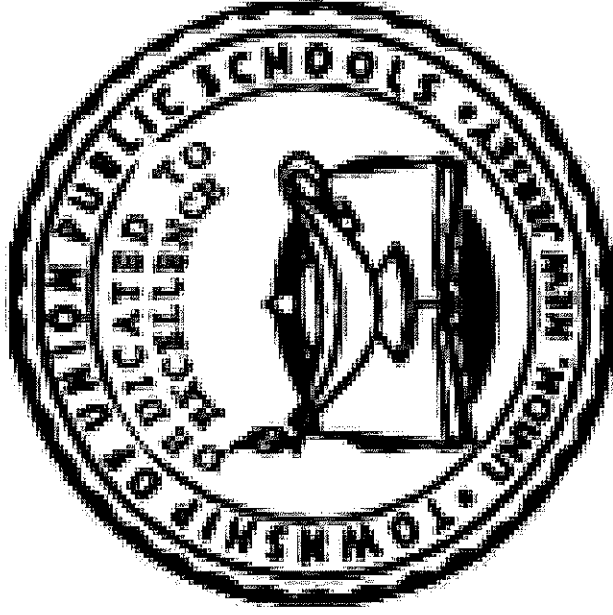


**TOWNSHIP OF UNION PUBLIC SCHOOLS**



**Mathematics Grade 4**  
**Curricular Framework – Units 1 - 4**  
**Curriculum Guide**  
**Updated December 18, 2018**

## **Mission Statement**

The mission of the Township of Union Public Schools is to build on the foundations of honesty, excellence, integrity, strong family, and community partnerships. We promote a supportive learning environment where every student is challenged, inspired, empowered, and respected as diverse learners. Through cultivation of students' intellectual curiosity, skills and knowledge, our students can achieve academically and socially, and contribute as responsible and productive citizens of our global community.

## **Philosophy Statement**

The Township of Union Public School District, as a societal agency, reflects democratic ideals and concepts through its educational practices. It is the belief of the Board of Education that a primary function of the Township of Union Public School System is to formulate a learning climate conducive to the needs of all students in general, providing therein for individual differences. The school operates as a partner with the home and community.

## **Statement of District Goals**

- **Develop reading, writing, speaking, listening, and mathematical skills.**
- **Develop a pride in work and a feeling of self-worth, self-reliance, and self-discipline.**
- **Acquire and use the skills and habits involved in critical and constructive thinking.**
- **Develop a code of behavior based on moral and ethical principles.**
- **Work with others cooperatively.**
- **Acquire a knowledge and appreciation of the historical record of human achievement and failures and current societal issues.**
- **Acquire a knowledge and understanding of the physical and biological sciences.**
- **Participate effectively and efficiently in economic life and the development of skills to enter a specific field of work.**
- **Appreciate and understand literature, art, music, and other cultural activities.**
- **Develop an understanding of the historical and cultural heritage.**
- **Develop a concern for the proper use and/or preservation of natural resources.**
- **Develop basic skills in sports and other forms of recreation.**

<u>Content</u>	<u>Number of Days</u>
Unit 1	45
Unit 2	45
Unit 3	45
Unit 4	45

**Unit 1 Grade 4**

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>4.OA.B.4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</li> </ul>	<p>MP.2 Reason abstractly and quantitatively.                      MP.7 Look for and make use of structure.                      MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Whole numbers are a multiple of each of its factors.</li> <li>Prime numbers do not have factors other than 1 and the number itself.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>find all factor pairs for any whole number (between 1 and 100).</li> <li>given a one-digit number, determine whether a given whole number (between 1 and 100) is a multiple of the one-digit number.</li> <li>determine whether a given whole number (between 1 and 100) is prime or composite.</li> </ul> <p>Learning Goal 1: Find all factor pairs for a whole number up to 100 and determine whether it is a multiple of a given 1-digit whole number and whether it is prime or composite.</p>
<ul style="list-style-type: none"> <li>4.OA.C.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.  <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></li> </ul>	<p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Patterns contain features that are not explicitly stated in the rule defining the numerical pattern.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>produce number patterns from a given rule.</li> <li>produce shape patterns from a given rule.</li> <li>analyze a sequence of numbers in order to identify features that are not obvious explicitly stated in the rule.</li> </ul> <p>Learning Goal 2: Generate a number or shape pattern that follows a rule and identify features of the pattern that are not explicit in the rule.</p>
<ul style="list-style-type: none"> <li>4.OA.A.1. Interpret a multiplication equation as a comparison, e.g., interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication</li> </ul>	<p>MP.2 Reason abstractly and quantitatively.                      MP.4 Model with mathematics.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Multiplication equations represent comparisons.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>explain multiplication equations as comparisons.</li> <li>write multiplication equations given word problems indicating multiplicative comparison.</li> </ul>

<p>equations.</p> <ul style="list-style-type: none"> <li>4.OA.A.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</li> </ul>		<p>Learning Goal 4: Write multiplication equations from word problems indicating multiplicative comparisons and describe multiplication equations as comparisons.</p> <p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> <li>multiply to solve word problems involving multiplicative comparison.</li> <li>divide to solve word problems involving multiplicative comparison.</li> <li>represent problems with drawings and equations, using a symbol for the unknown number.</li> <li>distinguish word problems involving multiplicative comparison from those involving additive comparison.</li> </ul> <p>Learning Goal 5: Multiply and divide to solve word problems involving multiplicative comparisons and represent these problems with drawings and equations.</p>
<ul style="list-style-type: none"> <li>4.NBT.A.1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that <math>700 \div 70 = 10</math> by applying concepts of place value and division.</i> [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>A quantitative relationship exists between the digits in place value positions of a multi-digit number.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>Explain that a digit in one place represents ten times what it would represent in the place to its right.</li> </ul> <p>Learning Goal 6: For a whole number up to one million, explain that a digit in one place represents ten times what it would represent in the place to its right.</p>
<ul style="list-style-type: none"> <li>4.NBT.A.2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Multiple representations of whole numbers exist.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>read and write multi-digit whole numbers using base-ten numerals.</li> <li>read and write multi-digit whole numbers using number names.</li> <li>read and write multi-digit whole numbers using expanded form.</li> <li>compare two multi-digit numbers using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols.</li> </ul> <p>Learning Goal 7: Compare two multi-digit whole numbers (up to one million) using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> for numbers presented as base ten numerals, number names, and/or in expanded form.</p>

<ul style="list-style-type: none"> <li>4.NBT.A.3. Use place value understanding to round multi-digit whole numbers to any place. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Estimation</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>round whole numbers to any place.</li> </ul> <p>Learning Goal 8: Round multi-digit whole numbers up to one million to any place.</p>
<ul style="list-style-type: none"> <li>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)</li> </ul>	<p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add multi-digit whole numbers using the standard algorithm with accuracy and efficiency.</li> <li>subtract multi-digit whole numbers using the standard algorithm with accuracy and efficiency.</li> </ul> <p>Learning Goal 1: Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>
<ul style="list-style-type: none"> <li>4.NBT.B.5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>multiply a whole number of up to four digits by a one-digit whole number using strategies based on place values.</li> <li>multiply two two-digit numbers using strategies based on place value.</li> <li>represent these operations with equations, rectangular arrays, and area models.</li> <li>explain the calculation by referring to the model (equation, array, or area model).</li> </ul> <p>Learning Goal 2: Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers; represent and explain calculations using equations, rectangular arrays, and area models.</p>
<ul style="list-style-type: none"> <li>4.NBT.B.6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit</li> </ul>	<p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>find whole-number quotients and remainders with up to four-digit dividends</li> </ul>

<p>divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. [Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.]</p>		<p>and one-digit divisors using strategies based on place value, the properties of operations, and the relationship between multiplication and division.</p> <ul style="list-style-type: none"> <li>represent these operations with equations, rectangular arrays, and area models.</li> <li>explain the calculation by referring to the model (equation, array, or area model).</li> </ul> <p>Learning Goal 3: Divide a whole number of up to four-digits by a one-digit divisor; represent and explain the calculation using equations, rectangular arrays, and area models.</p>
<ul style="list-style-type: none"> <li>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. *(benchmark)</li> </ul>	<p>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.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Proper use of the equal sign</li> <li>Improper use of the equal sign (e.g. <math>3 + 7 = 10 - 5 = 5</math> is incorrect)</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>solve multi-step word problems involving any of the four operations.</li> <li>solve multi-step word problems involving interpretation (in context) of a remainder.</li> <li>write equations to represent multi-step word problems, using a letter to represent the unknown quantity.</li> <li>explain why an answer is reasonable.</li> <li>use mental computation and estimation strategies to determine whether an answer is reasonable.</li> </ul> <p>Learning Goal 4: 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;</p>



		interpret remainders in context and assess the reasonableness of answers using mental computation with estimation strategies.
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Township of Union - Unit 1 Grade 4	
District/School Formative Assessment Plan	District/School Summative Assessment Plan
<i>Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards.</i>	<i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i>
<ul style="list-style-type: none"> <li>-Sum Sense Smartboard Game (Addition and Subtraction)</li> <li>-Fluency Fact Quizzes (Multiplication facts 0-12)</li> <li>-Product Pile Up (Multiplication Center Game)</li> <li>-Sum Sense Smartboard Game (Multiplication and Division)</li> <li>-Exit Slips throughout each chapter based on EACH new skill taught (given</li> </ul>	<ul style="list-style-type: none"> <li>-Go Math Mid-Chapter Checkpoints -Chapters 1-5 (use as quiz grade)</li> <li>-Go Math Chapter Tests – Chapters 1-5 (use as test grade)</li> <li>-PARCC-style assessments, including extended constructed responses (ECR)</li> <li>-Projects</li> </ul>

BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go

Math Chapter Test

-Reteach/Enrich Supplemental worksheets (to help classify different abilities)

-Small group direct instruction for struggling learners

-One-on-one instruction (as needed)

-Communicating in pairs, small group, or whole group presentations

-Teacher observation

-Student reflections/quick-writes on a particular lesson/skill

-Homework

-Benchmark Assessments  
-PARCC Assessment

**Focus Mathematical Concepts**

*Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.*

**Prerequisite skills:** Reading and writing whole numbers up to the thousands; subtraction of multi-digit numbers with regrouping; subtraction of whole numbers across zeros

**Common Misconceptions:** Students learn multiplication facts 0-12 and are expected to ‘master’ this ability by the end of 3<sup>rd</sup> grade; however, from year to year there is a clear deficiency with facts 6-12 that require months of drill practice before fluency occurs

**Number Fluency (for grades K-5):**

<u>Grade</u>	<u>Required Fluencies</u>
K	Add/Subtract within 5
1	Add/Subtract within 10
2	Add/ Subtract within 20
3	Add/Subtract within 1,000; Multiplication and Division Facts 0-10
4	Fluently add and subtract multi-digit whole numbers using the standard algorithm ; Multiplication and Division Facts 0-12

**District/School Tasks** | **District/School Primary and Supplementary Resources**

**Exemplar tasks or illustrative models could be provided.**

- iReady math practice
- Animated Go Math models
- Grab and Go activities (Go Math)
- Using technological resources and other 21<sup>st</sup> century skills to support and enhance mathematical understanding
- Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations
- Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)

**District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.**

- ECR resource book (grade level coordinator OR designated “math person” will house in their room)
- iReady website
- Sum Sense Addition Practice  
<http://resources.oswego.org/games/SumSense/sumadd.html>
- Sum Sense Subtraction Practice  
<http://www.oswego.org/ocsd-web/games/SumSense/sumsub.html>
- Sum Sense Multiplication Practice  
<http://www.oswego.org/ocsd-web/games/SumSense/summulti.html>
- Sum Sense Division Practice  
<http://www.oswego.org/ocsd-web/games/SumSense/sumdiv.html>
- Illustrative Mathematics  
<https://www.illustrativemathematics.org/>
- More Supplemental websites (various operations):  
[http://www.mathplayground.com/grade\\_4\\_games.html](http://www.mathplayground.com/grade_4_games.html)  
<http://www.math-play.com/4th-grade-math-games.html>  
[http://www.abcya.com/fourth\\_grade\\_computers.htm](http://www.abcya.com/fourth_grade_computers.htm)

**Instructional Best Practices and Exemplars**

**This is a place to capture examples of standards integration and instructional best practices.**

- Daily “Do Now” warm up
- Explicit teacher modeling of how to provide appropriate rationales for math work
- Turn and Talk
- Student modeling for struggling learners to learn from their peers
- Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other’s ideas and understandings
- Making interdisciplinary connections using reading texts
- Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)

-Differentiated instruction based on students individual needs such as, but not limited to:

- \*Extra time for assigned tasks
- \*Timeline with due dates for projects
- \*Provide lecture notes/ outline
- \*Help students verbalize steps
- \*Repeat, clarify or reword instructions
- \*Mini breaks between tasks
- \*Visual and verbal reminders
- \*Provide immediate feedback
- \*Computer/whiteboard assistance

**Students with Disabilities, English Language Learners, and Gifted & Talented Students:**

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways. By providing appropriately challenging learning, teachers can maximize success for all students.

**Examples of Strategies and Practices that Support Students with Disabilities:**

**\*Refer to students' IEP for specific modifications and accommodations**

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

**Examples of Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

**Examples of Strategies and Practices that Support English Language Learners:**

**\*All WIDA Can Do Descriptors can be found at: <https://wida.wisc.edu/teach/can-do/descriptors>**

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills  
with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups
- Teacher think-aloud

**Interdisciplinary connections are made across grades and content areas to model the integration of knowledge and skills in the real world.**

**21st Century Themes**

- Global Awareness
- Environmental Literacy
- Health Literacy
- Civic Literacy
- Financial, Economic, Business, and Entrepreneurial Literacy

### **21<sup>st</sup> Century Skills**

- Creativity and Innovation (E)
- Critical Thinking and Problem Solving (T) (A)
- Communication (E)
- Collaboration (E) (T)

### **Career Ready Practices:**

- CRP1: Act as a responsible and contributing citizen and employee.
- CRP2: Apply appropriate academic and technical skills.
- CRP3: Attend to personal health and financial well-being.
- CRP4: Communicate clearly and effectively and with reason.
- CRP5: Consider the environmental, social and economic impacts of decisions.
- CRP6: Demonstrate creativity and innovation.
- CRP7: Employ valid and reliable research strategies.
- CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9: Model integrity, ethical leadership and effective management.

- CRP10: Plan education and career paths aligned to personal goals.
- CRP11: Use technology to enhance productivity.
- CRP12: Work productively in teams while using global competence.

### 9.1 Personal Financial Literacy

This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

### 9.2 Career Awareness, Exploration, and Preparation

This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

### 9.3 Career and Technical Education

This standard outlines what students should know and be able to do upon completion of a CTE Program of Study

**Technology Standards: Technology standards are embedded throughout all curricular units.**

**8.1 Educational Technology** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge.

### 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

## Unit 2 Grade 4

Content Standards

Suggested Standards for

Critical Knowledge & Skills

<b>Mathematical Practice</b>		
<ul style="list-style-type: none"> <li>4.NF.A.1. Explain why a fraction <math>a/b</math> is equivalent to a fraction <math>(n \times a)/(n \times b)</math> by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Equivalent fractions are the same size while the number and size of the parts differ.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>explain, using visual fraction models, why two fractions are equivalent.</li> <li>generate equivalent fractions, using fraction <math>a/b</math> as equivalent to fraction <math>(n \times a)/(n \times b)</math>.</li> </ul> <p>Learning Goal 6: Recognize and generate equivalent fractions and explain why they are equivalent using visual fraction models.</p>
<ul style="list-style-type: none"> <li>4.NF.A.2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as <math>1/2</math>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Fractions may only be compared when the two fractions refer to the same whole.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>create common denominators in order to compare two fractions.</li> <li>create common numerators in order to compare two fractions.</li> <li>compare two fractions with different numerators and different denominators by comparing to a benchmark fraction.</li> <li>record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual fraction model.</li> </ul> <p>Learning Goal 7: Compare two fractions with different numerators or different denominators, recording comparison with <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justifying the conclusion using visual fraction models.</p>
<ul style="list-style-type: none"> <li>4.NF.B.3. Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Some fractions can be decomposed.</li> <li>Addition/subtraction of fractions is joining/separating parts referring</li> </ul>



<p>4.NF.B.3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>4.NF.B.3b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.  <i>Examples:</i> <math>3/8 = 1/8 + 1/8 + 1/8</math>; <math>3/8 = 1/8 + 2/8</math>; <math>2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>.</p> <p>[Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>	<p>quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>to the same whole.</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>decompose a fraction into a sum of fractions with the same denominator in more than one way.</li> <li>write decompositions of fractions as an equation.</li> <li>develop visual fraction models that represent decomposed fractions and use them to justify decompositions.</li> </ul> <p>Learning Goal 8: Decompose a fraction into a sum of fractions with the same denominator in more than one way and record the decomposition as an equation; justify the decomposition with a visual fraction model.</p>
<ul style="list-style-type: none"> <li>4.NF.B.3. Understand a fraction <math>a/b</math> with <math>a &gt; 1</math> as a sum of fractions <math>1/b</math>.</li> <li>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.</li> <li>4.NF.B.3d. Solve word problems involving addition</li> </ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Some fractions can be decomposed.</li> <li>Addition/subtraction of fractions is joining/separating parts referring to the same whole.</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add and subtract fractions having like denominators in order to solve real world problems.</li> <li>develop visual fraction models and write equations to represent real world problems involving addition and subtraction of fractions.</li> <li>add and subtract mixed numbers with like denominators.</li> </ul> <p>Learning Goal 1: Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction or improper fraction.</p>

<p>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. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>		<p>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.</p>
<ul style="list-style-type: none"> <li>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. <i>For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</i></li> </ul> <p>[Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Equivalent Fractions</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>add two fractions with respective denominators of 10 and 100 using equivalent fractions.</li> </ul> <p>Learning Goal 7: Add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100.</p>
<ul style="list-style-type: none"> <li>4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as <math>\frac{62}{100}</math>; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></li> </ul> <p>[Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Relationship between place value (decimals) and fraction</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>write a decimal as a fraction that has a denominator of 10 or 100.</li> </ul> <p>Learning Goal 8: Given decimal notation, write fractions having denominators of 10 or 100.</p>
<ul style="list-style-type: none"> <li>4.NF.C.7. Compare two decimals to hundredths by</li> </ul>	<p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p>

<p>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 <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, 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.]</p>	<p>MP.7 Look for and make use of structure.</p>	<ul style="list-style-type: none"> <li>• represent a decimal using a model.</li> <li>• compare two decimals to hundredths by reasoning about their size.</li> <li>• explain that comparisons are valid only when the two decimals refer to the same whole.</li> <li>• record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions (e.g., by using a visual model).</li> </ul> <p>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 <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</p>
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Township of Union- Unit 2 Grade 4	
<p><b>District/School Formative Assessment Plan</b></p>	<p><b>District/School Summative Assessment Plan</b></p>
<p><i>Formative assessment informs instruction and is ongoing throughout a unit to determine how students are progressing against the standards.</i></p> <ul style="list-style-type: none"> <li>-Exit Slips throughout each chapter based on EACH new skill taught (given BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go Math Chapter Test)</li> <li>-Reteach/Enrich Supplemental worksheets (to help classify different abilities)</li> <li>-Small group direct instruction for struggling learners</li> <li>-One-on-one instruction (as needed)</li> <li>-Communicating in pairs, small group, or whole group presentations</li> <li>-Teacher observation</li> <li>-Student reflections/quick-writes on a particular lesson/skill</li> <li>-Homework</li> </ul>	<p><i>Summative assessment is an opportunity for students to demonstrate mastery of the skills taught during a particular unit.</i></p> <ul style="list-style-type: none"> <li>-Go Math Mid-Chapter Checkpoints -Chapters 6,9, and 7 (use as quiz grade)</li> <li>-Go Math Chapter Tests – Chapters 6,9, and 7 (use as test grade)</li> <li>-PARCC-style assessments, including extended constructed responses (ECR)</li> <li>-Projects</li> <li>-Benchmark Assessments</li> <li>-PARCC Assessment</li> </ul>

Focus Mathematical Concepts

*Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.*

**Prerequisite skills:** Understanding of fractions as numbers.

**Common Misconceptions:**

**4.NF.1-2**

Students think that when generating equivalent fractions they need to multiply or divide either the numerator or denominator, such as, changing  $\frac{1}{2}$  to sixths. They would multiply the denominator by 3 to get  $\frac{1}{6}$ , instead of multiplying the numerator by 3 also. Their focus is only on the multiple of the denominator, not the whole fraction. It's important that students use a fraction in the form of one such as  $\frac{3}{3}$  so that the numerator and denominator do not contain the original numerator or denominator.

**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.

**Number Fluency (for grades K-5):**

<u>Grade</u>	<u>Required Fluencies</u>
K	Add/Subtract within 5
1	Add/Subtract within 10
2	Add/ Subtract within 20
3	Add/Subtract within 1,000; Multiplication and Division Facts 0-10
4	Fluently add and subtract multi-digit whole numbers using the standard algorithm ; Multiplication and Division Facts 0-12

District/School Tasks	District/School Primary and Supplementary Resources
<p><i>Exemplar tasks or illustrative models could be provided.</i></p> <ul style="list-style-type: none"> <li>-iReady math practice</li> <li>-Animated Go Math models</li> <li>-Grab and Go activities (Go Math)</li> <li>-Using technological resources and other 21<sup>st</sup> century skills to support and enhance mathematical understanding</li> <li>-Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations</li> <li>-Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)</li> </ul>	<p><i>District/school resources and supplementary resources that are texts as well as digital resources used to support the instruction.</i></p> <ul style="list-style-type: none"> <li>-ECR resource book (grade level coordinator OR designated “math person” will house in their room)</li> <li>-iReady website</li> <li>-Illustrative Mathematics <a href="https://www.illustrativemathematics.org/">https://www.illustrativemathematics.org/</a></li> </ul> <p>More Supplemental websites (various operations):</p> <ul style="list-style-type: none"> <li><a href="http://www.mathplayground.com/grade_4_games.html">http://www.mathplayground.com/grade_4_games.html</a></li> <li><a href="http://www.math-play.com/4th-grade-math-games.html">http://www.math-play.com/4th-grade-math-games.html</a></li> <li><a href="http://www.abcya.com/fourth_grade_computers.htm">http://www.abcya.com/fourth_grade_computers.htm</a></li> </ul>
<b>Instructional Best Practices and Exemplars</b>	
<p><i>This is a place to capture examples of standards integration and instructional best practices.</i></p> <ul style="list-style-type: none"> <li>-Daily “Do Now” warm up</li> <li>-Explicit teacher modeling of how to provide appropriate rationales for math work</li> <li>-Turn and Talk</li> <li>-Student modeling for struggling learners to learn from their peers</li> <li>-Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other’s ideas and understandings</li> <li>-Making interdisciplinary connections using reading texts</li> <li>-Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)</li> <li>-Differentiated instruction based on students individual needs such as, but not limited to:</li> </ul>	

\*Extra time for assigned tasks

\*Timeline with due dates for projects

\*Provide lecture notes/ outline

\*Help students verbalize steps

\*Repeat, clarify or reword instructions

\*Mini breaks between tasks

\*Visual and verbal reminders

\*Provide immediate feedback

\*Computer/whiteboard assistance

### **Students with Disabilities, English Language Learners, and Gifted & Talented Students:**

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways. By providing appropriately challenging learning, teachers can maximize success for all students.

### **Examples of Strategies and Practices that Support Students with Disabilities:**

\*Refer to students' IEP for specific modifications and accommodations

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

### **Examples of Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills

- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

#### **Examples of Strategies and Practices that Support English Language Learners:**

**\*All WIDA Can Do Descriptors can be found at: <https://wida.wisc.edu/teach/can-do/descriptors>**

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups
- Teacher think-aloud

**Interdisciplinary connections are made across grades and content areas to model the integration of knowledge and skills in the real world.**

#### **21st Century Themes**

- Global Awareness
- Environmental Literacy
- Health Literacy

- Civic Literacy
- Financial, Economic, Business, and Entrepreneurial Literacy

### **21<sup>st</sup> Century Skills**

- Creativity and Innovation (E)
- Critical Thinking and Problem Solving (T) (A)
- Communication (E)
- Collaboration (E) (T)

### **Career Ready Practices:**

- CRP1: Act as a responsible and contributing citizen and employee.
- CRP2: Apply appropriate academic and technical skills.
- CRP3: Attend to personal health and financial well-being.
- CRP4: Communicate clearly and effectively and with reason.
- CRP5: Consider the environmental, social and economic impacts of decisions.
- CRP6: Demonstrate creativity and innovation.
- CRP7: Employ valid and reliable research strategies.
- CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9: Model integrity, ethical leadership and effective management.
- CRP10: Plan education and career paths aligned to personal goals.
- CRP11: Use technology to enhance productivity.
- CRP12: Work productively in teams while using global competence.



### 9.1 Personal Financial Literacy

This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

### 9.2 Career Awareness, Exploration, and Preparation

This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

### 9.3 Career and Technical Education

This standard outlines what students should know and be able to do upon completion of a CTE Program of Study

**Technology Standards: Technology standards are embedded throughout all curricular units.**

**8.1 Educational Technology** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge.

### 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Unit 3 Grade 4		
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<ul style="list-style-type: none"><li>4.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</li><li>4.NF.B.4a. Understand a fraction</li></ul>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"><li>Fraction Multiplication: any fraction <math>a/b</math> as a multiple of fraction <math>1/b</math>.</li><li>Fraction Multiplication: any multiple of fraction <math>a/b</math> is also a multiple of fraction <math>1/b</math>.</li></ul> <p>Students are able to:</p>

<p><math>a/b</math> as a multiple of <math>1/b</math>.  <i>For example, use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>.</i></p> <p>4.F.4.B.4b. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number.  <i>For example, use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. (In general, <math>n \times (a/b) = (n \times a)/b</math>.)</i></p> <p>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.  <i>For example, if each person at a party will eat <math>3/8</math> 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?</i>          [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>	<ul style="list-style-type: none"> <li>• represent <math>a/b</math> as a <math>n</math> times <math>(1/b)</math> using a visual fraction model.</li> <li>• represent <math>n \times (a/b)</math> as <math>(n \times a)/b</math> in a visual fraction model.</li> <li>• multiply a fraction by a whole number.</li> <li>• solve real world problems by multiplying a fraction by a whole number, using visual fraction models and equations to represent the problem.</li> </ul> <p>Learning Goal 4: Multiply a fraction by a whole number using visual fraction models and equations, demonstrating a fraction <math>a/b</math> as a multiple of <math>1/b</math>.</p> <p>Learning Goal 5: Multiply a fraction by a whole number, using a visual fraction model and equations to demonstrate that a multiple of <math>a/b</math> is the product of <math>1/b</math> and a whole number.</p> <p>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</p>	<ul style="list-style-type: none"> <li>• Equivalent Fractions</li> <li>• Students are able to:             <ul style="list-style-type: none"> <li>• add two fractions with respective denominators of 10 and 100 using equivalent fractions.</li> </ul> </li> </ul>
<p>MP.7 Look for and make use of structure.</p>	<p>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</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>• Equivalent Fractions</li> <li>• Students are able to:             <ul style="list-style-type: none"> <li>• add two fractions with respective denominators of 10 and 100 using equivalent fractions.</li> </ul> </li> </ul>

<p>denominators 10 and 100. For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>. [Grade 4 expectations in this domain are limited to denominators of 2, 3, 4, 5, 6, 8, 10, 12 and 100.]</p>		<p>Learning Goal 7: Add two fractions with respective denominators of 10 and 100 by writing each fraction with denominator 100.</p>
<ul style="list-style-type: none"> <li>4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as <math>\frac{62}{100}</math>; 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.]</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Relationship between place value (decimals) and fraction</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>write a decimal as a fraction that has a denominator of 10 or 100.</li> </ul> <p>Learning Goal 8: Given decimal notation, write fractions having denominators of 10 or 100.</p>
<ul style="list-style-type: none"> <li>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 <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, 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.]</li> </ul>	<p>MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>represent a decimal using a model.</li> <li>compare two decimals to hundredths by reasoning about their size.</li> <li>explain that comparisons are valid only when the two decimals refer to the same whole.</li> <li>record the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions (e.g., by using a visual model).</li> </ul> <p>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 <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and justify the conclusions, e.g., by using a visual model.</p>
<ul style="list-style-type: none"> <li>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</li> </ul>	<p>MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>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.</li> <li>solve word problems (using all four operations) involving whole number</li> </ul>

<p>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.</p>		<p>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).</p> <ul style="list-style-type: none"> <li>construct diagrams (e.g. number line diagrams) to represent measurement quantities.</li> </ul> <p>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).</p>
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Township of Union - Unit 3 Grade 4	
District/School Formative Assessment Plan	District/School Summative Assessment Plan
<p>-Fraction Jeopardy Game (Interactive Smartboard Game-Math-Play.com)</p> <p>-Multiplying Fractions Millionaire Game (Interactive Smartboard Game- Math-Play.com)</p> <p>-Exit Slips throughout each chapter based on EACH new skill taught (given BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go Math Chapter Test)</p> <p>-Reteach/Enrich Supplemental worksheets (to help classify different abilities)</p> <p>-Small group direct instruction for struggling learners</p> <p>-One-on-one instruction (as needed)</p> <p>-Communicating in pairs, small group, or whole group presentations</p> <p>-Teacher observation</p> <p>-Student reflections/quick-writes on a particular lesson/skill</p> <p>-Homework</p>	<p>-Go Math Mid-Chapter Checkpoints -Chapters 8-9 (use as quiz grade)</p> <p>-Go Math Chapter Tests – Chapters 8-9 (use as test grade)</p> <p>-PARCC-style assessments, including extended constructed responses (ECR)</p> <p>-Projects/PBL Activities</p> <p>-Benchmark Assessments</p> <p>-PARCC Assessment</p>

**Focus Mathematical Concepts**

Prerequisite skills: Multiplication facts (for multiplying fractions by whole numbers); division (for converting fractions into decimals); place value (for relating tenths and hundredths); addition and subtraction (computation with money/decimals)

Common Misconceptions: It is assumed that students are fluent in multiplication facts from 3<sup>rd</sup> grade but there is always an alarming deficiency

Number Fluency (for grades K-5)

Grade	Required Fluencies
K	Add/Subtract within 5
1	Add/Subtract within 10
2	Add/ Subtract within 20
3	Add/Subtract within 1,000; Multiplication and Division Facts 0-10
4	Fluently add and subtract multi-digit whole numbers using the standard algorithm ; Multiplication and Division Facts 0-12

**District/School Tasks**

- iReady math practice
- Animated Go Math models
- Grab and Go activities (Go Math)
- Using technological resources and other 21<sup>st</sup> century skills to support and enhance mathematical understanding
- Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations
- Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)

**District/School Primary and Supplementary Resources**

- ECR resource book (grade level coordinator OR designated “math person” will house in their room)
- iReady website
- Math-Play.com
- <http://www.math-play.com/math-fractions-games.html>
- More Supplemental websites (various operations):
- [http://www.mathplayground.com/grade\\_4\\_games.html](http://www.mathplayground.com/grade_4_games.html)
- <http://www.math-play.com/4th-grade-math-games.html>
- [http://www.abcya.com/fourth\\_grade\\_computers.htm](http://www.abcya.com/fourth_grade_computers.htm)

### Instructional Best Practices and Exemplars

- Daily "Do Now" warm up
- Explicit teacher modeling of how to provide appropriate rationales for math work
- Turn and Talk
- Student modeling for struggling learners to learn from their peers
- Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other's ideas and understandings
- Making interdisciplinary connections using reading texts
- Classroom economy system in which students "do" math (exchanging money, balancing checkbook, etc)
- Differentiated instruction based on students individual needs such as, but not limited to:
  - \*Extra time for assigned tasks
  - \*Timeline with due dates for projects
  - \*Provide lecture notes/ outline
  - \*Help students verbalize steps
  - \*Repeat, clarify or reword instructions
  - \*Mini breaks between tasks
  - \*Visual and verbal reminders
  - \*Provide immediate feedback
  - \*Computer/whiteboard assistance

### Students with Disabilities, English Language Learners, and Gifted & Talented Students:

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways. By providing appropriately challenging learning, teachers can maximize success for all students.

**Examples of Strategies and Practices that Support Students with Disabilities:**

**\*Refer to students' IEP for specific modifications and accommodations**

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

**Examples of Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

**Examples of Strategies and Practices that Support English Language Learners:**

**\*All WIDA Can Do Descriptors can be found at: <https://wida.wisc.edu/teach/can-do/descriptors>**

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share

- Cooperative learning groups
- Teacher think-aloud

**Interdisciplinary connections are made across grades and content areas to model the integration of knowledge and skills in the real world.**

### **21st Century Themes**

- Global Awareness
- Environmental Literacy
- Health Literacy
- Civic Literacy
- Financial, Economic, Business, and Entrepreneurial Literacy

### **21<sup>st</sup> Century Skills**

- Creativity and Innovation (E)
- Critical Thinking and Problem Solving (T) (A)
- Communication (E)
- Collaboration (E) (T)

### **Career Ready Practices:**

- CRP1: Act as a responsible and contributing citizen and employee.



- CRP2: Apply appropriate academic and technical skills.
- CRP3: Attend to personal health and financial well-being.
- CRP4: Communicate clearly and effectively and with reason.
- CRP5: Consider the environmental, social and economic impacts of decisions.
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- CRP7: Employ valid and reliable research strategies.
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- CRP10: Plan education and career paths aligned to personal goals.
- CRP11: Use technology to enhance productivity.
- CRP12: Work productively in teams while using global competence.

### **9.1 Personal Financial Literacy**

This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.

### **9.2 Career Awareness, Exploration, and Preparation**

This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

### **9.3 Career and Technical Education**

This standard outlines what students should know and be able to do upon completion of a CTE Program of Study

**Technology Standards: Technology standards are embedded throughout all curricular units.**

**8.1 Educational Technology** All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and create and communicate knowledge.

## 8.2 Technology Education, Engineering, Design and Computational Thinking - Programming

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Unit 4 Grade 4		
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills
<ul style="list-style-type: none"> <li>4.MD.A.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems.</li> </ul> <p><i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>solve real world and mathematical problems by finding the area of rectangles using a formula.</li> <li>solve real world and mathematical problems by finding the perimeter of rectangles using a formula.</li> </ul> <p>Learning Goal 5: Solve real world problems with whole numbers by finding the area and perimeter of rectangles using formulas.</p>
<ul style="list-style-type: none"> <li>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.</li> </ul>	<p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>construct diagrams (e.g. number line diagrams) to represent measurement quantities.</li> </ul> <p>Learning Goal 10: Solve word problems involving simple fractions or decimals that incorporate measurement comparisons of like units (including problems that require</p>

<ul style="list-style-type: none"> <li>4.MD.B.4. Make a line plot to display a data set of measurements in fractions of a unit (<math>1/2</math>, <math>1/4</math>, <math>1/8</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i></li> </ul>	<p>MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.</p>	<p>measurements given in a larger unit in terms of a smaller unit).</p> <p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> <li>given a data set consisting of measurements in fractions of a unit, create a line plot.</li> <li>using measurement information presented in line plots, add and subtract fractions with like denominators in order to solve problems.</li> </ul> <p>Learning Goal 3: Make a line plot to display a data set in measurements in fractions of a unit (<math>1/2</math>, <math>1/4</math>, <math>1/8</math>) and use it to solve problems involving addition and subtraction of fractions with like denominators.</p>
<ul style="list-style-type: none"> <li>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. *(benchmark)</li> </ul>	<p>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.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> <li>Proper use of the equal sign.</li> <li>Improper use of the equal sign (e.g. <math>3 + 7 = 10 - 5 = 5</math> is incorrect).</li> </ul> <p>Students are able to:</p> <ul style="list-style-type: none"> <li>solve multi-step word problems involving any of the four operations.</li> <li>solve multi-step word problems involving interpretation (in context) of a remainder.</li> <li>write equations to represent multi-step word problems, using a letter to represent the unknown quantity.</li> <li>explain why an answer is reasonable.</li> <li>use mental computation and estimation strategies to determine whether an answer is reasonable.</li> </ul> <p>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.</p>
<ul style="list-style-type: none"> <li>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.] *(benchmark)</li> </ul>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> <li>add using the standard algorithm with accuracy and efficiency</li> <li>subtract using the standard algorithm with accuracy and efficiency</li> </ul> <p>Learning Goal 8: Fluently add and subtract multi-digit whole numbers using the standard algorithm</p>

Township of Union - Unit 4 Grade 4

**District/School Formative Assessment Plan**

- Exit Slips throughout each chapter based on EACH new skill taught (given BEFORE the mid-chapter checkpoint AND after; also given BEFORE Go Math Chapter Test)
- Reteach/Enrich Supplemental worksheets (to help classify different abilities)
- Small group direct instruction for struggling learners
- One-on-one instruction (as needed)
- Communicating in pairs, small group, or whole group presentations
- Teacher observation
- Student reflections/quick-writes on a particular lesson/skill
- Homework

**District/School Summative Assessment Plan**

- Go Math Mid-Chapter Checkpoints - Chapters 8-9 (use as quiz grade)
- Go Math Chapter Tests – Chapters 8-9 (use as test grade)
- PARCC-style assessments, including extended constructed responses (ECR)
- Projects/PBL Activities
- Benchmark Assessments
- PARCC Assessment

**Focus Mathematical Concepts**

*Districts should consider listing prerequisites skills. Concepts that include a focus on relationships and representation might be listed as grade level appropriate.*

Prerequisite skills:

Common Misconceptions: Students have a basic understanding of geometry, measurement and data.

Number Fluency (for grades K-5):

**Grade**

K

**Required Fluencies**

Add/Subtract within 5

1

Add/Subtract within 10

<p>2 Add/ Subtract within 20</p> <p>3 Add/Subtract within 1,000; Multiplication and Division Facts 0-10</p> <p>4 Fluently add and subtract multi-digit whole numbers using the standard algorithm ; Multiplication and Division Facts 0-12</p>		
<p><b>District/School Tasks</b></p> <ul style="list-style-type: none"> <li>-iReady math practice</li> <li>-Animated Go Math models</li> <li>-Grab and Go activities (Go Math)</li> <li>-Using technological resources and other 21<sup>st</sup> century skills to support and enhance mathematical understanding</li> <li>-Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations</li> <li>-Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)</li> </ul>	<p><b>District/School Primary and Supplementary Resources</b></p> <ul style="list-style-type: none"> <li>-ECR resource book (grade level coordinator OR designated “math person” will house in their room)</li> <li>-iReady website</li> <li>-Math-Play.com</li> <li><a href="http://www.math-play.com/math-fractions-games.html">http://www.math-play.com/math-fractions-games.html</a></li> </ul> <p>More Supplemental websites (various operations):</p> <ul style="list-style-type: none"> <li><a href="http://www.mathplayground.com/grade_4_games.html">http://www.mathplayground.com/grade_4_games.html</a></li> <li><a href="http://www.math-play.com/4th-grade-math-games.html">http://www.math-play.com/4th-grade-math-games.html</a></li> <li><a href="http://www.abcyva.com/fourth_grade_computers.htm">http://www.abcyva.com/fourth_grade_computers.htm</a></li> </ul>	
<p><b>Instructional Best Practices and Exemplars</b></p>		
<ul style="list-style-type: none"> <li>-Daily “Do Now” warm up</li> <li>-Explicit teacher modeling of how to provide appropriate rationales for math work</li> <li>-Turn and Talk</li> <li>-Student modeling for struggling learners to learn from their peers</li> <li>-Encouraging and facilitating the sharing of mathematical ideas, discussing mathematics amongst each other, and how to refine and critique each other’s ideas and understandings</li> <li>-Making interdisciplinary connections using reading texts</li> <li>-Classroom economy system in which students “do” math (exchanging money, balancing checkbook, etc)</li> </ul>		

-Differentiated instruction based on students individual needs such as, but not limited to:

- \*Extra time for assigned tasks
- \*Timeline with due dates for projects
- \*Provide lecture notes/ outline
- \*Help students verbalize steps
- \*Repeat, clarify or reword instructions
- \*Mini breaks between tasks
- \*Visual and verbal reminders
- \*Provide immediate feedback
- \*Computer/whiteboard assistance

**Students with Disabilities, English Language Learners, and Gifted & Talented Students:**

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways. By providing appropriately challenging learning, teachers can maximize success for all students.

**Examples of Strategies and Practices that Support Students with Disabilities:**

**\*Refer to students' IEP for specific modifications and accommodations**

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

**Examples of Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

**Examples of Strategies and Practices that Support English Language Learners:**

\*All WIDA Can Do Descriptors can be found at: <https://wida.wisc.edu/teach/can-do/descriptors>

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
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