Winslow Township School District
Mathematics Curriculum – Grade 6
Unit 2

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 2 **Expressions and 3-D Geometry**	● 6.EE.A.1 ● 6.EE.A.2 ● 6.EE.A.3 ● 6.EE.A.4 ● 6.EE.B.6 ● 6.G.A.2 ● 6.G.A.4	● Apply and extend previous understandings of arithmetic to algebraic expressions ● Reason about and solve one-variable equations and inequalities ● 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. 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.
Unit 2: **Suggested Open Educational Resources**	6.EE.A.1 The Djinni's Offer 6.EE.A.2 Rectangle Perimeter 1 6.EE.A.4 Rectangle Perimeter 2 6.EE.A.4 Equivalent Expressions 6.G.A.2 Volumes with Fractional Edge Lengths 6.G.A.4 Nets for Pyramids and Prisms		

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

Curriculum Unit 2	Standards		Pacing	
			Days	Unit Days
Unit 2 **Expressions and 3-D Geometry**	● 6.EE.A.1	Write and evaluate numerical expressions involving whole number exponents.	8	45
	● 6.EE.A.2	Use mathematical language to identify parts of an expression. Write and evaluate algebraic expressions involving exponents (include evaluating formulas).	7	
	● 6.EE.A.3	Apply properties of operations (factor, distribute, and combine like terms) to generate equivalent expressions.	5	
	● 6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	5	
	● 6.EE.B.6	Use variables to represent numbers and write expressions when solving real world or mathematical problems.	4	
	● 6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes and show that the volume is the same as it would be if found by multiplying the edge lengths; apply volume formulas to right rectangular prisms with fractional edge lengths.	6	
	● 6.G.A.4	Represent three dimensional figures objects with nets made of rectangles and triangles, and use the nets to find the surface area of the figures in order to solve real world and mathematical problems.	4	
	Assessment, Re-teach and Extension		6	

Winslow Township School District

Mathematics Curriculum – Grade 6

Unit 2

Unit 2 Grade 6		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● 6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● write numerical expressions (involving whole number exponents) from verbal descriptions. ● evaluate numerical expressions involving whole number exponents. Learning Goal 1: Write and evaluate numerical expressions involving whole number exponents.
● 6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers 6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 - y.* 6.EE.A.2b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms* 6.EE.A.2c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length s = ½*	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: ● write algebraic expressions from verbal descriptions. ● use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression. ● evaluate algebraic expressions and formulas, including those involving exponents. Learning Goal 2: Use mathematical language to identify parts of an expression. Learning Goal 3: Write and evaluate algebraic expressions involving exponents (include evaluating formulas).
● 6.EE.A.3. Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the*	MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.	Concept(s): ● Properties of operations: distributive property, combining like terms Students are able to: ● combine like terms to generate an equivalent expression.

equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y ● 6.EE.A.4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for*		● factor to generate an equivalent expression. ● multiply (apply the distributive property) to generate an equivalent expression. Learning Goal 4: Apply properties of operations (factor, distribute, and combine like terms) to generate equivalent expressions and to identify when two expressions are equivalent.
● 6.EE.B.6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	Concept(s): ● A variable can represent an unknown number or any number in a set of numbers. Students are able to: ● write expressions for solving real-world problems. Learning Goal 5: Use variables to represent numbers and write expressions when solving real world or mathematical problems.
● 6.G.A.2. Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\,w\,h$ and	MP. 2 Reason abstractly and quantitatively.	Concept(s): No new concept(s) introduced Students are able to: ● pack a right rectangular prism with fractional edge lengths with unit fraction cubes. ● show that the volume found by packing is the same as would be found by multiplying the edge lengths of the prism.

$V = B\,h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.		• apply volume formulas, $V = l\,w\,h$ and $V = b\,h$, to right rectangular prisms with fractional edge lengths. Learning Goal 6: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes and show that the volume is the same as it would be if found by multiplying the edge lengths; apply volume formulas to right rectangular prisms with fractional edge lengths.
6.G.A.4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. 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.4 Model with mathematics. MP.5 Use appropriate tools strategically	Concept(s): No new concept(s) introduced Students are able to: • represent three dimensional objects with nets made up of rectangles and triangles. • find surface area of three-dimensional objects using nets. • solve real world and mathematical problems involving surface area using nets. Learning Goal 7: Represent three dimensional figures objects with nets made of rectangles and triangles, and use the nets to find the surface area of the figures in order to solve real world and mathematical problems.

Winslow Township School District
Mathematics Curriculum – Grade 6
Unit 2

Unit 2 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.A.1:   5.OA.1
6.EE.A.2:   5.OA.2
6.EE.A.3:   5.OA.2
6.EE.A.4:   5.OA.2, 5.NF.5
6.EE.B.6:   6.EE.A.2
6.G.A.2:   5.MD.5
6.G.A.4:   5.MD.5

Common Misconceptions:

6.EE.A.1 Misconceptions when dealing with expressions stem from the misunderstanding/reading of the expression. For example, knowing the operations that are being referenced with notation like, $x3$, $4x$, $3(x + 2y)$ is critical. The fact that x^3 means $xx \cdot xx \cdot xx$; x times x times x, not 3 times x; $4x$ means 4 times x or $x+x+x+x$.

When evaluating $4x$ when $x = 7$, substitution does not result in the expression meaning 47.

When using the distributive property, students will often multiply the first term, but forget to do the same to the second term.

Students assume if there is not a coefficient in front of a variable, there is not actually a number there. They do not see that y = 1y.

When solving equations and inequalities, they may use the inverse operation on only one side and on the other or they may use the same operation rather than the inverse.

6.G.A.2: Common errors when plotting points in the coordinate plane include transposing the x and y-coordinates, mistaking a vertical or horizontal line on the plane by miscounting or struggling visually with the difference between the lines, and confusing the positive and negative parts of the perpendicular number lines when plotting points.

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

Winslow Township School District
Mathematics Curriculum – Grade 6
Unit 2

Instructional Best Practices and Exemplars	
1. Identifying similarities and differences	6. Cooperative learning
2. Summarizing and note taking	7. Setting objectives and providing feedback
3. Reinforcing effort and providing recognition	8. Generating and testing hypotheses
4. Homework and practice	9. Cues, questions, and advance organizers
5. Nonlinguistic representations	10. Manage response rates

Vocabulary	
6.EE.A.1, 2, 3, & 4 **Apply and extend previous understanding of arithmetic to algebraic expressions.** exponents, base, numerical expressions, algebraic expressions, evaluate, sum, term, product, factor, quantity, quotient, coefficient, constant, like terms, equivalent expressions, variables 6.EE.B.6 **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.G.A.2 & 4 **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.2: Compare various ways to give back through strengths, passions, goals, and other personal factors.

9.1.8.CDM.1: Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each.

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 prepayment costs.

9.1.8.CP.1: Compare prices for the same goods or services.

9.1.8.CP.2: Analyze how spending habits affect one's ability to save.

9.1.8.EG.3: Explain the concept and forms of taxation and evaluate how local, state and federal governments use taxes to fund public activities and initiatives.

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

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

9.1.8.PB.6: Construct a budget to save for short-term, long term, and charitable goals.

9.2.8.CAP.7: Devise a strategy to minimize costs of postsecondary education.

9.2.8.CAP.8: Compare education and training requirements, income potential, and primary duties of at least two jobs of interest.

9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.

9.4.8.TL.6: Collaborate to develop and publish work that provides perspectives on a real-world problem.

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

Winslow Township School District
Mathematics Curriculum – Grade 6
Unit 2

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, Ratio and Rates (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.