Winslow Township School District
Mathematics Curriculum – Grade 6
Unit 3

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 3 **Equations, The Rational Number System and** **2-D Geometry**	● 6.EE.B.5 ● 6.EE.B.7 ● 6.NS.C.5 ● 6.NS.C.6 ● 6.NS.C.7 ● 6.EE.B.8 ● 6.NS.C.8* 　● 6.G.A.3 　● 6.G.A.1	● Reason about and solve one-variable equations and inequalities ● Apply and extend previous understandings of numbers to the system of rational numbers ● Solve real-world and mathematical problems involving area, surface area, and volume	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 3: **Suggested Open Educational Resources**	6.EE.B.5 Make Use of Structure 6.EE.B.7 Morning Walk 6.NS.C.5 Warmer in Miami 6.NS.C.6 Mile High 6.NS.C.7 Jumping Flea 6.NS.C.7a Fractions on the Number Line 6.NS.C.7b Comparing Temperatures 6.EE.B.8 Fishing Adventures 1 6.NS.C.8 Nome, Alaska 6.G.A.1, 6.G.A.3 Polygons in the Coordinate Plane		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 3	Standards		Pacing	
			Days	Unit Days
Unit 3 **Equations, The Rational Number System and 2-D Geometry**	● 6.EE.B.5	Use substitution to determine whether a given number makes an equation or inequality true.	3	45
	● 6.EE.B.7	Solve real world problems by writing and solving equations of the form $x + p = q$ and $px = q$ (p, q, and x are non-negative rational numbers).	5	
	● 6.NS.C.5	Use positive and negative numbers to represent quantities in real-world situations, explaining the meaning of zero in the context of the real-world situation.	3	
	● 6.NS.C.6	Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero. Plot pairs of positive and negative rational numbers in the coordinate plane; describe two ordered pairs that differ only by signs as reflections across one or both axes.	4	
	● 6.NS.C.7	Use statements of inequality to determine relative positions of two rational numbers on a number line; write and explain statements of order for rational numbers in real-world contexts. Explain the meaning of absolute value of a rational number as distance from zero on the number line and as magnitude for a positive or negative quantity in a real-world situation.	7	
	● 6.EE.B.8	Write an inequality of the form x > c or x < c to represent a constraint or condition in a real world or mathematical problem and represent them on a number line.	3	
	● 6.NS.C.8*	Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.	3	
	● 6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.	4	
	● 6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes to solve real world or mathematical problems.	10	
	Assessment, Re-teach and Extension		3	

Unit 3 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● **6.EE.B.5**. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	MP.5 Use appropriate tools strategically. MP.6 Attend to precision.	Concept(s): ● Solving an equation or inequality is a process of answering the question: determine which values from a specified set, if any, make the equation or inequality true. Students are able to: ● substitute a number into an equation to determine whether it makes an equation true. ● substitute a number into an inequality to determine whether it makes the inequality true. Learning Goal 1: Use substitution to determine whether a given number makes an equation or inequality true.
● **6.EE.B.7**. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● An equation is defined by two expressions that are equivalent to one another. Students will be able to: ● solve real world problems by writing and solving equations of the form $x + p = q$ (p, q, and x are non-negative and rational). ● solve real world problems by writing and solving equations of the form $px = q$ (p, q, and x are non-negative and rational). Learning Goal 2: Solve real world problems by writing and solving equations of the form $x + p = q$ and $px = q$ (p, q, and x are non-negative rational numbers).

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● 6.NS.C.5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically	Concept(s): ● Positive and negative numbers, used together, describe quantities having opposite directions or opposite values. Students are able to: ● represent quantities with positive and negative numbers in real-world contexts. ● interpret positive and negative numbers in real-world contexts. ● explain the meaning of zero, in context, in each real-world situation. Learning Goal 3: Use positive and negative numbers to represent quantities in real-world situations, explaining the meaning of zero in the context of the real-world situation.
● 6.NS.C.6. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. 6.NS.C.6a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. 6.NS.C.6b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. 6.NS.C.6c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.	Concept(s): ● Opposite signs of numbers indicate locations on opposite sides of 0 on the number line. ● The opposite of the opposite of a number is the number itself (e.g. the opposite of three is -3. The opposite of the opposite of three, -(-3), is equal to the original number, 3). ● Signs of numbers in ordered pairs indicate their locations in quadrants of the coordinate plane. ● When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Students are able to: ● position rational numbers on horizontal and vertical number lines. ● position pairs of rational numbers on a coordinate plane. ● explain the conditions for which pairs of points are reflections across an axes in the coordinate plane. ● locate numbers and their opposites on the number line and explain their relation to 0. Learning Goal 4: Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero. Learning Goal 5: Plot pairs of positive and negative rational numbers in the coordinate plane; describe two ordered pairs that differ only by signs as reflections across one or both axes.

● 6.NS.C.7. Understand ordering and absolute value of rational numbers. 6.NS.C.7a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.* 6.NS.C.7b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 ^oC > –7 ^oC to express the fact that –3 ^oC is warmer than –7 ^oC.* 6.NS.C.7c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.* 6.NS.C.7d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*	MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.5 Use appropriate tools strategically	Concept(s): ● The absolute value of a rational number is its distance from 0 on the number line. Students are able to: ● given an inequality, determine the position of one rational number relative to another. ● write a inequality and explain statements of order for rational numbers in real world situations. Learning Goal 6: Use statements of inequality to determine relative positions of two rational numbers on a number line; write and explain statements of order for rational numbers in real-world contexts. Learning Goal 7: Explain the meaning of absolute value of a rational number as distance from zero on the number line and as magnitude for a positive or negative quantity in a real-world situation.

● 6.EE.B.8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams	MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● An inequality may represent a constraint (or a condition) in a real-world problem. ● Infinity ($x > c$ and $x < c$ have an infinite number of solutions). Students are able to: ● represent real-world constraint or condition by writing an inequality of the form $x > c$ or $x < c$. ● graph inequalities of the form $x > c$ or $x < c$ on number lines. Learning Goal 8: Write an inequality of the form x > c or x < c to represent a constraint or condition in a real world or mathematical problem and represent them on a number line.
● 6.NS.C.8. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. *(benchmarked) ● 6.G.A.3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems. ● draw polygons in the coordinate plane. ● use absolute value to find distances between points with the same first coordinate or the same second coordinate. ● use coordinates to solve real-world distance, perimeter, and area problems. Learning Goal 9: Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.

6.G.A.1. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. 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: ● compose rectangles in order to find the area of triangles, special quadrilaterals and polygons. ● decompose triangles, special quadrilaterals, and polygons into triangles and other shapes in order to find their area. ● compose rectangles and decompose into triangles in order to solve real-world problems. Learning Goal 10: Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes to solve real world or mathematical problems.

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Unit 3

Unit 3 Grade 6	
School/District Formative Assessment Plan	**School/District Summative Assessment Plan**
Pre-Assessment, Quizzes Exit Tickets Daily Monitoring	Unit Benchmark LinkIt!

Focus Mathematical Concepts

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

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

Common Misconceptions:

6.NS.C.6 Generally, negative values are introduced with integers instead of with fractions and decimals. However, it is a mistake to stop with integers values because students must understand where numbers like -4.5 and $-1\frac{3}{4}$ belong in relation to the integers. Students often place $-1\frac{3}{4}$ between -1 and 0 instead of between -2 and -1.

Number Fluency:
6.NS.2 Students fluently divide multi-digit numbers using the standard algorithm. This is the culminating standard for several years' worth of work with division of whole numbers.
6.NS.3 Students fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Fluency Support for Grades 6-8
https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8

District/School Tasks	District/School Primary and Supplementary Resources and Technology Integration
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 **Link it/Go Math!:** **https://www.k6.thinkcentral.com/ePC/start.do** **GoMath Personal Math Trainer** **Fluency Support for Grades 6-8** **https://www.engageny.org/resource/mathematics-fluency-support-grades-6-8** **Moby Max:** https://www.mobymax.com/signin **6th grade Flip Book:** http://community.ksde.org/Default.aspx?tabid=5646 **North Carolina Dept of Ed. Wikispaces:** http://maccss.ncdpi.wikispaces.net/Middle+School **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
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	
6.EE.B.5, 7, & 8 **Reason about and solve one-variable equations and inequalities.** inequalities, equations, greater than, >, less than, <, greater than or equal to, ≥, less than or equal to, ≤, profit, exceed 6.NS.C.5, 6, 7, & 8 **Apply and extend previous understanding of numbers to the system of rational numbers.** rational numbers, opposites, absolute value, greater than, >, less than, <, greater than or equal to, ≥, less than or equal to, ≤, origin, quadrants, coordinate plane, ordered pairs, *x*-axis, *y*-axis, coordinates	6.G.A.1 & 3 **Solve real-world problems involving area, surface area, and volume.** area, surface area, volume, decomposing, edges, dimensions, net, vertices, face, base, height, trapezoid, isosceles, right triangle, quadrilateral, rectangles, squares, parallelograms, trapezoids, rhombi, kites, right rectangular prism, diagonal

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

9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions.

9.1.8.CDM.2: Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages, lines of credit) and compare and calculate the interest rates associated with each.

9.1.8.CDM.3: Compare and contrast loan management strategies, including interest charges and total principal repayment costs.

9.1.8.CP.3: Explain the purpose of a credit score and credit record, the factors and impact of credit scores.

9.1.8.CP.4: Summarize borrower's credit report rights.

9.1.8.CP.5: Compare the financial products and services available to borrowers relative to their credit worthiness.

9.1.8.EG.7: Explain the effect of the economy (e.g., inflation, unemployment) on personal income, individual and family security, and consumer decisions.

9.1.8.FI.4: Analyze the interest rates and fees associated with financial products.

9.1.8.FP.3: Explain how self-regulation is important to managing money (e.g., delayed gratification, impulse buying, peer pressure, etc.).

9.1.8.FP.5: Determine how spending, investing, and using credit wisely contributes to financial well-being.

9.1.8.PB.1: Predict future expenses or opportunities that should be included in the budget planning process.

9.1.8.PB.3: Explain how to create budget that aligns with financial goals.

9.1.8.PB.4: Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family).

9.1.8.PB.7: Brainstorm techniques that will help decrease expenses including comparison shopping, negotiating, and day-to-day expense management.

9.2.8.CAP.13: Compare employee benefits when evaluating employment interests and explain the possible impact on personal finances.

9.4.8.TL.1: Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.

9.4.8.TL.2: Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).

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/

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 assignments. 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 6-8 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:

Interdisciplinary Connections
Go Math Grab and Go! Activities (Reading, Science, Math, Social Studies) Go Math Real World Project: Big Idea, Expressions and Equations (Math, Reading, Writing, Science, Social Studies) Go Math Cross-Curricular Science and Social Studies questions, experiments, and activities embedded throughout the chapter.
Integration of Computer Science and Design Thinking NJSLS 8
8.1.8.NI.2: Model the role of protocols in transmitting data across networks and the Internet and how they enable secure and errorless communication. 8.1.8.NI.3: Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems. 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.