Unit 5: Title of Unit : Geometry

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

Unit Overview

Students will recognize angles as geometric shapes that are formed wherever two rays share a common endpoint and understand concepts of angle measurements. Students will measure angles in whole-number degrees using a protractor and sketch angles of specified measures. Students will recognize angle measure as being added in small amounts in order to find unknown angles in an example. Students will draw and identify lines and angles and classify shapes by properties of their lines and angles. Sw identify, classify, and create two dimensional figues and lines of symmetry.

Benchmark 14 will be assessed Early June

By the end of the year, administer the Link IT G4 CC TEI AG Math online Form C.

Transfer

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

Students will be able to independently use their understanding of angles and be able to measure angles; draw and identify lines and angles and classify shapes according to this criteria.

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...

Chapter 14

- how to draw examples of parallel lines and perpendicular lines

- how to measure angles
- how to classify triangles
- how to classify quadrilaterals
- how to identify figures that have line symmetry and draw lines of symmetry

Essential Questions

Students will keep considering...

- How are different ideas about geometry connected?

Application of Knowledge and Skill

Students will know...

Students will know...

Chapter 14

- parallel lines are the same distance apart and never meet
- perpendicular lines form right angles
- how to use a protractor
- how to use degrees to describe the angles measures
- how to use the measures of the angles
- triangles may be acute (all acute angles), right (1 right angle), or obtuse (1 obtuse angle)
- how to classify the angles
- how to determine if there are any sides that are parallel or perpendicular
- a line of symmetry is a line across a figure such that the figure can be folded along the line into matching parts

Students will be skilled at...

Students will be skilled at how to...

Chapter 14

- drawing an example of parallel line, like WX || YZ
- use a protractor to measure angles in whole-number degrees
- classify triangles by angles (i.e. the triangle has one right angle. So, it's a right triangle.)
- classify quadrilaterals based on their angles and sides (i.e., parallelograms, rectangles, rhombi, & squares have opposite sides that are equal in length & are parallel. Rectangles & squares have 4 right angles.)
- recognize figures that have line symmetry and draw lines of symmetry

Academic Vocabulary

Angle

Degree

Diagram

Measure

Unknown

Acute angle

Acute Triangle

Obtuse angle

Obtuse triangle

Right angle

One-degree angle

Right Triangle

Straight angle

Scalene Triangle

Equilateral Triangle

Isosceles Triangle

Degree

Protractor

Line

Line segment

Ray

Point

Endpoint

Perpendicular lines

Parallel lines

Intersecting lines

Line of symmetry

Symmetrical

Polygon

Irregular polygon

Regular polygon

Example

Figure

Line symmetric

2-Dimensional figure

Parallelogram

Classify

Right triangle

Shape

Rectangle

Rhombus

Square

Trapezoid

Size

Learning Goal Chapter 14

Students will understand the concepts of angles and be able to measure angles.

Daily Targets Chapter 14

SWBAT:

- Draw points, lines, line segments, and rays and identify these in two-dimensional figures (Lesson 1/DOK 1)
- Draw parallel, intersecting, and perpendicular lines and identify these in two-dimensional figures (Lesson 2/DOK 1)
- Understand concepts of angle and angle measurement (Lesson 3/DOK 1)
- Use concepts of angle measurement to classify angles (Lesson 4/DOK 2)
- Use a protractor to measure angles to the nearest degree (Lesson 5/DOK 2)
- Use a protractor to draw angles of specified measures (Lesson 6/DOK 3)
- Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical situations (Lesson 7/DOK 3)
- Classify triangles based on angle measure and describe triangles using their attributes (Lesson 8/DOK 2)
- Classify quadrilaterals using their attributes (Lesson 9/DOK 2)
- Identify figures with line symmetry and draw lines of symmetry (Lesson 10/DOK 2)
- Solve problems by makine a model (Lesson 11/DOK 4)

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
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.K-12.8	Look for and express regularity in repeated reasoning.
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.

Formative Assessment and Performance Opportunities

- benchmark assessments

- centers

- Chapter 14 Project- A Banner of Shapes (pg. 862)

- Check My Progress

- classwork

- Performance Task Chapter 14- Engineer Ellen- Work in the setting of an engineer and blueprints to measure and draw angle, identify parallel and perpendicular lines and quadrilaterals, and identify and draw lines of symmetry (DOK2, DOK3) Rubric TM946PT2

- Power Up for State Assessment

- quizzes

- teacher created assessments

- teacher observations

- ticket out the door

Summative Assessment

Chapter Tests

Quizzes

Classwork

Centers

Projects

21st Century Life and Careers

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2	Apply appropriate academic and technical 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	Communicate clearly and effectively and with reason.
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.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
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.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
TECH.8.1.5.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.5.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.5.B.CS2	Create original works as a means of personal or group expression.

TECH.8.1.5.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.5.D.3	Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.
TECH.8.1.5.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.5.D.CS2	Demonstrate personal responsibility for lifelong learning

Accommodations and modifications

IEP Modifications

504 Accommodations

BSI Support

ELL Support Strategy - Use the activity in the Vocabulary Check to assess students' abiltity to extend their understanding

English Learner Support Interactive Guide (T122-133)

Interactive Guide: Scaffolded differentiated activities (emergenging, expanding, bridging levels)

Foldables/Graphic organizers for notes on geometry terms

Venn Diagrams to compare shapes

Shape Riddles

Leveled learning centers

Small Group Instruction

Co-teach environment

Use of manipulatives/ models: rulers, protractors, and pattern blocks

Echo Read

Various forms of assessments

Lesson Enrichment Worksheets (Chapter Specific)

Lesson Reteach Worksheets (Chapter Specific)

TAG Manipulative Kits

RTI Guide in My Math - Chapter Specific

Unit Resources

- AAAmath http://www.aaamath.com/
- ALEKS
- Brainpop http://www.brainpop.com/
- Cool math 4 kids http://www.coolmath4kids.com/
- Funbrain http://www.funbrain.com/
- Illustrative Mathematics http://www.illustrativemathematics.org/
- Linkit
- Math playground http://www.mathplayground.com/   alien angles game
- Maths zone http://www.woodlands-junior.kent.sch.uk/maths/shape.htm
- McGraw-Hill My Math Chapter 14
- NCTM illuminations http://illuminations.nctm.org/

Interdisciplinary Connections

Literature Connections- Read trade books such as *Angles are Easy as Pie* by Robert Froman, *Sir Cumference and the Great Knight of Angleland* by Wayne Geehan, *Hamster Champs* by Stuart J. Murphy, *The Great Polygon Caper (Adventures in Mathopolis)* by Karen Farrell and *What's Your Angle, Pythagoras? A Math Adventure* by Julie Ellis to introduce various lessons

LA.RL.4.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems at grade level text-complexity or above, with scaffolding as needed.
LA.SL.4.1.A	Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
LA.SL.4.1.D	Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.