Qtr. 4: Weeks 1-3
March 20 – April 12 (13 days)
Grade 4, Unit 10: Measuring Angles

UNIT OVERVIEW: ANGLE MEASUREMENT

This unit is an introduction to angles and angle measurement. Students start this unit drawing points, lines, segments, rays, and angles since it is foundational to the other standards in this unit. Students use their understanding of equal partitioning and unit measurement to understand angle and turn measure.

Essential Questions	Key Vocabulary
What is an angle? How are angles classified and measured? What are benchmark angles and how can they be useful in estimating angle measures? How does a circle help with angle measurement? What makes an angle a right angle?	right angle, acute angle, obtuse angle, straight angle, benchmark angles, protractor, degrees (°), points, lines, line segments, rays, perpendicular lines, parallel lines, vertex

Basic Fact Assessment: Multiplication (0-9) & Division (divisors 1-9, quotients 0-9) separated

Standards/Objectives

Opportunity for Depth Standards	Standards Clarification
[4-MD.5a] Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. 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 of a circle is called a "one-degree angle" and can be used to measure angles.	**[4-MD.5a]** Understand concepts of an angle and the measure of angles.
[4-MD.5b] Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	**[4-MD.5b]** This standard calls for students to explore an angle as a series of "one-degree turns." Ex. A water sprinkler rotates one-degree at each interval. If the sprinkler rotates a total of 100º, how many one-degree turns has the sprinkler made?

[4-MD.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 or mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	**[4-MD.7]** Angle measure is additive, addition/subtraction in context.
[4-G.1] Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**[4-G.1]** Points, lines, segments, rays, types of angles, perpendicular, parallel.
Supporting Standards	**Standards Clarification**
[4-MD.6] Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**[4-MD.6]** Measure angles with protractor.

Continued (Not New)
NF3d, NF4a, NF4b, NF4c   Continue for reinforcement and review

Resources Qtr. 4 Unit 10			
Engage New York Module 4 Topics A, B, C - (MD5, MD6, MD7, G1) https://www.engageny.org/resource/grade-4-mathematics-module-4	**Georgia Unit 7 - (MD5, MD6, MD7)** https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th_Math-Unit-7.pdf	**Howard County** **MD5**https://hcpss.instructure.com/courses/107/pages/4-dot-md-dot-5-assessment-tasks **MD6**https://hcpss.instructure.com/courses/107/pages/4-dot-md-dot-6-assessment-tasks **MD7**https://hcpss.instructure.com/courses/107/pages/4-dot-md-dot-7-assessment-tasks **G1**https://hcpss.instructure.com/courses/107/pages/4-dot-g-1-assessment-tasks	**Math in Focus** **Chapter 9 - (MD5, MD6, MD7)** **Chapter 10 - (G1)**
Xtra Math http://xtramath.org/#/home/index *Free, individualized web based program that helps to build student fluency.*			

Focus Standards for Mathematical Practice
MP.3 Construct viable arguments and critique the reasoning of others.
MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.
MP.7 Look for and make use of structure.

Qtr. 4: Weeks 4-6 April 13 – May 2 (14 days) Grade 4, Unit 11: Attributes of 2-dimensional shapes	
UNIT OVERVIEW: RECOGNIZING/ANALYZING ATTRIBUTES OF 2-DIMENSIONAL SHAPES Students will develop their spatial reasoning skills by using a wide variety of attributes to talk about 2-dimensional shapes. Students analyze geometric figures based on angle measurement, parallel and perpendicular lines, and symmetry.	
Essential Questions How can shapes be classified by their angles and sides? How can the types of sides be used to classify quadrilaterals? Where is geometry found in your everyday world? What is symmetry?	**Key Vocabulary** plane figure, 2-D figure, polygon, side, vertex/vertices, points, lines, segments, rays, parallel lines, perpendicular lines, angle, right angle, acute angle, obtuse angle, triangle, right triangle, quadrilateral, square, rectangle, rhombus, trapezoid, parallelogram, pentagon, hexagon, octagon, line of symmetry
Basic Fact Assessment: Multiplication (0-9) & Division (divisors 1-9, quotients 0-9) separated	
Standards/Objectives	
Opportunity for Depth Standards	**Standards Clarification**
[4-G.1] Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**[4-G.1]** Points, lines, segments, rays, types of angles, perpendicular, parallel in 2-D shapes.
[4-G.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.	**[4-G.2]** Classify 2D figures by angles, parallel or perpendicular lines.
Additional	**Standards Clarification**
[4-G.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.	**[4-G.3]** Line of symmetry.
[4-OA.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.	**[4-OA.5]** Number patterns for a rule; repeated and growing shape patterns.

Resources Qtr. 4 Unit 11			
Engage New York Module 4 Topic A, Topic D - (G1, G2, G3) https://www.engageny.org/resource/grade-4-mathematics-module-4	**Georgia – (G1, G2, G3)** https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-6.pdf	**Illustrative Math – (G1, G2, G3)** https://www.illustrativemathematics.org/4.G **Howard County – (OA5)** https://hcpss.instructure.com/courses/107/pages/4-dot-oa-dot-5-assessment-tasks	**Math in Focus Chapter 11 - (G1, G2)**
FAL Two Dimensional Shapes, Angles, & Symmetry (G2, G3) http://education.ky.gov/curriculum/conpro/Math/Documents/4_KDE_Geometry_Two_Dimensional_Shapes_Angles_Symmetry_Grade_4.pdf	**FAL Two Dimensional Shapes, Angles, & Symmetry (G2, G3)** http://education.ky.gov/curriculum/conpro/Math/Documents/4_KDE_Geometry_Two_Dimensional_Shapes_Angles_Symmetry_Grade_4.pdf	**FAL Two Dimensional Shapes, Angles, & Symmetry (G2, G3)** http://education.ky.gov/curriculum/conpro/Math/Documents/4_KDE_Geometry_Two_Dimensional_Shapes_Angles_Symmetry_Grade_4.pdf	**FAL Two Dimensional Shapes, Angles, & Symmetry (G2, G3)** http://education.ky.gov/curriculum/conpro/Math/Documents/4_KDE_Geometry_Two_Dimensional_Shapes_Angles_Symmetry_Grade_4.pdf

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Focus Standards for Mathematical Practice
MP.3 Construct viable arguments and critique the reasoning of others.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
MP.7 Look for and make use of structure.

Qtr. 4: Weeks 7-9 **May 3 – May 24 (16 days)** **Grade 4, Unit 12: Problem Solving With Whole Numbers**

UNIT OVERVIEW: PROBLEM SOLVING WITH WHOLE NUMBERS
This is a culminating unit in which students focus on problem solving in order to demonstrate fluency with the standard algorithms in addition and subtraction. They demonstrate computational fluency with all problem types. All standards in this unit have been addressed in prior units. These concepts require greater emphasis due to the depth of the ideas, the time they take to master, and their importance to future mathematics.

Essential Questions	Key Vocabulary
What multiple representations and various strategies can be used to solve multiplication problems? What are some simple methods for solving multiplication and division problems? What patterns of multiplication and division can assist us in problem solving? How are remainders and divisors related?	add, subtract, multiply, divide, factor, product, multiples, divisor, dividend, quotient, divisible, equations, unknown, remainder, reasonableness, mental computation, estimation, rounding, arrays/area model, algorithms

Basic Fact Assessment: Multiplication (0-9) & Division (divisors 1-9, quotients 0-9) separated

Standards/Objectives	
Mastery Standards	**Standards Clarification**
[4-OA.1] Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. • A multiplicative comparison is a situation in which one quantity is multiplied by a specified number to get another quantity (e.g., "a is n times as much as b"). Students should be able to identify and verbalize which quantity is being multiplied and which number tells how many times.	**[4-OA.1]** Multiplicative comparison.
[4-OA.2] Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	**[4-OA.2]** Multiple/divide word problems, examine role of factors in different situations – all problem types- WHOLE NUMBERS ONLY.

[4-OA.3] Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**[4-OA.3]** Multistep problems with whole numbers (include rounding and estimation) – 3 steps, addition/subtraction and mult/div (judge reasonableness).
Opportunity for Depth Standards	**Standards Clarification**
[4-NBT.5] Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**[4-NBT.5]** Multiply 1 digit by 2, 3, and 4 digits; multiply 2 digits by 2 digits (using a variety of strategies).
[4-NBT.6] Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**[4-NBT.6]** Divide 2, 3, and 4 digits by 1 digit.
[4-MD.3] Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. • Example: Find the width of a rectangular room given the area of the flooring and the length by viewing the area formula as a multiplication equation with an unknown factor.	**[4-MD.3]** Apply area/perimeter formula in real-life situations.
Supporting Standards	**Standards Clarification**
[4-MD.2] Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale**.**	**[4-MD.2]** Word problems with distance, time, volume, and money (whole numbers, fractions and decimals).
Continued (Not New)	
NBT1, NBT2, NBT3, NBT4, OA4, NF1, NF2, NF3, NF4, NF5, NF6, NF7, MD1	Continue for reinforcement and review

Resources Qtr. 4 Unit 12			
Engage New York (Review) **Module 3 - (OA1, OA2, OA3, NBT5, MD3)** https://www.engageny.org/resource/grade-4-mathematics-module-3 **Georgia Standards (Review)** **Unit 2 - (OA1, OA2, OA3, NBT4, NBT5, NBT6)** https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th-Math-Unit-2.pdf	**Inside Mathematics - (OA1, OA2, OA3, NBT4, NBT5, NBT6)** http://www.insidemathematics.org/common-core-resources/mathematical-content-standards/standards-by-grade/4th-grade	**K-5 Math Resources - (OA1, OA2, OA3, NBT4, NBT5, NBT6)** http://www.k-5mathteachingresources.com/4th-grade-number-activities.html	**Math in Focus** **Chapter 3 - (NBT1, NBT2, NBT3)**
Xtra Math http://xtramath.org/#/home/index *Free, individualized web based program that helps to build student fluency.*			
Focus Standards for Mathematical Practice			
MP.2 Reason abstractly and quantitatively.			
MP.8 Look for and express regularity in repeated reasoning.			