon

angle

acute

obtuse

right

equilateral

isosceles

scalene

quadrilateral

rhombus

trapezoid

parallelogram

square

rectangle

congruent

similar

perpendicular

parallel

intersecting

composite figure

hierarchy

property

two-Dimensional

attribute

figure

formula

measure

part

relationship

sum

LEARNING GOAL 1: Two-Dimensional Geometry

Students will be able to...

- Classify two-dimensional figures into categories based on their properties.

Daily Targets- Polygons

SWBAT:

- Classify two-dimensional figures based on properties. Identify regular and not regular polygons. **(Chapter 12, Lesson 1) (DOK 2)**
- Measure the sides and angles or triangles and classify based on these attributes. **(Chapter 12, Lessons 2-3) (DOK 3)**
- Measure the sides and angles of quadrilaterals and classfiy based on these attributes. **(Chpater 12, Lessons 4-5) (DOK 3)**

Examples:

1. Triangle- 3 sided polygon, Quadrilateral- 4 sided polygon, Pentagon- 5 sided polygon...

2. Regular polygons have all congruent sides and angles. Name or draw some regular polygons (ex: square)

3. A triangle has measurments of 5 cm, 8 cm and 10 cm. Identify the type of triangle this is based on its sides. This triangle is classified as scalene.

4. A triangle's angles are 90 degrees, 40 degrees, and 50 degrees. Identify the type of triangle based on its angles. This triangle is a right triangle based on its 90 degree angle.

5. Why is a square always a rectangle, but a rectangle is not always a square? A square must have 4 right angles and 4 equal sides. A rectangle must only have 4 right angles and does not have to have 4 equal sides.

6. List all of the names for a square. Quadrialteral, parallelogram, rhombus, and rectangle

A sample of questions that might be posed to students include:

A parallelogram has 4 sides with both sets of opposite sides parallel. What types of quadrilaterals are parallelograms?

Why is a square a regular polygon?

Can you make a polygon with only 2 sides?

MA.K-12.1	Make sense of problems and persevere in solving them.
	Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.
MA.K-12.2	Reason abstractly and quantitatively.
	Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.
MA.K-12.8	Look for and express regularity in repeated reasoning.
	Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x$

$- 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

MA.5.G.B	Classify two-dimensional figures into categories based on their properties.
MA.5.G.B.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
	For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
MA.5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.

Formative Assessment and Performance Opportunities

- Teacher observation
- Math journals
- Exit slips
- Quick checks during class
- Classwork activities and games
- Center work/ small group work
- Group work activities
- Homework
- Google Classroom questions
- Common Google Forms quick checks
- Kahoot
- ALEKS
- Leveled Readers
- Power Up for state assessment

Summative Assessment

- Quizzes
- Tests/Common Assessment
- Projects (paper and technology based)
- Short & Extended Constructed Response
- ALEKS test or quiz

21st Century Life and Careers

CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP10.1	Career-ready individuals take personal ownership of their own education and career goals,

	and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP11.1	Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
TECH.8.1.5.E.1	Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.
TECH.8.1.5.E.CS3	Evaluate and select information sources and digital tools based on the appropriateness for specific tasks.
TECH.8.1.5.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions
TECH.8.2.5.E.2	Demonstrate an understanding of how a computer takes input of data, processes and stores the data through a series of commands, and outputs information.

Accommodations and Modifications

- IEP modifications
- 504 accomodations
- BSI support
- ELL vocabulary/ word webs
- English Learner Support Interactive Guide/ Tiered Questions: *Flags: Shaping History* **Spanish Reader and Real- World Problem Solving Spanish Reader**
- Leveled Readers: *Flags: Shaping History* **is available in 3 lexile reader levels**
- Interactive Guide: Scaffolded differentiated activities (emergenging, expanding, bridging levels)
- Leveled learning centers
- Use of manipulatives/ models: rulers, protractors, pattern blocks, geoboards with geobands
- Performance Tasks
- Reteach lesson pages: **Chapter 12, Lessons 1-5**
- Enrich lesson pages: **Chapter 12, Lessons 1-5**
- Co-teach environment
- Small group instuction
- Various forms of assessments
- Advanced Learners: **Project Based Learning**

Unit Resources

MyMath Grade 5, Vol. 1 Teacher Edition, Chapters 1-6 and Student Workbook: 2014 McGraw-Hill Education

[My Math Online Portal](#)

Teacher Made assessments

Benchmarks 1&2

- http://bealearninghero.org/

- http://forstudentsuccess.org/

- https://www.illustrativemathematics.org/

- The Link It Learning Library (Use the reporting dashboard to pull up a test, click on the blue bar for the class you wish to examine, click on standards tab when student data appears, and double click on the color coded percentage mastery box to open the learning library)

- Desmos is a fun site that can be used as a graphing calculator but also has lessons already created

    o https://www.desmos.com/

Coherence Map to enhance student learning

- http://achievethecore.org/coherence-map/#4/17/160/214/1

YouCubed Math games and activities

- https://www.youcubed.org/

    o https://teacher.desmos.com/

    o https://student.desmos.com/

Proficiency Scale

Unit 4 -- Proficiency Scale -- Geometry -- Chapter 12
Topic: Classifying two-dimensional figures into categories based on their prope

- **5.G.B.3** Understand that attributes belonging to a category of two-dimensional figures also belong to all subc...
  example, all rectangles have four right angles and squares are rectangles, so all squares have four right angle...
- **5.G.B.4** Classify two-dimensional figures in a hierarchy based on properties.

Score 4	**I can extend my understanding of attributes to develop my own strategies to classify and solve problems involving two-dimensional figures.**	
Score 3 (Learning Goal) What students will be able to do	**I am able to categorize and classify two-dimensional figures based on properties.**	
Score 2 What students will know	**I can:** • **Identify polygons as regular or irregular.** • **Classify triangles based on sides and angles.** • **Classify quadrilaterals based on sides and angles.** • **Calculate the area and perimeter of two-dimensional figures.**	
Score 1	**I can do some of the foundational knowledge found in level two with help.**	

Interdisciplinary Connections

The *Flags: Shaping History* Real-World Problem Solving Reader gives students an opportunity to read informational text and answer mathematical questions relating to the text. Some of the real-world problems in this text related to this unit include: identifying parallel and perpendicular lines on the US flag, identifying and classifying the five-sided polygon on the Ohio flag, classifying he quadrilateral on the Arkansas flag, and creating a Venn diagram that compares the state flags of Iowa and Texas using geometric terms.

MA.5.G.B.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
MA.5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.
SOC.6.1.8.2	Colonization and Settlement (1585-1763)