Winslow Schools
Mathematics Curriculum - Grade 4
Unit 3

Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
Unit 3 **Building Fractions & Decimal Notation**	● 4.NF.B.3c-d ● 4.MD.B.4 ● 4.NF.B.4a-c ● 4.NF.C.5 ● 4.NF.C.6 ● 4.NF.C.7 ● 4.MD.A.2 ● 4.NBT.B.4*	● Build fractions from unit fractions ● Represent and interpret data ● Understand decimal notation for fractions and compare decimal fractions. ● Solve problems involving measurement and conversion of measurements ● Use place value understanding and properties of operations to add and subtract	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 3: *Suggested Open Educational Resources*	4.NF.B.3c Cynthia's Perfect Punch 4.NF.B.3c Peaches 4.MD.B.4 Button Diameters 4.NF.B.4 Extending Multiplication From Whole Numbers to Fractions 4.NF.B.4c Sugar in six cans of soda 4.NF.C.5 Adding Tenths and Hundredths 4.NF.C.6 Dimes and Pennies 4.NF.C.6 Expanded Fractions and Decimals 4.NF.C.7 Using Place Value 4.MD.A.2 Margie Buys Apples		

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

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Unit 3

Curriculum Unit 3	Standards		Pacing	
			Days	Unit Days
Unit 3 **Building Fractions & Decimal Notation**	● 4.NF.B.3c-d	Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction or improper fraction. Solve word problems involving addition and subtraction of fractions having like denominators using visual fraction models and equations to represent the problem.	11	45
	● 4.MD.B.4	Make a line plot to display a data set in measurements in fractions of a unit (1/2, 1/4, 1/8) and use it to solve problems involving addition and subtraction of fractions with like denominators.	2	
	● 4.NF.B.4a-c	Multiply a fraction by a whole number using visual fraction models and equations, demonstrating a fraction *a/b* as a multiple of 1/*b*. Multiply a fraction by a whole number, using a visual fraction model and equations to demonstrate that a multiple of *a/b* is the product of 1/*b* and a whole number. Solve 1-step word problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem	9	
	● 4.NF.C.5	Add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100.	3	
	● 4.NF.C.6	Given decimal notation, write fractions having denominators of 10 or 100.	4	
	● 4.NF.C.7	Compare two decimals to hundredths by reasoning about their size, demonstrating that comparisons are valid only when the two decimals refer to the same whole; record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	3	
	● 4.MD.A.2	Solve word problems involving simple fractions or decimals that incorporate measurement comparisons of like units (including problems that require measurements given in a larger unit in terms of a smaller unit).	4	
	● 4.NBT.B.4*	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	5	
	Assessment, Re-teach and Extension		4	

Unit 3 Grade 4		
Content Standards	**Suggested Standards for Mathematical Practice**	**Critical Knowledge & Skills**
● <mark>4.NF.B.3.</mark> Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b*. 4.NF.B.3c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. 4.NF.B.3d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. ade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	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.	Concept(s): ● Some fractions can be decomposed. ● Addition/subtraction of fractions is joining/separating parts referring to the same whole. Students are able to: ● add and subtract fractions having like denominators in order to solve real world problems. ● develop visual fraction models and write equations to represent real world problems involving addition and subtraction of fractions. ● add and subtract mixed numbers with like denominators. Learning Goal 1: Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction or improper fraction. Learning Goal 2: Solve word problems involving addition and subtraction of fractions having like denominators using visual fraction models and equations to represent the problem.
● <mark>4.MD.B.4.</mark> Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● given a data set consisting of measurements in fractions of a unit, create a line plot. ● using measurement information presented in line plots, add and subtract fractions with like denominators in order to solve problems. Learning Goal 3: Make a line plot to display a data set in measurements in fractions of a unit (1/2, 1/4, 1/8) and use it to solve problems involving addition and subtraction of fractions with like denominators.

● **4.NF.B.4.** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. **4.NF.B.4a**. Understand a fraction a/b as a multiple of $1/b$. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* **4.F.4.B.4b.** Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* **4.NF.4.B.4c**. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): ● Fraction Multiplication: any fraction a/b as a multiple of fraction $1/b$. ● Fraction Multiplication: any multiple of fraction a/b is also a multiple of fraction $1/b$. Students are able to: ● represent a/b as a x $(1/b)$ using a visual fraction model. ● represent $n \times (a/b)$ as $(n \times a)/b$ in a visual fraction model. ● multiply a fraction by a whole number. ● solve real world problems by multiplying a fraction by a whole number, using visual fraction models and equations to represent the problem. Learning Goal 4: Multiply a fraction by a whole number using visual fraction models and equations, demonstrating a fraction a/b as a multiple of $1/b$. Learning Goal 5: Multiply a fraction by a whole number, using a visual fraction model and equations to demonstrate that a multiple of a/b is the product of $1/b$ and a whole number. Learning Goal 6: Solve 1-step word problems involving multiplication of a fraction by a whole number, using visual fraction models and equations to represent the problem

● 4.NF.C.5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.7 Look for and make use of structure.	Concept(s): ● Equivalent Fractions Students are able to: ● add two fractions with respective denominators of 10 and 100 using equivalent fractions. Learning Goal 7: Add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100.
● 4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.* [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	MP.7 Look for and make use of structure.	Concept(s): ● Relationship between place value (decimals) and fraction Students are able to: ● write a decimal as a fraction that has a denominator of 10 or 100. Learning Goal 8: Given decimal notation, write fractions having denominators of 10 or 100.
● 4.NF.C.7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]	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: ● represent a decimal using a model. ● compare two decimals to hundredths by reasoning about their size. ● explain that comparisons are valid only when the two decimals refer to the same whole. ● record the results of comparisons with the symbols >, =, or <, and justify the conclusions (e.g., by using a visual model). Learning Goal 9: Compare two decimals to hundredths by reasoning about their size, demonstrating that comparisons are valid only when the two decimals refer to the same whole; record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

● 4.MD.A.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.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	Concept(s): No new concept(s) introduced Students are able to: ● solve word problems (using addition, subtraction and multiplication) involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals. ● solve word problems (using all four operations) involving whole number distances, intervals of time, liquid volumes, masses of objects, and money, including problems requiring expressing measurements given in a larger measurement unit in terms of a smaller measurement unit (conversion). ● construct diagrams (e.g. number line diagrams) to represent measurement quantities. Learning Goal 10: Solve word problems involving simple fractions or decimals that incorporate measurement comparisons of like units (including problems that require measurements given in a larger unit in terms of a smaller unit).
● 4.NBT.B.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. ade 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 11: Fluently add and subtract multi-digit whole numbers using the standard algorithm.

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Unit 3 Grade 4	
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.NF.B.3c-d:	3.NBT.2, 3.NF.1, 3.NF.2
4.MD.B.4:	2.MD.1, 3.NF.2, 3.MD.4, 4.NF.3
4.NF.B.4a-c:	3.NBT.2, 3.NF.1, 3.NF.2
4.NF.C.5:	4.NF.1, 4.NF.3
4.NF.C.6:	4.NF.1, 4.NF.5
4.NF.C.7:	4.NF.6
4.MD.A.2:	4.MD.1, 4.NF.3, 4.NF.4, 4.NF.6, 4.OA.3
4.NBT.B.4:	2.NBT.7, 3.NBT.2, 4.NBT.1

<u>**Common Misconceptions:**</u>

4.NB.3-4 Students think that it does not matter which model to use when finding the sum or difference of fractions. They may represent one fraction with a rectangle and the other fraction with a circle. They need to know that the models need to represent the same whole.

4.NF.5-7 Students treat decimals as whole numbers when making comparison of two decimals. They think the longer the number, the greater the value. For example, they think that .03 is greater than 0.3.

<u>**Number Fluency:**</u>

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

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.NF.B.3c,d **Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.** operations, addition/joining, subtraction/separating, fraction, unit fraction, equivalent, multiple, reason, denominator, numerator, decomposing, mixed number,(properties)-rules about how numbers work, multiply, multiple 4.NF.B.4a.c. **Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers.** operations, addition/joining, subtraction/separating, fraction, unit fraction, equivalent, multiple, reason, denominator, numerator, decomposing, mixed number,(properties)-rules about how numbers work, multiply, multiple 4.NF.C.5,6 & 7 **Understand decimal notation for fractions, and compare decimal fractions.** fraction, numerator, denominator, equivalent, reasoning, decimals, tenths, hundreds, multiplication, comparisons/compare, ‹, ›, =	4.MD.A.2 **Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.** measure, metric, customary, convert/conversion, relative size, liquid volume, mass, length, distance, kilometer (km), meter (m), centimeter (cm), kilogram (kg), gram (g), liter (L), milliliter (mL), inch (in), foot (ft), yard (yd), mile (mi), ounce (oz), pound (lb), cup (c), pint (pt), quart (qt), gallon (gal), time, a.m., p.m., clockwise, counter clockwise, hour, minute, second, equivalent, operations, add, subtract, multiply, divide, fractions, decimals, area, perimeter 4.MD.B.4 **Represent and interpret data.** data, line plot, length, fractions 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.FP.3: Analyze how spending choices and decision-making can result in positive or negative consequences.

9.1.5.PB.1: Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.

9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate).

9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g. W.4.7, 8.2.5ED.6).

9.1.5.CP.1: Identify the advantages of maintaining a positive credit history.

9.1.5.EG.1: Explain and give examples of what is meant by the term "tax."

9.1.5.EG.2: Describe how tax monies are spent.

9.1.5.EG.3: Explain the impact of the economic system on one's personal financial goals.

9.1.5. EG.4: Describe how an individual's financial decisions affect society and contribute to the overall economy.

9.1.5.FI.1: Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

9.1.5.FP.2: Identify the elements of being a good steward of money.

9.4.5.IML.3 Represent the same data in multiple visual formats in order to tell a story about the data.

9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.

9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings.

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

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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:

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.