Winslow Schools
Mathematics Curriculum - Grade 4
Unit 4

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 4 **Geometry and Measurement**	● 4.G.A.1 ● 4.G.A.2 ● 4.G.A.3 ● 4.MD.C.5 ● 4.MD.C.6 ● 4.MD.C.7 ● 4.OA.A.3* ● 4.NBT.B.4*	● Draw and identify lines and angles, and classify shapes by properties of their lines and angles ● Understand concepts of angle and measure angles (Geometric measurement) ● Use the four operations with whole numbers to solve problems ● Use place value understanding and properties of operations to perform multi-digit arithmetic	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics.
Unit 4: *Suggested Open Educational Resources*	4.G.A.1 The Geometry of Letters 4.G.A.1 What's the Point? 4.G.A.2 Are these right? 4.G.A.2 Defining Attributes of Rectangles and Parallelograms 4.G.A.3 Finding Lines of Symmetry 4.G.A.3 Lines of symmetry for triangles 4.MD.C.6, 4.MD.C.7, 4.G.A.1 Measuring Angles 4.MD.C.7, 4.G.A.2 Finding an unknown angle 4.OA.A.3 Carnival Tickets		MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.

Major Supporting Additional (Identified by PARCC Model Content Frameworks).

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Curriculum Unit 4	Standards		Pacing	
			Days	Unit Days
Unit 4 **Geometry and Measurement**	● 4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures.	3	45
	● 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 particular size; recognize right angles as a category, and identify right, acute, obtuse, equilateral, isosceles, and scalene triangles.	3	
	● 4.G.A.3	Draw lines of symmetry and identify line-symmetric figures.	3	
	● 4.MD.C.5	Explain angles as geometric shapes formed by two rays sharing a common endpoint and explain the relationship between a one-degree angle, a circle, and angle measure.	3	
	● 4.MD.C.6	Measure angles in whole number degrees using a protractor and sketch angles of specific measures.	3	
	● 4.MD.C.7	Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems using a symbol for an unknown angle measure.	4	
	● 4.OA.A.3*	Write and solve each equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies.	10	
	● 4.NBT.B.4*	Fluently add and subtract multi-digit whole numbers using the standard algorithm	10	
	Assessment, Re-teach and Extension		6	

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Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 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.	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● draw points, lines, line segments and rays. ● draw angles (right, acute, obtuse). ● draw perpendicular and parallel lines. ● distinguish between lines, line segments, and rays. ● identify points, lines, line segment, rays, right angles, acute angles, obtuse angles, perpendicular lines and parallel lines in two-dimensional figures. Learning Goal 1: Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures.
● 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.	MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): ● Trapezoid is a quadrilateral with at least one pair of parallel sides. Students are able to: ● classify triangles based on the presence or absence of perpendicular lines and based on the presence or absence of angles of a particular size. ● classify quadrilaterals based on the presence or absence of parallel or perpendicular lines and based on the presence or absence of angles of a particular size. Learning Goal 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 particular size; recognize right angles as a category, and identify right, acute, obtuse, equilateral, isosceles, and scalene triangles.

● 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.	MP.5 Use appropriate tools strategically.
	MP.7 Look for and make use of structure.
		Concept(s): No new concept(s) introduced
		Students are able to:
		  ● fold a figure along a line in order to create matching parts.
		  ● identify lines of symmetry as a line across the figure such that the figure can be folded along the line into matching parts.
		  ● identify figures having line symmetry.
		  ● draw lines of symmetry.
		Learning Goal 3: Draw lines of symmetry and identify line-symmetric figures.

● 4.MD.C.5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
  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.
  4.MD.C.5b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
	MP.2 Reason abstractly and quantitatively.	Concept(s):
		  ● Angles are formed by two rays sharing a common endpoint and result from the rotation of one ray around the endpoint.
		  ● Angle Measurement: An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
		
		Students are able to:
		  ● describe an angle as measured with reference to a circle with the center of the circle being the common endpoint of the rays.
		  ● explain a 'one-degree angle' and its relation to a circle; a "degree" is defined as 1/360 (one degree angle) of the entire circle.
		Learning Goal 4: Explain angles as geometric shapes formed by two rays sharing a common endpoint and explain the relationship between a one-degree angle, a circle, and angle measure.

● 4.MD.C.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	MP.2 Reason abstractly and quantitatively.
	MP.5 Use appropriate tools strategically.
		Concept(s): No new concept(s) introduced
		Students are able to:
		  ● measure angles in whole-number degrees.
		  ● given an angle measure, sketch the angle.
		Learning Goal 5: Measure angles in whole number degrees using a protractor and sketch angles of specific measures.

● 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.	MP.1 Make sense of problems and persevere in solving them. MP.7 Look for and make use of structure.	Concept(s): ● Angle measures may be added; when an angle is decomposed into non-overlapping parts, the angle measure of the whole (original angle) is the sum of the angle measures of the parts. Students are able to: ● add and subtract to find unknown angles on a diagram in real world and mathematical problems. ● write an equation with a symbol for the unknown angle measure. Learning Goal 6: Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems using a symbol for an unknown angle measure.
● 4.OA.A.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. *(benchmarked)	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.7 Look for and make use of structure.	Concept(s): ● Proper use of the equal sign. ● Improper use of the equal sign (e.g. $3 + 7 = 10 - 5 = 5$ is incorrect). Students are able to: ● solve multi-step word problems involving any of the four operations. ● solve multi-step word problems involving interpretation (in context) of a remainder. ● write equations to represent multi-step word problems, using a letter to represent the unknown quantity. ● explain why an answer is reasonable. ● use mental computation and estimation strategies to determine whether an answer is reasonable. Learning Goal 7: Write and solve each equation (including any of the four operations) in order to solve multi-step word problems, using a letter to represent the unknown; interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies.

● 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.] *(benchmarked)	MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● add using the standard algorithm with accuracy and efficiency ● subtract using the standard algorithm with accuracy and efficiency Learning Goal 8: Fluently add and subtract multi-digit whole numbers using the standard algorithm

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School/District Formative Assessment Plan	**School/District Summative Assessment Plan**
Pre-Assessment, Quizzes Exit Tickets Daily Monitoring Math Journals Interactive Notebooks Portfolios	Chapter Benchmark Link-It
Focus Mathematical Concepts	

Prerequisite skills:
Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/

Standards:
4.G.A.1:   2.G.1, 2.G.1
4.G.A.2:   1.G.1, 2.G.1, 3.G.1, 4.G.1
4.G.A.3:   1.G.2, 3.G.2, 4.G.1
4.MD.C.5:   3.G.1, 3.G.2, 4.G.1
4.MD.C.6:   2.MD.1, 4.G.1, 4.MD.5
4.MD.C.7:   2.MD.5, 4.G.1, 4.MD.5, 4.MD.6
4.OA.A.3:   2.OA.1, 3.OA.8
4.NBT.B.4:   2.NBT.7, 3.NBT.2, 4.NBT.1

Common Misconceptions:

4.G.A.1-2 Students believe a wide angle with short sides may seem smaller than a narrow angle with long sides. Students can compare two angles by tracing one and placing it over the other. Students will then realize that the length of the sides does not determine whether one angle is larger or smaller than another angle. The measure of the angle does not change.

4.G.A.3 Some children may think that there can only be one line of symmetry for an object. Encourage them to try folding shapes in more than one way. Giving students multiple copies of the same shapes could help avoid confusion. Coloring one side of the line one color and the other side of the line a different color may aid in seeing multiple lines. In essence the student is seeing if the shape can be folded into ½ halves.

4.MD.C. 5-7 Students are confused as to which number to use when determining the measure of an angle using a protractor because most protractors have a double set of numbers.
Students should have multiple experiences estimating and comparing angles to the Benchmark 90° or right angle.
They should explain their reasoning by deciding first if the angle appears to be an angle that is less than the measure of a right angle (90°) or greater than the measure of a right angle (90°). If the angle appears to be less than 90°, it is an acute angle and its measure ranges from 0° to 89°.
If the angle appears to be an angle that is greater than 90°, it is an obtuse angle and its measures range from 91° to 179°. Ask questions about the appearance of the angle to help students in deciding which number to use.
Some protractors have a protective edge along the bottom. Zero degrees begins about 14 of an inch above the bottom edge. Students often to not take this into account and therefore will have in accurate measures of angles.

Number Fluency:
4.NBT.4 Students fluently add and subtract multi-digit whole numbers using the standard algorithm.

Achieve the Core – GoMath Fluency Activities
https://achievethecore.org/page/2853/go-math-k-5-guidance-documents

Achieve the Core – Fluency Activities
https://achievethecore.org/page/2948/fluency-resources-for-grade-level-routines

Math Coach – Fact Fluency http://schoolwires.henry.k12.ga.us/Page/21865
Math Wire – Basic Facts Link http://mathwire.com/numbersense/bfactslinks.html
Math Fact Practice http://www.playkidsgames.com/games/mathfact/mathFact.htm

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District/School Tasks	District/School Primary and Supplementary Resources
PARCC Released Items http://www.parcc-assessment.org/released-items **NJDOE Digital Item Library** https://nj.digitalitemlibrary.com/home **NJSLA Mathematics Evidence Statements** https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491 **LinkIt! Form A, B, & C**	Text: Go Math **Think Central** https://www-k6.thinkcentral.com/ePC/viewResources.do?method=retrieveResources&pageName=resourcepage **Flip Book – Gr 4** http://community.ksde.org/Default.aspx?tabid=5646 **North Carolina Dept of Ed. Wikispaces:** http://maccss.ncdpi.wikispaces.net/Elementary **PARCC Math Resources** http://www.parcc-assessment.org/assessments/test-design/mathematics/math-test-specifications-documents **101 Math Discourse Questions:** http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf **Asking Effective Questions** http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf GoMath Personal Math Trainer **XtraMath** http://www.xtramath.org **Prodigy** **http://www.prodigygame.com** **MobyMax** **http://www.mobymax.com**
Instructional Best Practices and Exemplars	
1. Identifying similarities and differences 2. Summarizing and note taking 3. Reinforcing effort and providing recognition 4. Homework and practice 5. Nonlinguistic representations	6. Cooperative learning 7. Setting objectives and providing feedback 8. Generating and testing hypotheses 9. Cues, questions, and advance organizers 10. Manage response rates

Vocabulary

4.G.A.1, 2, & 3

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

classify shapes/figures, properties (attributes, features)**,** defining characteristics and non-defining characteristic, point, line, line segment, ray, angle, vertex/vertices, right angle, acute, obtuse, perpendicular, parallel, right triangle, isosceles triangle, equilateral triangle, scalene triangle, line of symmetry, symmetric figures, two dimensional, regular and irregular

From previous grades: polygon, rhombus/rhombi, rectangle, square, triangle, quadrilateral, pentagon, hexagon, cube, trapezoid, half/quarter circle, circle, cone, cylinder, sphere

4.D.C.5, 6, & 7

Geometric measurement: understand concepts of angle and measure angles.

measure, point, end point, geometric shapes, ray, angle, circle, fraction, intersect, one-degree angle, protractor, decomposed, addition, subtraction, unknown, obtuse, acute

4.OA.A.3

Use the four operations with whole numbers to solve problems.

multiplication/multiply, division/divide, dividend, divisor, addition/add, subtraction/subtract, equations, unknown, remainders, reasonableness, mental computation, estimation, rounding

4.NBT.B.4

Use place Value understanding and properties of operations to perform multi-digit arithmetic.

add, addend, sum, subtract, difference, equation, strategies, (properties)-rules about how numbers work, rectangular arrays, area model, multiply, divide, factor, product, quotient, reasonableness

9.1 Personal Financial Literacy, 9.2 Career Awareness, Exploration, Preparation and Training & 9.4 Life Literacies and Key Skills

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).

9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).

9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3).

The implementation of the 21st Century skills and standards for students of the Winslow Township District is infused in an interdisciplinary format in a variety of curriculum areas that include, English language Arts, Mathematics, School Guidance, Social Studies, Technology, Visual and Performing Arts, Science, Physical Education and Health, and World Language.: Additional opportunities to address 9.1, 9.2 & 9.4:

Philadelphia Mint

https://www.usmint.gov/learn/kids/resources/educational-standards

Different ways to teach Financial Literacy.

https://www.makeuseof.com/tag/10-interactive-financial-websites-teach-kids-money-management-skills/

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Suggested Modifications for Special Education/504

Students with special needs: The students' needs will be addressed on an individual and grade level using a variety of modalities. Accommodations will be made for those students who need extra time to complete assignment. Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Physical expectations and modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered.

☐ Provide the opportunity to re-take tests
☐ Modify activities/assignments/projects/assessments
☐ Breakdown activities/assignments/projects/assessments into manageable units
☐ Additional time to complete activities/assignments/projects/assessments
☐ Provide an option for alternative activities/assignments/projects/assessments
☐ Modify Content
☐ Modify Amount
☐ Small Group Intervention/Remediation

☐ Individual Intervention/Remediation
☐ Additional Support Materials
☐ Guided Notes
☐ Graphic Organizers
☐ Adjust Pacing of Content
☐ Increase one on one time
☐ Peer Support
☐ Other Modifications for Special Education:
- Think Central Online Resources:
  - Reteach
  - Strategic Intervention
  - Intensive Intervention Skill Pack
  - Response to Intervention Activities

Suggested Modifications for At-Risk Students

Formative and summative data will be used to monitor student success. At first signs of failure, student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations

☐ Provide the opportunity to re-take tests

☐ Increase one on one time

☐ Oral prompts can be given

☐ Using visual demonstrations, illustrations, and models

☐ Give directions/instructions verbally and in simple written format

☐ Peer Support

☐ Modify activities/assignments/projects/assessments

☐ Additional time to complete activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Modify Amount

☐ Adjust Pacing of Content

☐ Small Group Intervention/Remediation

☐ Individual Intervention/Remediation

☐ Additional Support Materials

☐ Guided Notes

☐ Graphic Organizers

☐ Other Modifications for Students At-Risk:
  - Think Central Online Resources:
    - Reteach
    - Strategic Intervention
    - Intensive Intervention Skill Pack
    - Response to Intervention Activities

English Language Learners	Suggested Modifications for Gifted Students
All WIDA Can Do Descriptors can be found at this link: https://wida.wisc.edu/teach/can-do/descriptors ☐ Grades 4-5 WIDA Can Do Descriptors: ☐ Listening ☐ Speaking ☐ Reading ☐ Writing ☐ Oral Language Students will be provided with accommodations and modifications that may include: • Relate to and identify commonalities in mathematics studies in student's home country • Assist with organization • Use of computer • Emphasize/highlight key concepts • Teacher Modeling • Peer Modeling • Label Classroom Materials - Word Walls	Students excelling in mastery of standards will be challenged with complex, high level challenges related to the topic. • Raise levels of intellectual demands • Require higher order thinking, communication, and leadership skills • Differentiate content, process, or product according to student's readiness, interests, and/or learning styles • Provide higher level texts • Expand use of open-ended, abstract questions • Critical and creative thinking activities that provide an emphasis on research and in-depth study • Enrichment Activities/Project-Based Learning/ Independent Study Additional Strategies may be located at the links: ❖ Gifted Programming Standards ❖ Webb's Depth of Knowledge Levels and/or Revised Bloom's Taxonomy ❖ REVISED Bloom's Taxonomy Action Verbs

Suggested Activities	
☐ Do Now/Warm-Up ☐ Whole Group ☐ Small Groups ☐ Guided Practice ☐ Independent Practice ☐ Daily 5 ☐ CAFÉ	☐ Centers ☐ Intervention/Remediation ☐ Projects ☐Academic Games ☐ Other Suggested Activities:

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Interdisciplinary Connections
Science/Social Studies questions embedded in series (math, science, social studies)
Think Central Go Math! Real World Videos (math, reading, science, social studies)
Think Central S.T.E.M. Activities (math and science)
Math Journal Prompts embedded in series (math and writing)

Integration of Computer Science and Design Thinking NJSLS 8
8.1.5.CS.1: Model how computing devices connect to other components to form a system.
8.1.5.CS.2: Model how computer software and hardware work together as a system to accomplish tasks.
8.1.5.CS.3: Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.
8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.