

# TOWNSHIP OF UNION PUBLIC SCHOOLS



# Grade 5 Mathematics

Adopted: August 18, 2020

Readopted: October 20, 2020

### **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.

## Unit I Module A

**Unit Title: Mathematics – Operations on Decimals and Numerical Expressions – Unit 1 – Module A**

**Grade level: Grade 5**

**Timeframe: 5 weeks**

### Rationale

#### *Grade 5 – Operations on Decimals and Numerical Expressions – Unit 1*

A focus of the unit 1 is to understand place value to the thousandths place. This concept builds on students' grade 4 understandings of decimals to the hundredths place. After examining the quantitative relationships that exist between the digits in place value positions of a multi-digit number, learners apply their previous understandings of adding and subtracting to add and subtract decimals.

While learners read, write, and compare decimals to the thousandths place using base-ten numerals, number names, and expanded form, the focus of this unit is addition and subtraction of decimals to the hundredths place. The additional and supporting concepts and skills engage learners in analyzing the structure of numerical expressions. Learners evaluate and write numerical expressions with grouping symbols, write numerical expressions from a description, and interpret numerical expressions.

### Essential Questions

- How does the value of a digit compare to its neighboring digits?
- What happens to the value of a digit as it moves to the left on a place value chart?
- What happens to the value of a digit as it moves to the right on a place value chart?
- How are whole numbers and decimals written, compared, ordered, and rounded?

### Standards

**Standards (Taught and Assessed):**

5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

5.NBT.A.3 Read, write, and compare decimals to thousandths.

- a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .
- b. Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

5.NBT.A.4 Use place value understanding to round decimals to any place.

Key: Major Cluster Supporting Cluster Additional Cluster

**Highlighted Career Ready Practices and 21<sup>st</sup> Century Themes/Skills**

- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

**Social-Emotional Learning Competencies**

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

<b>Instructional Plan</b>
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<b>Pre-Assessment and Reflection</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
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<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI
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Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT We are learning to/that	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<p><b>5.NBT.A.1 –</b> WALT recognize in a multi-digit number that a digit is 10 times the value of the digit to its right</p> <p><b>5.NBT.A.1 –</b> WALT recognize in a multi-digit number that a digit is 1/10 the value of the digit to its left</p>	<p>Use place value blocks to represent the difference of 10 times and 1/10 of</p> <p>Use a place value chart to loop left (10 times) or right (1/10 of)</p> <p>Count the number of zeros in 10 times, 100 times, 1,000 times, etc tells you how many places to move to the left because the number is increasing. Similarly, the number of zeros in 110,1100,11,000, etc tells you how many place value positions to move to the right because the number is decreasing.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p> <p>Place Value Digit Card Slide</p>	<p>Activity #1: Use base 10 blocks for students to make observations between the place value positions.</p> <ul style="list-style-type: none"> <li>Recognize that each base 10 block represents a place value position.</li> <li>Identify the pattern/relationship that each place is 10 times larger when moving to the left and each place is 1/10 of the previous place when moving to the right.</li> </ul> <p>Activity #2: Review place value chart Have students list out the value of each place value position from the thousands to the thousands and make observations of the relationships between the place value positions.</p> <ul style="list-style-type: none"> <li>Lead discussion to focus on: moving to the left the value of the places are greater and moving to the right the value of the places are decreasing.</li> <li>Then use “loops”/”hops” to show every time you move a place to the left, the places are getting 10 times</li> </ul>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>

					<p>larger each time. (So, if you hop 3 times to the left, the places are getting 1,000 times larger in value because <math>10 \times 10 \times 10</math>.)</p> <ul style="list-style-type: none"> <li>• Similarly, every time you move a place to the right, the places are <math>1/10</math> of the previous places causing the places to decrease. (So if you hop two places to the right, the number will be <math>1/100</math> of the starting number in value because <math>1/10 \times 1/10</math>.)</li> </ul> <p>Activity #3: Place Value Digit Card Slide- Have students create the digit card slide and move it to the right and left (depending on 10 times or <math>1/10</math> of). Discuss what happens to the value of a specific digit.</p> <p>Activity #4: Place Value "Act It Out" - Have students arrange themselves in a place value chart taped on the group. Each student will hold up a card with a digit. Have the students move to the right and left (depending on 10 times or <math>1/10</math> of) and discuss what happens to the value of a specific digit.</p> <p>Resources:  <a href="#">Toolbox Unit 1 Lesson 1 Instruct - Interactive Tutorial - Understand Place Value</a>  <a href="#">Toolbox Unit 1 Lesson 1 Instruct - Ready Instruction Book</a>  <a href="#">Toolbox Unit 1 Lesson 1 Practice - Practice &amp; Problem Solving Book</a>  <a href="#">Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction</a>  <a href="#">On-level - Toolbox Unit 1 Lesson 1</a></p>
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<p><b>5.NBT.A.3a –</b>  <b>WALT</b> read decimals to thousandths using base-ten numerals, number names, and expanded form</p>	<p>Use a place value chart to place the digits of a number. Then, write the word form and expanded form of the number.</p>	<p>Exit Slips  Standards Assessment  Toolbox assessment  GO Math standards assessment</p>	<p>Student-led Activities  GoMath textbook</p> <p>Activity #1:  Base Ten Blocks  Have students create decimals using base ten blocks</p> <ul style="list-style-type: none"> <li>• model the decimal and draw the model</li> <li>• verbalize what they have (&amp; write down the word form)</li> <li>• tell the value of each digit (&amp; write down the expanded form).</li> <li>• Rotate through creating/drawing, verbalizing/word form, and expanded form.)</li> </ul> <p>Resources:  Toolbox Unit 1 Lesson 3 Instruct  Interactive Tutorial - Read and Write Decimals  Toolbox Unit 1 Lesson 3 Instruct - Ready Instruction Book  Toolbox Unit 1 Lesson 3 Practice - Practice &amp; Problem Solving Book  Toolbox Unit 1 Lesson 3 Teacher-led Activities - Tools for Instruction  On level - Toolbox Unit 1 Lesson 3 Student-led Activity - Decimal Number Forms  GoMath textbook  Khan Academy decimal place value lessons</p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities  RTI activities</p>
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			<p>IXL Grade 5 practice:  <u>IXL G.1</u>    <u>IXL G.3</u>  <u>IXL G.5</u>    <u>IXL G.16</u></p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities</p>
<p><b>5.NBT.A.3b –</b>  <b>WALT</b> compare two decimals to thousandths based on place value understanding</p> <p><b>5.NBT.A.3b –</b>  <b>WALT</b> record comparisons of two decimals to thousandths using <math>&gt;</math>, <math>&lt;</math> or <math>=</math></p>	<p>Align decimals vertically and compare each digit from left to right.</p>	<p>Exit Slips  Standards Assessment  Toolbox assessment  GO Math standards assessment</p>	<p>Activity #1:  Use Base-ten blocks to represent two decimals. Have students make observations and discuss which decimal is greater.</p> <p>Activity #2:  Use a place-value chart to align the digits of a given decimal below the correct place value positions. Then, place a second decimal below, placing each digit below the correct place value positions. Compare the corresponding digits from left to right to find which decimal is greater.</p> <p>Activity #3:  Use a number line to plot two decimals. Discuss where the decimals are located in relation to which decimal is greater.</p> <p>Resources:  Toolbox Unit 1 Lesson 4 Teacher-led Activities - Tools for Instruction  Go Math textbook  IXL Grade 5 practice  <u>IXL G.9</u>    <u>IXL G.9</u>  <u>IXL G.10</u></p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities</p>
<p><b>5.NBT.A.4 –</b>  <b>WALT</b> round decimals to any place using place value understanding</p>	<p>Think of the two rounded options for a decimal (the decimal with the same digit that is to be rounded and the decimal with the digit that is to be rounded increased by 1.) Then, look at the digit</p>	<p>Exit Slips  Standards Assessment</p>	<p>Activity #1:  Use a number line to place a decimal. Have students make observations of how close the decimal is to the rounded options.</p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities</p>



	<p>to the right of the digit to be rounded to determine whether to round up or round down.</p> <p>Look at the digit to the right of the place to be rounded and use “5 or above, give it a shove” and “4 or below, leave it alone”.</p>	<p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #2: Have students list two decimals that a given decimal falls between by focusing on the digit to be rounded. Discuss which of the two decimals would be the best answer for the given decimal to round to. Students may look at the digit to the right of the digit to be rounded to assist with rounding.</p> <p>Activity #3: Students can use Base-ten blocks to model a decimal. Then, the students can model the decimal when rounded down and model the decimal when rounded up. Students can then compare the model of the original decimal to the models of the two rounded options and discuss which decimal is the better choice to round to.</p> <p>Resources:  <u>Toolbox Unit 1 Lesson 4 Instruct Interactive Tutorial - Round Decimals</u>  <u>Toolbox Unit 1 Lesson 4 Instruct Interactive Tutorial - Practice: Round Decimals</u>  <u>Toolbox Unit 1 Lesson 4 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 1 Lesson 4 Practice - Practice &amp; Problem Solving Book</u>  <u>Toolbox Unit 1 Lesson 4 Teacher-led Activities - Tools for Instruction</u>  <u>On Level - Toolbox Unit 1 Lesson 4 Student-led Activity - Use Comparing &amp; Rounding Vocabulary</u>  <u>On Level - Toolbox Unit 1 Lesson 4 Student-led Activity - Round Decimal Numbers</u></p>	<p>RTI activities</p>
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			Go Math textbook IXL Grade 5 practice IXL G.7	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.1 / 5.NBT.3a	Modifications per students' IEP

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.3b / 5.NBT.4	Modifications per students' IEP

**Summative Assessments**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.1, 5.NBT.3, 5.NBT.4 standards assessment	Modifications per students' IEP

**Interdisciplinary Connections**

<p><b>Interdisciplinary Connections</b></p>	<p><b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b></p>
<p>Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.</p>	<p>Modifications per students' IEP Tiered questions</p>

## Unit I Module B

**Unit Title: Mathematics – Operations on Decimals and Numerical Expressions – Unit 1 – Module B**

**Grade level: Grade 5**

**Timeframe: 4 weeks**

**Rationale**

*Grade 5 – Operations on Decimals and Numerical Expressions – Unit 1*

A focus of the unit 1 is to understand place value to the thousandths place. This concept builds on students' grade 4 understandings of decimals to the hundredths place. After examining the quantitative relationships that exist between the digits in place value positions of a multi-digit number, learners apply their previous understandings of adding and subtracting to add and subtract decimals.

While learners read, write, and compare decimals to the thousandths place using base-ten numerals, number names, and expanded form, the focus of this unit is addition and subtraction of decimals to the hundredths place. The additional and supporting concepts and skills engage learners in analyzing the structure of numerical expressions. Learners evaluate and write numerical expressions with grouping symbols, write numerical expressions from a description, and interpret numerical expressions.

Note: Double asterisks (\*\*) indicate that the example(s) included within the New Jersey Student Learning Standard may be especially informative when considering the Student Learning Objective.

### Essential Questions

- How do you add and subtract decimals?
- How can you use modeling to demonstrate adding and subtracting decimals?
- What is the “order of operations,” and why is it important?
- How do you solve numerical expressions using the “order of operations”?
- How can you write numerical expressions to represent calculations?

### Standards

#### Standards (Taught and Assessed):

**5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

**5.OA.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

**5.OA.A.2** Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as  $2 \times (8 + 7)$ . Recognize that  $3 \times (18932 + 921)$  is three times as large as  $18932 + 921$ , without having to calculate the indicated sum or product.*

**Key:** Major Cluster      Supporting Cluster      Additional Cluster

### Highlighted Career Ready Practices and 21st Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

### Pre-Assessment and Reflection

<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>		
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI	Formative Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections

Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT	Student Strategies	Formative Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
We are learning to/that			

<p><b>5.NBT.B.7 – WALT</b> add and subtract decimals to hundredths using concrete models or drawings</p>	<p>Draw a model of the decimal addends and combine them to find the sum. Regroup as needed.</p>	<p>Exit Slips Standards Assessment Toolbox assessment</p>	<p>Activity #1: Add/Subtract Decimals using Base Ten Blocks with regrouping as needed- Have students record/draw models of the base 10 blocks as they solve.</p>	<p>Modifications per students' IEP i:Ready Toolbox student-led activities RTI activities</p>
<p><b>5.NBT.B.7 – WALT</b> add and subtract decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction</p>	<p>Draw a model of the minuend (original decimal). Then, cross out the quantity of the subtrahend (decimal you are taking away) and regroup as needed.</p>	<p>GO Math standards assessment</p>	<p>Activity #2: Add/Subtract Decimals using a Place Value Chart- Have students stack the decimals vertically in a place value chart and then add/subtract.</p>	
<p><b>5.NBT.B.7 – WALT</b> relate the strategy to the concrete model or drawing, and explain the reasoning used</p>	<p>Vertically stack the decimals according to each digit's place value position. Write in "place holder" zeros in empty place value positions. Then, add/subtract.</p>		<p>Activity #3: Add/Subtract Prices and Budget from a Menu-</p> <ul style="list-style-type: none"> <li>• Have students add/subtract prices from a budget using multiple approaches, specifically focused on properties.</li> <li>• Have students present and discuss which approach would be most appropriate/easiest to solve each problem.</li> </ul>	
			<p>Resources: Toolbox Unit 1 Lesson 7 Instruct - Interactive Tutorial - Add Decimals Toolbox Unit 1 Lesson 7 Instruct - Interactive Tutorial - Subtract Decimals Toolbox Unit 1 Lesson 7 Instruct - Ready Instruction Book Toolbox Unit 1 Lesson 7 Practice - Add &amp; Subtract Decimals On Level - Toolbox Unit 1 Lesson 7 Student-led Activity GO Math textbook</p>	

	<p><b>5.OA.A.1 – WALT</b> evaluate numerical expressions with parentheses, brackets, and braces, including expressions containing fractions and decimals</p> <p><b>5.OA.A.1 – WALT</b> use parentheses, brackets, or braces to group parts of a numerical expression</p>		<p><u>Khan Academy Add Decimals lesson</u></p> <p><u>Khan Academy Subtract Decimals lesson</u></p> <p>IXL Grade 5 lessons:  <u>IXL H.1</u>    <u>IXL H.2</u>  <u>IXL H.3</u>    <u>IXL H.4</u></p>	<p>Modifications per students' IEP</p> <p>Ready/Toolbox student-led activities</p> <p>RTI activities</p>
	<p>Use "PEMDAS" or "GEMDAS" to solve numerical expressions. Cross out each letter of PEMDAS as each step is completed. Highlight or underline each part of the expression that is being solved at each step.</p> <p>When you have groups within groups, solve the smallest group first and work your way out to the largest group.</p>	<p>Exit Slips</p> <p>Standards Assessment</p>	<p>Activity #1:  Provide students with PEMDAS or GEMDAS template, review the meaning of the acronym, &amp; provide direct instruction examples.</p> <p>Activity #2:  Order of Operations Song</p> <p>Activity #3:  Order of Operations Bingo</p> <p>Resources:  <u>Toolbox Unit 3 Lesson 19 Instruct - Interactive Tutorial - Numerical Expressions and Order of Operations</u></p> <p>On level - <u>Toolbox Unit 3 Lesson 19 Student-led Activity - Less Than, Equal to, Greater Than</u></p> <p>On level - <u>Toolbox Unit 3 Lesson 19 Student-led Activity - Make It True</u></p> <p>GO Math textbook</p> <p><u>Khan Academy Algebraic Thinking lessons</u></p> <p>IXL Grade 5 lessons:  <u>IXL O.5</u>    <u>IXL O.6</u></p>	

<p><b>5.OA.A.2 – WALT</b> write simple numerical expressions from a description that record calculations with numbers</p> <p><b>5.OA.A.2 – WALT</b> interpret numerical expressions to compare their values without evaluating them</p>	<p>Highlight keywords such as “each,” “every,” “times,” “more,” “less,” “spent,” “left over,” etc.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p><u>IXL O</u></p> <p>Activity #1: With student suggestions, discuss/create a 5 column list of keywords in word problems that relate to the 4 operations (addition, subtraction, multiplication, and division). Also, discuss/list keywords that would elicit parentheses/grouping in a numerical expression.</p> <p>Activity #2: Using example word problems, aid students in highlighting/breaking down each step of the word problems in order to then show how it contributes to creating a numerical expression.</p> <p>Activity #3: Have students create their own word problems and the corresponding numerical expressions. Students can exchange word problems and try to come up with the correct numerical expressions.</p> <p>Resources:  <u>Toolbox Unit 3 Lesson 19 Instruct - Interactive Tutorial - Write and Evaluate Expressions</u>  <u>Toolbox Unit 3 Lesson 19 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 3 Lesson 19 Practice &amp; Problem Solving Book</u>  <u>Toolbox Unit 3 Lesson 19 Teacher-led Activities - Tools for Instruction</u>  <u>On level - Toolbox Unit 3 Lesson 19 Student-led Activity - Write a Numerical Expression</u></p>	<p>Modifications per students’ IEP</p> <p>Ready Toolbox student-led activities</p> <p>RTI activities</p>
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			<p>On level - Toolbox Unit 3 Lesson 19  <u>Student-led Activity - Find the Expression</u>  GO Math textbook  Khan Academy Algebraic Thinking lessons  IXL Grade 5 lessons:  IXL O.3 IXL O.4</p>	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.7	Modifications per IEPs

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.OA.1, 5.OA.2	Modifications per IEPs

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.7 assessment 5.OA.1 / 2 assessment	Modifications per IEPs

## Interdisciplinary Connections

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	Modifications per students' IEP Tiered questions

## Unit II Module A

### Unit Title: Mathematics – Decimal Multiplication & Division and Volume Concepts – Unit 2 – Module A

<b>Grade level: Grade 5</b>	<b>Timeframe: 5 weeks</b>
<b>Rationale</b>	

#### *Grade 5 – Decimal Multiplication & Division and Volume Concepts – Unit 2*

This unit focuses on the concepts of volume, decimal multiplication and division, and fluency with whole number multiplication. The unit begins with learners analyzing and explaining patterns in the number of zeros and the placement of the decimal point in the context of multiplying by powers of 10. They continue work building fluency with multiplication of whole numbers using the standard algorithm. These concepts lay the foundation for introducing learners to multiplication of decimals to hundredths. As with other operations, learner represent these concepts with models and drawings, before using other various strategies. Similarly, learners divide whole numbers and use concrete models, drawings, and various strategies to divide decimals to hundredths

In the final module of this unit, learners build upon earlier work in grade 3 tiling rectangular figures to develop the concept of area. Now in grade 5, learners pack rectangular prisms with unit cubes to develop the concept of volume. They recognize volume as an attribute of solid figures, understand foundational concepts of volume measurement, and measure volumes by counting unit cubes of various standard and non-standard units. They relate volume to the operations of multiplication and addition and solve real world and mathematical problems by applying volume formulas  $V = l \times w \times h$  and  $V = B \times h$  to rectangular prisms with whole number edge

lengths. To conclude the unit, learners recognize volume as additive and use the concept to determine volumes of composite solid figures composed of right rectangular prisms.

### Essential Questions

- What is a "power of ten"?*
- What happens to a number when it is multiplied by a "power of ten"?*
- What happens to a number when it is divided by a "power of ten"?*
- What are common measurement systems that I will come across in everyday life?*
- How can I convert customary units of length? What units are used?*
- How can I convert customary units of weight? What units are used?*
- How can I convert customary units of capacity? What units are used?*
- How can I convert metric units? What units are used?*
- How do I multiply two multi-digit whole numbers using the standard algorithm?*
- How can I use modeling and/or place value to multiply decimals?*

### Standards

#### Standards (Taught and Assessed):

- 5.NBT.A.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- 5.MD.A.1** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
- 5.NBT.B.5** Fluently multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Key:            Major Cluster            Supporting Cluster            Additional Cluster

#### Highlighted Career Ready Practices and 21<sup>st</sup> Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.

- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

### Pre-Assessment and Reflection

<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

### Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<b>We are learning to/that</b>				
<b>5.NBT.A.2 – WALT</b> explain patterns in the number of zeros of the product when multiplying by powers of 10	Recall that when multiplying by powers of 10, the exponent tells you how many times to move the decimal point to the right.	Exit Slips Standards Assessment Toolbox	Activity #1: Relating Powers of 10 to Place Value - <ul style="list-style-type: none"> <li>• Make observations of multiplying by 10 repetitively in relation to the</li> </ul>	Modifications per students' IEP iReady Toolbox student-led activities

<p><b>5.NBT.A.2 – WALLT</b> explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10</p> <p><b>5.NBT.A.2 – WALLT</b> denote powers of 10 by using whole-number exponents</p>	<p>Recall that when dividing by powers of 10, the exponent tells you how many times to move the decimal point to the left.</p>	<p>assessment</p> <p>GO Math standards assessment</p>	<p>value of each place in a place value chart. Use Base-ten blocks to prove observations.</p> <ul style="list-style-type: none"> <li>• Make observations of dividing by 10 repetitively in relation to the value of each place in a place value chart. Use Base-ten blocks to prove observations.</li> </ul> <p><b>Activity #2:</b> Create paper accordions of powers of 10 exponents</p> <p><b>Activity #3:</b> Place Value Digt Card Slide- Revisit this activity from Unit 1A. However, now have students use this activity with decimals and multiplying/dividing by powers of 10</p> <p><b>Activity #4:</b> Place Value “Act It Out” - Revisit this activity from Unit 1A. However, now have students use this activity with decimals and multiplying/dividing by powers of 10</p> <p><b>Resources:</b></p> <p><u><a href="#">Toolbox Unit 1 Lesson 2 Instruct-Interactive Tutorial - Understand Powers of Ten</a></u></p> <p><u><a href="#">Toolbox Unit 1 Lesson 2 Instruct-Ready Instruction Book</a></u></p> <p><u><a href="#">Toolbox Unit 1 Lesson 2 Practice - Understand Powers of Ten</a></u></p> <p><u><a href="#">On-level - Toolbox Unit 1 Lesson 2 Student-led Activities - Patterns of</a></u></p>	<p>RTI activities</p>
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<p><b>5.MD.A.1 – WALT</b> convert among different-sized standard measurement units within a given measurement system</p>	<p>Recall that when converting a smaller unit to a larger unit, you will divide because you are grouping small units together to make larger units.</p> <p>Recall that when converting a larger unit to a smaller unit, you will multiply because you are breaking the larger units into smaller units.</p> <p>For customary conversions of capacity, recall “Gallon Person” or Gallon City</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p>Zeros</p> <p><u>On-level - Toolbox Unit 1 Lesson 2</u> <u>Student-Led Activities - Powers of Ten Vocabulary Match</u></p> <p>GO Math textbook</p> <p><u>Khan Academy Powers of Ten lessons</u></p> <p>IXL Grade 5 lessons:</p> <p>IXL E.3</p> <p>Activity #1: Customary Length - Introduce, discuss real-world items for each unit, and try conversions on real-world items/examples</p> <p>Activity #2: Customary Weight - Introduce, discuss real-world items for each unit, and try conversions on real-world items/examples</p> <p>Activity #3: Customary Capacity - Introduce the Gallon Person or Gallon City and try conversions on real-world items/examples</p> <p>Activity #4: Metric System - Introduce, discuss real-world items for each unit, and try conversions on real-world items/examples</p> <p>Resources: <u>Toolbox Unit 4 Lesson 21 Instruct - Interactive Tutorial - Solve Word Problems Involving Measurement</u></p>	<p>Modifications per students’ IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>
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<p><b>5.NBT.B.5 – WALT</b> multiply multi-digit whole numbers using the standard algorithm working towards accuracy and efficiency</p>	<p>Recall that when multiplying by a 2 or 3-digit number, think of your second factor in expanded form. Ex: <math>123 \times 45 =</math> You would multiply <math>123 \times 5</math> and then <math>123 \times 40</math>. Add your two products. You can also use two different colors to connect the value of each digit in your second factor with the corresponding product.  Be sure to align your digits. (You can use grid paper to assist with this.)</p>	<p>Exit Slips  Standards Assessment  Toolbox assessment  GO Math standards assessment</p>	<p>Activity #1: Direct instruction using grid paper (If needed, students can use two different colors to show the two different products corresponding with the digits of the second factor)  Activity #2: Calculating Our School-wide Book Carbon Footprint- Students will calculate the total number of pages in one of their school books (textbooks, ELA chapter books, etc) for</p>	<p>Toolbox Unit 4 Lesson 21 Instruct - Ready Instruction Book  Toolbox Unit 4 Lesson 21 Practice - Practice &amp; Problem Solving Book  Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction  On-level - Toolbox Unit 4 Lesson 21 Student-led Activities  On-level - Toolbox Unit 4 Lesson 22 Student-led Activities  GO Math textbook  Khan Academy <u>Converting units of measure</u>  IXL Grade 5 lessons: <u>IXL Z.2</u>    <u>IXL Z.3</u> <u>IXL Z.4</u>    <u>IXL Z.13</u> <u>IXL Z.14</u>    <u>IXL Z.15</u> <u>IXL Z.22</u></p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities  RTI activities</p>
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<p><b>5.NBT.B.7 – WALT</b> multiply decimals to hundredths using models or drawings</p>	<p>Recall that when multiplying by a decimal less than 1, recall that this will cause your product to be less than the other factor.</p>	<p>Exit Slips Standards Assessment</p>	<p>Activity #1: Multiply a Decimal and Whole # - Hands-on with Base-ten blocks and recording drawings in notebooks.</p>	<p>Modifications per students' IEP iReady Toolbox student-led activities</p>
			<p>their entire class (2-digit number) as well as all the students in the entire school (3-digit number). Rotate through calculating with various schoolbooks.</p> <p>Resources:  <u>Toolbox Unit 1 Lesson 5 Instruct - Interactive Tutorial - Multiply Whole-numbers</u>  <u>Toolbox Unit 1 Lesson 5 Instruct - Interactive Tutorial - Practice: Multiplication of Whole-numbers</u>  <u>Toolbox Unit 1 Lesson 5 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 1 Lesson 5 Practice - Practice &amp; Problem Solving Book</u>  <u>On-level - Toolbox Unit 1 Lesson 5 Student-led Activities - Use Multiplication Vocabulary</u>  <u>On-level - Toolbox Unit 1 Lesson 5 Student-led Activities - Equivalent Multiplication Expressions</u>  <u>GO Math textbook</u>  <u>Khan Academy multi digit multiplication</u>  <u>IXL Grade 5 lessons:</u>  <u>IXL C.12    IXL C.15</u></p>	



<p><b>5.NBT.B.7 – WALT</b> multiply decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction</p> <p><b>5.NBT.B.7 – WALT</b> relate the strategy to the concrete model or drawing, and explain the reasoning used</p>	<p>Recall that when multiplying by a decimal greater than 1, recall that this will cause your product to be more than the other factor.</p>	<p>Toolbox assessment GO Math standards assessment</p>	<p>Activity #2: Multiply a Decimal by another Decimal using an Area Model- Hands-on with Base-ten blocks and recording drawing in notebooks.</p> <p>Activity #3: Multiplying Decimals Review Show &amp; Tell-</p> <ul style="list-style-type: none"> <li>Review a variety of ways to multiply decimals - area model, distributive property, etc.</li> <li>Students will choose a method to solve a multiplying decimals problem.</li> <li>After, students will “show” how modeling using Base-ten blocks and/or drawings lead to the same answer.</li> <li>Last, students will “tell” how their model and/or drawing supports their work.</li> </ul> <p>Resources: <u>Toolbox Unit 1 Lesson 8 Instruct - Interactive Tutorial - Understand Place Value</u> <u>Toolbox Unit 1 Lesson 8 Instruct - Ready Instruction Book</u> <u>Toolbox Unit 1 Lesson 8 Practice - Practice &amp; Problem Solving Book</u> <u>Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction</u> <u>On-level - Toolbox Unit 8 Lesson 1 Student-led Activities</u></p>	<p>RTI activities</p>
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			GO Math textbook <u>Khan Academy Multiply Decimals</u> IXL Grade 5 lessons: <u>IXL I using blocks</u> <u>IXL I using area model</u> <u>IXL I use grids</u>	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NBT.2, 5.OA.1</i>	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NBT.5, 5.NBT.7 (multiply decimals)</i>	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.NBT.2 assessment	<i>Modifications per IEPs</i>
5.OA.1 assessment	
5.NBT.5 assessment	
5.NBT.7 assessment (only multiply decimals)	

**Interdisciplinary Connections**

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP</i> <i>Tiered questions</i>

**Unit II Module B**

**Unit Title: Mathematics – Building Fractions & Decimal Notation – Unit 2 – Module B**

**Grade level: Grade 5**

**Timeframe: 3 weeks**

**Rationale**

*Grade 5 – Decimal Multiplication & Division and Volume Concepts – Unit 2*

This unit focuses on the concepts of volume, decimal multiplication and division, and fluency with whole number multiplication. The unit begins with learners analyzing and explaining patterns in the number of zeros and the placement of the decimal point in the context of multiplying by powers of 10. They continue work building fluency with multiplication of whole numbers using the standard algorithm. These concepts lay the foundation for introducing learners to multiplication of decimals to hundredths. As with other operations, learner represents these concepts with models and drawings, before using other various strategies. Similarly, learners divide whole numbers and use concrete models, drawings, and various strategies to divide decimals to hundredths

In the final module of this unit, learners build upon earlier work in grade 3 tiling rectangular figures to develop the concept of area. Now in grade 5, learners pack rectangular prisms with unit cubes to develop the concept of volume. They recognize volume as an attribute of solid figures, understand foundational concepts of volume measurement, and measure volumes by counting unit cubes of various standard and non-standard units. They relate volume to the operations of multiplication and addition and solve real world and mathematical problems by applying volume formulas  $V = l \times w \times h$  and  $V = B \times h$  to rectangular prisms with whole number edge lengths. To conclude the unit, learners recognize volume as additive and use the concept to determine volumes of composite solid figures composed of right rectangular prisms.

**Essential Questions**

*How can I use modeling, arrays, and/or place value to divide multi-digit whole numbers?*

*How can I use modeling and/or place value to divide decimals?*

**Standards**

**Standards (Taught and Assessed):**

**5.NBT.B.6** Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit 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.

**5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. \*\*

**Key:** Major Cluster Supporting Cluster Additional Cluster

### Highlighted Career Ready Practices and 21. Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

### Pre-Assessment and Reflection

<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT We are learning to/that	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<p><b>5.NBT.B.6 – WALT</b> find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on place value</p> <p><b>5.NBT.B.6 – WALT</b> find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on properties of operations or the relationship between multiplication and division</p> <p><b>5.NBT.B.6 – WALT</b> illustrate and explain the division calculation by using equations, rectangular arrays, and/or area models</p>	<p>When dividing whole-numbers using partial quotients, use compatible numbers and powers of 10 to help you get as close as possible to the dividend.</p> <p>Recall that “compatible numbers” are numbers that are easy to add, subtract, multiply, or divide mentally.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Dividing Whole-numbers using Base-ten Blocks and Drawings</p> <p>Activity #2: Dividing Whole-numbers using Area Models/Rectangular Arrays</p> <p>Activity #3: Divide Whole-numbers using Partial Quotients</p> <p>Activity #4: Division Show &amp; Tell- Students will present/“show” what strategies they used to solve various division problems and describe/“tell” how they procedurally solved their work.</p> <p>Resources: Toolbox Unit 1 Lesson 6 Instruct - Interactive Tutorial - Division of Whole-numbers Toolbox Unit 1 Lesson 6 Instruct - Interactive Tutorial - Practice: Divide Whole-numbers Toolbox Unit 1 Lesson 6 Instruct - Ready Instruction Book Toolbox Unit 1 Lesson 6 Practice -</p>	<p><i>Modifications per students' IEP</i></p> <p><i>Ready! Toolbox student-led activities</i></p> <p><i>RTT activities</i></p>

			<p><u>Practice &amp; Problem Solving Book</u></p> <p><u>On-level - Toolbox Unit 6 Lesson 1 Student-led Activities - Division with Area Models</u></p> <p><u>On-level - Toolbox Unit 6 Lesson 1 Student-led Activities - Solve Area Problems with Division</u></p> <p>GO Math textbook</p> <p>Khan Academy <u>Multi-digit multiplication and division</u></p> <p>IXL Grade 5 lessons:</p> <p><u>IXL D using models</u></p> <p><u>IXL D using partial quotients</u></p>	<p><i>Modifications per students' IEP</i></p> <p><i>Ready, Toolbox student-led activities</i></p> <p><i>RTI activities</i></p>
<p><b>5.NBT.B.7 – WALT</b> divide decimals to hundredths using models or drawings</p> <p><b>5.NBT.B.7 – WALT</b> divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction</p> <p><b>5.NBT.B.7 – WALT</b> relate the strategy to the concrete model or drawing, and explain the reasoning used</p>	<p>Recall that when modeling decimal division with base-ten blocks, you need to see how many groups of the divisor you can make.</p> <p>Recall that when modeling decimal and whole-number division with area models, decompose your numbers.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Divide Decimals and Whole-numbers using Base-ten Blocks and Drawings</p> <p>Activity #2: Divide Decimals and Whole-numbers using Area Models</p> <p>Activity #3: Divide Decimals using Base-ten Blocks and Drawings</p> <p>Activity #4: Decimal Division Show &amp; Tell- Students will present/"show" what strategies they used to solve various decimal division problems and describe/"tell" how they procedurally solved their work.</p> <p>Resources:</p>	

			<p><u>Toolbox Unit 1 Lesson 9 Instruct - Interactive Tutorial - Divide Decimals</u></p> <p><u>Toolbox Unit 1 Lesson 9 Instruct - Interactive Tutorial - Practice: Divide Decimals</u></p> <p><u>Toolbox Unit 1 Lesson 9 Instruct - Ready Instruction Book</u></p> <p><u>Toolbox Unit 1 Lesson 9 Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction</u></p> <p><u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>GO Math textbook</u></p> <p><u>Khan Academy Divide Decimals</u></p> <p><u>IXL Grade 5 lessons:</u></p> <p><u>IXL J using blocks</u></p> <p><u>IXL J using area model</u></p>
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NBT.6</i>	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NBT.7 (only division of decimals)</i>	<i>Modifications per IEPs</i>



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**Summative Assessments (add rows as needed)**

Summative Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
5.NBT.6 assessment	<i>Modifications per IEPs</i>
5.NBT.7 assessment (only division of decimals)	

**Interdisciplinary Connections**

Interdisciplinary Connections	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP Tiered questions</i>

**Unit II Module C**

**Unit Title: Mathematics – Decimal Multiplication & Division and Volume Concepts – Unit 2 – Module C**

**Grade level: Grade 5**

**Timeframe: 3 weeks**

## Rationale

### Grade 5 – Decimal Multiplication & Division and Volume Concepts – Unit 2

This unit focuses on the concepts of volume, decimal multiplication and division, and fluency with whole number multiplication. The unit begins with learners analyzing and explaining patterns in the number of zeros and the placement of the decimal point in the context of multiplying by powers of 10. They continue work building fluency with multiplication of whole numbers using the standard algorithm. These concepts lay the foundation for introducing learners to multiplication of decimals to hundredths. As with other operations, learner represent these concepts with models and drawings, before using other various strategies. Similarly, learners divide whole numbers and use concrete models, drawings, and various strategies to divide decimals to hundredths

In the final module of this unit, learners build upon earlier work in grade 3 tiling rectangular figures to develop the concept of area. Now in grade 5, learners pack rectangular prisms with unit cubes to develop the concept of volume. They recognize volume as an attribute of solid figures, understand foundational concepts of volume measurement, and measure volumes by counting unit cubes of various standard and non-standard units. They relate volume to the operations of multiplication and addition and solve real world and mathematical problems by applying volume formulas  $V = l \times w \times h$  and  $V = B \times h$  to rectangular prisms with whole number edge lengths. To conclude the unit, learners recognize volume as additive and use the concept to determine volumes of composite solid figures composed of right rectangular prisms.

## Essential Questions

*What is the “volume” of a rectangular prism, and how do you find it?*

*How does finding the volume of a rectangular prism relate to finding the area of a rectangle?*

*What formula can you use to find the volume of a rectangular prism?*

*What label is used when finding the volume of a rectangular prism, and what does the label represent?\**

## Standards

### Standards (Taught and Assessed):

**5.MD.C.3** Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

- A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.
- A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units.

- 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units.
- 5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
  - a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes; e.g., to represent the associative property of multiplication.
- 5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
  - b. Apply the formulas  $V = l \times w \times h$  and  $V = B \times h$  for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
- 5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
  - c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Key: Major Cluster Supporting Cluster Additional Cluster

### Highlighted Career Ready Practices and 21. Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

### Pre-Assessment and Reflection



<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

**Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)**

<b>SLO – WALT</b>	<b>Student Strategies</b>	<b>Formative Assessment</b>	<b>Activities and Resources</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<p><b>We are learning to/that</b></p> <p><b>5.MD.C.3a – WALT</b> a cube with side length 1 unit is called a “unit cube”, has “one cubic unit” of volume, and can be used to measure volume</p> <p><b>5.MD.C.3b – WALT</b> a solid figure which can be packed without gaps or overlaps using (<math>n</math>) unit cubes has a volume of <math>n</math> cubic units</p>	<p>Recall that “unit” cubes are 1 unit long, one unit wide, and 1 unit tall, totaling to a volume of 1 cubic unit.</p> <p>Recall that volume has a label of “cubic” because volume is three-dimensional.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Make Observations of Unit Cubes</p> <ul style="list-style-type: none"> <li>• Measure the sides of the unit cubes to ensure same measurement</li> <li>• Discuss relationship between area and volume</li> <li>• Have students “fill” various opened rectangular prisms and tell the volume of the objects</li> </ul> <p>Activity #2: Unit Cubes Exploration</p> <ul style="list-style-type: none"> <li>• Have students create various figures</li> <li>• Observe/discuss solid figures with and without gaps</li> <li>• Have students present their cubes, showing/explaining how many unit cubes they used</li> <li>• Compare and Contrast the different ways students showed/explained how many unit cubes they used</li> </ul>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>

<p><b>5.MD.C.4 – WALT</b> measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units</p> <p><b>5.MD.C.5a – WALT</b> find the volume of a right rectangular prism with whole-number side</p>	<p>Recall the formula: Volume = Length x Width x Height</p>	<p>Exit Slips Standards Assessment Toolbox</p>	<p><b>Resources:</b>  <u>Toolbox Unit 4 Lesson 24 Instruct - Interactive Tutorial - Understand &amp; Measure Volume</u>  <u>Toolbox Unit 4 Lesson 24 Instruct - Interactive Tutorial - Practice: Measure Volume</u>  <u>Toolbox Unit 4 Lesson 24 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 4 Lesson 24 Practice - Practice &amp; Problem Solving Book</u>  <u>Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction</u>  <u>On-level - Toolbox Unit 4 Lesson 24 Student-led Activities - Build a Rectangular Prism</u>  <u>On-level - Toolbox Unit 4 Lesson 24 Student-led Activities - Use Volume Vocabulary</u>  <u>GO Math textbook</u>  <u>Khan Academy Volume lessons</u>  <u>IXL Grade 5 lessons:</u>  <u>IXL EE.13</u></p>	<p>Activity #1:  Revisit from above - Have students “fill” various rectangular prisms with unit cubes to find the volume</p> <ul style="list-style-type: none"> <li>Focus on filling a layer (area) and multiplying this by the amount of layers in an object</li> </ul> <p>Modifications per students’ IEP  iReady Toolbox student-led activities  RTI activities</p>
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<p>lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths</p> <p><b>5.MD.C.5a – WALT</b> represent volumes as the product of three whole numbers</p> <p><b>5.MD.C.5b – WALT</b> apply the formulas <math>V = l \times w \times h</math> and <math>V = B \times h</math> for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems</p>		<p>assessment</p> <p>GO Math standards assessment</p>	<p>(volume)</p> <ul style="list-style-type: none"> <li>Discuss how the area formula is now being modified to make the volume formula</li> </ul> <p>Activity #2: Same Volume, Different Shapes- Have students make and present different shapes with the same number of unit cubes</p> <p>Activity #3: Create the Dimensions- Have students list possible dimensions for a given volume.</p> <p>Activity #4: Volume of Everyday Boxes- Have students measure and calculate the volume of various boxes</p> <p>Resources: <u>Toolbox Unit 4 Lesson 25 Instruct - Ready Instruction Book</u></p> <p><u>Toolbox Unit 4 Lesson 25 Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction</u> <u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 4 Lesson 25 Student-led Activities - Same Volume, Different Shape</u></p> <p><u>On-level - Toolbox Unit 4 Lesson 25 Student-led Activities - Find the Prism</u></p> <p><u>Toolbox Unit 4 Lesson 26 Instruct - Interactive Tutorial - Measure Volume Using Formulas</u></p>
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<p><b>5.MD.C.5b – WALLT</b> recognize volume as additive and find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems</p>	<p>Cut the composite figure into 2 or more smaller, whole rectangular prisms (no gaps). Then, calculate the volume of each of the smaller rectangular prisms and add them together to find the total volume for the composite figure.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math Standards Assessment</p>	<p>Toolbox Unit 4 Lesson 26 Instruct - Interactive Tutorial - Practice: Volume of Rectangular Prisms Toolbox Unit 4 Lesson 26 Instruct - Ready Instruction Book Toolbox Unit 4 Lesson 26 Practice - Practice &amp; Problem Solving Book Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction On-level - Toolbox Unit 4 Lesson 26 Student-led Activities GO Math textbook Khan Academy Volume lessons IXL Grade 5 lessons: <u>IXL EE.15</u> <u>IXL EE.16</u> <u>IXL EE.14</u></p>	<p>Modifications per students' IEP iReady Toolbox student-led activities RTI activities</p>
<p><b>5.MD.C.5b – WALLT</b> recognize volume as additive and find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems</p>	<p>Cut the composite figure into 2 or more smaller, whole rectangular prisms (no gaps). Then, calculate the volume of each of the smaller rectangular prisms and add them together to find the total volume for the composite figure.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math Standards Assessment</p>	<p>Activity #1: Composite Figures with Unit Cubes-  <ul style="list-style-type: none"> <li>Have students make observations of composite figures made out of unit cubes.</li> <li>Discuss what they need to do in order to find the volume of the entire figure. Lead discussion to breaking apart the composite figure into 2 or more rectangular prisms.</li> <li>Have students calculate the total volume</li> </ul>           Activity #2: Composite Figure Task Cards</p>	<p>Modifications per students' IEP iReady Toolbox student-led activities RTI activities</p>

			<b>Resources:</b> Toolbox Unit 4 Lesson 27 Instruct - Interactive Tutorial - Practice: Volume of Composite Figures <u>Toolbox Unit 4 Lesson 27 Instruct -          Ready Instruction Book</u> Toolbox Unit 4 Lesson 27 Practice - Practice & Problem Solving Book On-level - Toolbox Unit 4 Lesson <u>27 Student-led Activities</u> GoMath textbook <u>Khan Academy Volume Lessons</u>	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.MD.3 5.MD.4	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.MD.5	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
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5.MD.3 assessment 5.MD.4 assessment 5.MD.5 assessment	<i>Modifications per IEPs</i>
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**Interdisciplinary Connections**

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP</i> <i>Tiered questions</i>

**Unit III Module A**

**Unit Title: Mathematics – Fractions – Unit 3 – Module A**

**Grade level: Grade 5**

**Timeframe: 3 weeks**

**Rationale**

*Grade 5 – Fractions – Unit 3*

Unit 3 focuses on fraction ideas and introduces a number of fractions concepts. Learners build upon many fraction concepts developed in earlier grades. They use fraction equivalence from grades 3 and 4 to add and subtract fractions with unlike denominators. Learners solve word problems involving addition and subtraction of fractions, using benchmark fractions and number sense of fractions to estimate mentally and to assess the reasonableness of their answers.

Next, learners extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. Building on their grade 3 work with area, they find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit

fraction side lengths. They show that the area is the same as would be found by multiplying the side lengths and represent fraction products as rectangular areas.

In the final module of this unit, learners build upon earlier work with multiplication and division. They interpret multiplication as scaling and compare the size of the product to the size of the factors. They come to understand and explain that multiplying a given factor by a number greater than 1 leads to a product that is greater than the given factor. Learners solve real world problems involving multiplication of fractions and represent problems using visual fraction models and equations.

To conclude this unit, learners are introduced to a new interpretation of fraction. They interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). They solve word problems involving division of whole numbers that lead to answers in fraction form. Learners then extend these previous understandings of division to divide unit fractions by whole numbers and to divide whole numbers by unit fractions.

### Essential Questions

*How do you add and subtract fractions with unlike denominators?*

*What are "common denominators," and why are they needed?*

*How do you find an equivalent fraction?*

*How can you use estimating to validate fraction sums and differences?*

*What are "benchmark fractions," and how can they be used to estimate fraction sums and differences?*

### Standards

#### Standards (Taught and Assessed):

**5.NF.A.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,  $2/3 + 5/4 = 8/12 + 15/12 = 23/12$ . (In general,  $a/b + c/d = (ad + bc)/bd$ .)*

**5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result  $2/5 + 1/2 = 3/7$ , by observing that  $3/7 < 1/2$ .*

**Key:**

Major Cluster

Supporting Cluster

Additional Cluster

### Highlighted Career Ready Practices and 21. Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

#### Pre-Assessment and Reflection

<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>			
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI			

Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT We are learning to/that	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Gifted, At-risk of Failure, 504) and Reflections
	Recall that you cannot add or	Exit Slips	Activity #1:	Modifications per

<p><b>5.NF.A.1 – WALT</b> when adding or subtracting fractions, replacing given fractions with equivalent fraction produces an equivalent sum or difference of fractions with like denominators</p> <p><b>5.NF.A.1 – WALT</b> add and subtract fractions with unlike denominators, including mixed numbers, by replacing given fractions with equivalent fraction</p>	<p>subtract fractions with unlike denominators without finding a common denominator because you would be adding or subtracting different size pieces.</p> <p>Recall that if a numerator is greater than the denominator, then you can rewrite your answer as a mixed number.</p>	<p>Standards Assessment Toolbox assessment</p> <p>GO Math standards assessment</p>	<p><u>"Fraction Action" Game-</u> Have students make observations leading towards replacing a game piece with other equivalent game pieces (equivalent fractions)</p> <p>Activity #2: Add/Subtract Fractions with Unlike Denominators using Modeling (Fraction Strips or Pattern Blocks) and Standard Algorithm</p> <p>Activity #3: Add/Sub Mixed #s with Unlike Denominators using Modeling (Fraction Strips or Pattern Blocks) and Standard Algorithm</p> <p>Activity #4: Subtract Mixed Numbers with Regrouping/Remaining using Modeling and Standard Algorithm</p> <p>Resources: <u>Toolbox Unit 2 Lesson 10 Instruct</u> <u>- Interactive Tutorial - Add &amp; Subtract Fractions</u></p> <p><u>Toolbox Unit 2 Lesson 10 Instruct</u> <u>- Ready Instruction Book</u></p> <p><u>Toolbox Unit 2 Lesson 10 Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 2 Lesson 10 Student-led Activities - Add &amp; Subtract Fractions</u></p>	<p>students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>
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		<p>Exit Slips Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p><u>On-level - Toolbox Unit 2 Lesson 10 Student-led Activities - Fraction Sums and Differences</u>  GO Math textbook  <u>Khan Academy Add/Subtract Fractions</u>  IXL Grade 5 lessons: <u>IXL L.8</u>    <u>IXL L.10</u> <u>IXL L.18</u>    <u>IXL L.19</u></p>	<p>Modifications per students' IEP iReady Toolbox student-led activities RTI activities</p>
<p><b>5.NF.A.2 – WALT</b> solve word problems involving addition and subtraction of fractions including those with unlike denominators referring to the same whole</p>	<p>Highlight keywords, such as “leftover,” “extra,” “more,” etc.</p>		<p>Activity #1: Add/Subtract Fractions with Unlike Denominators Task Cards  Resources: <u>Toolbox Unit 2 Lesson 11 Instruct - Interactive Tutorial - Add &amp; Subtract Fractions in Word Problems</u> <u>Toolbox Unit 2 Lesson 11 Instruct - Ready Instruction Book</u> <u>Toolbox Unit 2 Lesson 11 Practice - Practice &amp; Problem Solving Book</u> <u>On-level - Toolbox Unit 2 Lesson 11 Student-led Activities - Use Fraction Vocabulary</u>  GO Math textbook  <u>Khan Academy Add/Subtract Fractions</u>  IXL Grade 5 lessons:</p>	

<p><b>5.NF.A.2 – WALT benchmark</b> fractions and number sense can be used in estimating and assessing the reasonableness of answers to word problems involving addition and subtraction of fractions</p>	<p>Recall that you can estimate fractions to the benchmarks: 0, <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>, or 1 by comparing the numerator to the denominator.</p> <p>Use benchmarks to help you estimate decimal sums and differences as a form of validating finding the exact sums or differences.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p><u>IXL L.11</u>    <u>IXL L.20</u></p> <p>Activity #1: Model and Compare to Create Benchmarks-</p> <ul style="list-style-type: none"> <li>Have students model each fraction in the add/subtract fraction problem.</li> <li>Students should compare each fraction to fraction strips or pattern blocks of 0, <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>, or 1.</li> <li>Discuss which “benchmark” each fraction is most similar to and add/subtract.</li> </ul> <p>Activity #2: Estimate Fraction Sums and Differences Task Cards</p> <p>Resources: <u>On-level - Toolbox Unit 2 Lesson 11 Student-led Activities - Use Fraction Vocabulary</u>  GO Math textbook <u>Khan Academy Add/Subtract Fractions</u> <u>IXL L using benchmarks</u></p>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities RTI activities</p>
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**Benchmark Assessment 1**

<p><b>Benchmark Assessment</b></p>	<p><b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b></p>
<p><i>5.NF.1</i></p>	<p><i>Modifications per IEPs</i></p>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NF.2</i>	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NF.1 assessment</i>	<i>Modifications per IEPs</i>
<i>5.NF.2 assessment</i>	

**Interdisciplinary Connections**

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP</i> <i>Tiered questions</i>

## Unit III Module B

### Unit Title: Mathematics – Fractions – Unit 3 – Module B

Grade level: Grade 5

Timeframe: 4 weeks

#### Rationale

##### *Grade 5 – Fractions – Unit 3*

Unit 3 focuses on fraction ideas and introduces a number of fractions concepts. Learners build upon many fraction concepts developed in earlier grades. They use fraction equivalence from grades 3 and 4 to add and subtract fractions with unlike denominators. Learners solve word problems involving addition and subtraction of fractions, using benchmark fractions and number sense of fractions to estimate mentally and to assess the reasonableness of their answers.

Next, learners extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. Building on their grade 3 work with area, they find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths. They show that the area is the same as would be found by multiplying the side lengths and represent fraction products as rectangular areas.

In the final module of this unit, learners build upon earlier work with multiplication and division. They interpret multiplication as scaling and compare the size of the product to the size of the factors. They come to understand and explain that multiplying a given factor by a number greater than 1 leads to a product that is greater than the given factor. Learners solve real world problems involving multiplication of fractions and represent problems using visual fraction models and equations.

To conclude this unit, learners are introduced to a new interpretation of fraction. They interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). They solve word problems involving division of whole numbers that lead to answers in fraction form. Learners then extend these previous understandings of division to divide unit fractions by whole numbers and to divide whole numbers by unit fractions.



## Essential Questions

*How do you multiply a fraction and whole-number?*

*How can you use modeling to multiply a fraction and a whole-number?*

*How do you multiply a fraction by a fraction?*

*How can you use modeling to multiply a fraction by a fraction?*

*How does multiplying by a fraction less than one, a fraction greater than one, and a fraction equal to one affect a product?*

*What operation does a fraction represent?*

*How can you use fractions to represent division problems?*

*How do you model and solve the division of a unit fraction by a non-zero whole-number?*

*How do you model and solve the division of a non-zero whole-number by a unit fraction?*

## Standards

### Standards (Taught and Assessed):

**5.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

a. Interpret the product  $(a/b) \times q$  as a part of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div$

b. *For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)*

b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

**5.NF.B.5** Interpret multiplication as scaling (resizing), by:

a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $a/b = (n \times a)/(n \times b)$  to the effect of multiplying  $a/b$  by 1.

**5.NF.B.6** Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

**5.NF.B.3** Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

**5.NF.B.7** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for  $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ .*
- b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ .*

**5.NF.B.7** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share  $1/2$  lb. of chocolate equally? How many  $1/3$ -cup servings are in 2 cups of raisins?*

**5.MD.B.2** Make a line plot to display a data set of measurements in fractions of a unit ( $1/2, 1/4, 1/8$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Key: Major Cluster Supporting Cluster Additional Cluster

### Highlighted Career Ready Practices and 21<sup>st</sup> Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively. ■
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason. ■
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness □
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making



## Instructional Plan

### Pre-Assessment and Reflection

Pre-Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

### Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT We are learning to/that	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<p><b>5.NF.B.4 – WALT</b> apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction</p> <p><b>5.NF.B.4a. – WALT</b> interpret the product <math>(a/b) \times q</math> as a part of a partition of <math>q</math> into <math>b</math> equal parts; equivalently, as the result of a sequence of operations <math>a \times q \div b</math> **</p> <p><b>5.NF.B.4a. – WALT</b> interpret the product of a fraction and a fraction as <math>(a/b) \times (c/d) = ac/bd</math> **</p>	<p>Recall that when multiplying a fraction by a whole number, you can multiply the numerator times the whole number and then divide this product by the denominator to get the answer.</p> <p>Recall that when multiplying a fraction by a fraction, you can multiply the two numerators and multiply the two denominators. You do not need to find a common denominator like you need to with adding/subtraction fractions.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Multiply Whole-numbers and Fractions using Repeated Modeling:</p> <ul style="list-style-type: none"> <li>• Model using pattern blocks</li> <li>• Drawing models</li> <li>• Standard algorithm</li> <li>• Discuss how the models relate to the standard algorithm</li> </ul> <p>Activity #2: Multiply Whole-numbers and Fractions using Arrays:</p> <ul style="list-style-type: none"> <li>• Model using arrays of counters</li> <li>• Drawing arrays</li> <li>• Standard Algorithm</li> <li>• Discuss how the arrays</li> </ul>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>

			<p>relate to the standard algorithm</p> <p>Activity #3: Multiply Fractions using Two Color Drawings:</p> <ul style="list-style-type: none"> <li>Modeling using 2 color drawings drawings</li> <li>Standard Algorithm</li> <li>Discuss how the drawings relate to the standard algorithm</li> </ul> <p>Resources:  <u>Toolbox Unit 2 Lesson 13 Instruct</u>  <u>- Interactive Tutorial - Understand Products of Fractions</u>  <u>Toolbox Unit 2 Lesson 13 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 2 Lesson 13 Practice - Practice &amp; Problem Solving Book</u>  <u>Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction</u>  <u>On-level - Toolbox Unit 2 Lesson 13 Student-led Activities</u>  GO Math textbook  <u>Khan Academy Multiply Fractions</u>  IXL Grade 5 lessons:  <u>IXL M.5</u>    <u>IXL M.11</u>  <u>IXL M.12</u>   <u>IXL M.15</u>  <u>IXL M.17</u>   <u>IXL M.19</u></p>	
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<p><b>5.NF.B.4b. – WALT</b> tile a rectangle using the appropriate fractional unit square in order to find the area of a rectangle that has fractional side lengths</p> <p><b>5.NF.B.4b. – WALT</b> show that the area found by tiling would be that same as multiplying the side lengths</p> <p><b>5.NF.B.4b. – WALT</b> multiply fractional side lengths to find areas of rectangles</p> <p><b>5.NF.B.4b. – WALT</b> represent fraction products as rectangular areas</p>	<p>Recall that Area = Length times Width</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p><u>IXL M.11</u> <u>IXL M.20</u></p> <p><u>IXL M.33</u> <u>IXL M.34</u></p> <p>Activity #1: Revisit Activity #3 from above (Multiply Fractions using Two Color Drawings)</p> <p>Activity #2: Area with Fractions Task Cards</p> <p>Resources: Toolbox Unit 2 Lesson 14 Instructional - Interactive Tutorial - Multiply Fractions to Find Area</p> <p>Toolbox Unit 2 Lesson 14 Instructional - Ready Instruction Book</p> <p>Toolbox Unit 2 Lesson 14 Practice - Practice &amp; Problem Solving Book</p> <p>Toolbox Tools for Instruction</p> <p>Teacher-led Activities - Tools for Instruction</p> <p>On-level - <u>Toolbox Unit 2 Lesson 14 Student-led Activities</u></p> <p>GO Math textbook</p> <p>Khan Academy <u>Area of Rectangles</u></p> <p>IXL Grade 5 lessons: <u>IXL M.30</u> <u>IXL M.18</u> <u>IXL EE.6</u></p>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>
<p><b>5.NF.B.5a. – WALT</b> interpret multiplication as scaling (resizing) by comparing the size</p>	<p>Multiplying by a fraction less than 1 will reduce your product.</p>	<p>Exit Slips</p>	<p>Activity #1: Comparing the Resizing of Pictures-</p>	<p>Modifications per students' IEP</p>

<p>of a product to the size of one factor without performing the multiplication</p> <p><b>5.NF.B.5b. – WALT</b> explain why multiplying a given number by a fraction greater than one results in a product greater than one and why multiplying a given number by a fraction less than one results in a product smaller than the given number</p>	<p>Multiplying by a fraction greater than 1 will make your product greater.</p>	<p>Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p>Compare the two scenarios of taking <math>\frac{1}{2}</math> of a picture versus taking <math>\frac{1}{2}</math> of a picture.</p> <ul style="list-style-type: none"> <li>Class discussion of what they think will happen</li> <li>Solve the two scenarios mathematically</li> <li>Demonstrate the two scenarios using models to support the math</li> <li>(Repeat with multiple scenarios)</li> </ul> <p>Activity #2: Compare Edited Pictures- Revisit Activity #1 above, but now compare the model of the newly resized photo to the original, untouched photo. Repeat with multiple scenarios.</p> <p>Resources: Toolbox Unit 2 Lesson 15 Instruct - Interactive Tutorial - Understand Multiplication as Scaling Toolbox Unit 2 Lesson 15 Instruct - Ready Instruction Book Toolbox Unit 2 Lesson 15 Practice - Practice &amp; Problem Solving Book Toolbox Tools for Instruction Teacher-led Activities - Tools for Instruction On-level - Toolbox Unit 2 Lesson 15 Student-led Activities GO Math textbook Khan Academy Multiplication as</p>	<p>iReady Toolbox student-led activities RTI activities</p>
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			<p><u>Scaling</u></p> <p>IXL Grade 5 lessons:  IXL M.23    IXL M.24  IXL M.25</p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities  RTI activities</p>
<p><b>5.NF.B.5b. – WALT</b>  multiplying a fraction <math>a/b</math> by <math>n/n</math> (<math>a/b = (n \times a)/(n \times b)</math>) has the same effect as multiplying <math>a/b</math> by 1 and creates an equivalent fraction</p>	<p>Recall that when you have the same numerator and denominator in a fraction, this equals 1 whole because any number divided by itself equals 1.</p>	<p>Exit Slips  Standards Assessment  Toolbox  GO Math standards assessment</p>	<p>Activity #1:  Solve &amp; Observe-  (Observations of multiple problems that require <math>a/b \times n/n = a/b \times 1</math>)</p> <ul style="list-style-type: none"> <li>• Provide multiple versions of the problem stated above and have students solve all of them.</li> <li>• Have students make observations after solving all of the problems mathematically.</li> <li>• Class discussion of observations - leading to <math>n/n</math> really is just <math>n</math> divided by <math>n</math> which would always equal 1. Knowing the Identity Property of Multiplication, it would not change the value and thus simply creates an equivalent fraction.</li> </ul> <p>Resources:  GO Math textbook  IXL Grade 5 lessons:  IXL M.22    IXL M.19</p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities</p>
<p><b>5.NF.B.6 – WALT</b> solve real world problems involving multiplication of fractions and mixed numbers</p>	<p>Recall that the keyword "of" means multiply with fractions.</p>	<p>Exit Slips  Standards Assessment  Toolbox</p>	<p>Activity #1:  Adjust Recipes:  Have students "adjust" the ingredient quantities in recipes by "halving" a recipe and also by doing <math>1\frac{1}{2}</math> times as much of a</p>	<p>Modifications per students' IEP  iReady Toolbox student-led activities</p>

		<p>assessment</p> <p>GO Math standards assessment</p>	<p>recipe. Repeat with other fractions/mixed #s.</p> <p>Resources:</p> <p><u>Toolbox Unit 2 Lesson 16 Instruction - Ready Instruction Book</u></p> <p><u>Toolbox Unit 2 Lesson 16 Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction</u></p> <p><u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 2 Lesson 16 Student-led Activities - Write a Word Problem</u></p> <p><u>On-level - Toolbox Unit 2 Lesson 16 Student-led Activities - Real-World Multiplication Situations</u></p> <p>GO Math textbook</p> <p><u>Khan Academy Multiplying Fraction Word Problems</u></p> <p>IXL Grade 5 lessons:</p> <p><u>IXL M.13</u> <u>IXL M.21</u></p> <p><u>IXL M.36</u></p>	<p>RTI activities</p>
<p><b>5.NF.B.3 – WALT</b> interpret a fraction as division of the numerator by the denominator using visual fraction models or equations</p> <p><b>5.NF.B.3 – WALT</b> solve word problems involving division of whole numbers resulting in a</p>	<p>Recall that the fraction bar means to divide. Thus, a fraction could be thought of as the numerator divided by the denominator.</p> <p>Recall that when writing a fraction as division to represent a story, the object you are breaking apart is the numerator.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards</p>	<p>Activity #1:</p> <p>Fractions as Division Hands-on- Have students act out scenarios in which they are splitting an object among a certain number of students</p> <ul style="list-style-type: none"> <li>Have students break apart the objects (or use pattern blocks to represent the objects) and</li> </ul>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>



<p><b>fraction or mixed number quotient</b></p>		<p><b>assessment</b></p>	<p>draw fractional models of what they did</p> <ul style="list-style-type: none"> <li>• Discuss what numerical expression is being created</li> <li>• Solve for the answer</li> <li>• Discuss how the expression can be written as a fraction</li> </ul> <p>Activity #2: Create Your Own Word Problems- Have students create word problem stories to support specific fractions</p> <ul style="list-style-type: none"> <li>• Create word problems</li> <li>• Draw/solve the word problem scenarios</li> <li>• Discuss the answers and how they support the fraction as division problems that were given to them</li> <li>• Solve each other's word problems</li> </ul> <p>Resources: GO Math textbook Khan Academy Fractions as Division IXL Grade 5 lessons: IXL K IXL K.16</p>	<p>Modifications per students' IEP</p> <p>iReady Toolbox student-led activities</p> <p>RTI activities</p>
<p><b>5.NF.B.7a. – WALT</b> compute and interpret the quotients of a unit fraction by a non-zero whole number **</p>	<p>Draw models to solve dividing Whole-numbers and unit fractions. Recall that “share equally,” “split equally,” “cut into pieces,” with fractions means to divide.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math</p>	<p>Activity #1: Dividing Whole-numbers by Unit Fractions Modeling with Fraction Strips</p> <ul style="list-style-type: none"> <li>• Model using fraction strips</li> <li>• Drawing models</li> <li>• Standard algorithm</li> <li>• Discuss how the models relate</li> </ul>	
<p><b>5.NF.B.7b – WALT</b> compute and interpret the quotients of a non-zero whole number by a</p>				

<p>unit fraction **</p> <p><b>5.NF.B.7 – WALT</b> solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions**</p>		<p>standards assessment</p>	<p>to the standard algorithm</p> <p>Activity #2: Divide Unit Fractions by Whole-numbers Modeling with Fraction Strips</p> <ul style="list-style-type: none"> <li>• Model using fraction strips</li> <li>• Drawing models</li> <li>• Standard algorithm</li> <li>• Discuss how the models relate to the standard algorithm</li> </ul> <p>Activity #3: Create Your Own Word Problems- Have students create word problem stories to support dividing whole-numbers and fractions</p> <ul style="list-style-type: none"> <li>• Create word problems</li> <li>• Draw/solve the word problem scenarios</li> <li>• Solve each other's word problems</li> </ul> <p>Resources: <u>Toolbox Unit 2 Lesson 17 Instruct</u> <u>- Interactive Tutorial - Understand Division with Unit Fractions</u> <u>Toolbox Unit 2 Lesson 17 Instruct - Ready Instruction Book</u> <u>Toolbox Unit 2 Lesson 17 Practice - Practice &amp; Problem Solving Book</u> <u>On-level - Toolbox Unit 2 Lesson 17 Student-led Activities</u> <u>Toolbox Unit 2 Lesson 18 Instruct - Interactive Tutorial - Divide Unit Fractions in Word Problems</u></p>
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<p><b>5.MD.B.2 – WALT</b> make a line plot to display a data set of measurements in fractions of a unit (<math>1/2, 1/4, 1/8</math>)</p> <p><b>5.MD.B.2 – WALT</b> use operations with fractions to solve problems involving information presented in line plots</p>	<p>Recall that each “X” on the line plot has value attached to it. So, when you have fractions on a line plot and you are calculating a total of one particular fraction listed on the line plot, you are repetitively adding that fraction - not simply counting the number of Xs.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p><u>Toolbox Unit 2 Lesson 18 Instruct - Ready Instruction Book</u> <u>Toolbox Unit 2 Lesson 18 Practice &amp; Problem Solving Book</u> <u>On-level - Toolbox Unit 2 Lesson 18 Student-led Activities</u> <u>GO Math textbook</u> <u>Khan Academy Divide Fractions</u> <u>IXL Grade 5 lessons:</u> <u>IXL N.2 IXL N.3</u> <u>IXL N.7</u></p>	<p>Modifications per students’ IEP iReady Toolbox student-led activities RTI activities</p>
<p><b>5.MD.B.2 – WALT</b> make a line plot to display a data set of measurements in fractions of a unit (<math>1/2, 1/4, 1/8</math>)</p> <p><b>5.MD.B.2 – WALT</b> use operations with fractions to solve problems involving information presented in line plots</p>	<p>Recall that each “X” on the line plot has value attached to it. So, when you have fractions on a line plot and you are calculating a total of one particular fraction listed on the line plot, you are repetitively adding that fraction - not simply counting the number of Xs.</p>	<p>Exit Slips Standards Assessment Toolbox assessment GO Math standards assessment</p>	<p><u>Activity #1:</u> <u>Create a Line Plot using Varying Lengths of String</u></p> <ul style="list-style-type: none"> <li>Give each student a length of string under an inch (designate 4 fractional sizes under an inch)</li> <li>Create a line plot with the students</li> <li>Have the students make various calculations such as average length, total length for a specific measurement, etc.</li> </ul> <p>Resources: <u>Toolbox Unit 4 Lesson 23 Instruct - Interactive Tutorial - Make Line Plots &amp; Interpret Data</u> <u>Toolbox Unit 4 Lesson 23 Instruct - Ready Instruction Book</u> <u>Toolbox Unit 4 Lesson 23 Practice - Practice &amp; Problem Solving Book</u></p>	<p>Modifications per students’ IEP iReady Toolbox student-led activities RTI activities</p>

			<p><u>Toolbox Tools for Instruction</u>  <u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 4 Lesson 23 Student-led Activities - Line Plot Vocabulary Match</u></p> <p><u>On-level - Toolbox Unit 4 Lesson 23 Student-led Activities - Fractions as Data</u></p> <p>GO Math textbook</p> <p><u>Khan Academy Line Plots</u></p> <p>IXL Grade 5 lessons:  <u>IXL V.11</u></p>	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NF.4</i>	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.NF.5, 5.MD.2</i>	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
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5.NF.4 assessment 5.NF.5 assessment 5.MD.2 assessment	<i>Modifications per IEPs</i>
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**Interdisciplinary Connections**

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP</i> <i>Tiered questions</i>

**Unit IV Module A**

**Unit Title: Mathematics – The Coordinate System and Classifying Two-Dimensional Figures – Unit 4 – Module A**

**Grade level: Grade 5**

**Timeframe: 2 weeks**

## Rationale

### *Grade 5 – The Coordinate System and Classifying Two-Dimensional Figures – Unit 4*

The focus of Unit 4 is defining a coordinate system and understanding the relationship between coordinates and axes. Learners define the first quadrant of the coordinate system and represent real world and mathematical problems by graphing points in that quadrant. Learners also form ordered pairs that they have generated using two given rules to generate two numerical patterns using two given rules. They analyze and identify apparent relationships between corresponding terms. After revisiting their earlier work writing simple numerical expressions, learners extend their understanding of classifying figures into categories to understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. They use this new understanding of categories and subcategories to classify two-dimensional figures in a hierarchy based on their properties.

## Essential Questions

*What is a “coordinate system”?*

*What is an “ordered pair,” and how does it aid in plotting a point?*

*What do the x-coordinate and y-coordinate represent in relation to the x-axis and y-axis?*

*What is the “origin,” and why is it important?*

*How can you use ordered pairs and plotting points to represent real world data?*

*How can you represent two patterns by using ordered pairs and points?*

## Standards

### **Standards (Taught and Assessed):**

**5.G.A.1** Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

**5.G.A.2** Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

- 5.OA.B.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*
- 5.O.A.1** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- 5.O.A.A.2** Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating

**Key:** Major Cluster Supporting Cluster Additional Cluster

### Highlighted Career Ready Practices and 21st Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

## Instructional Plan

### Pre-Assessment and Reflection

Pre-Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
Standards Pre-Assessment	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

SLO – WALT We are learning to/that	Student Strategies	Formative Assessment	Activities and Resources	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<p><b>5.G.A.1 - WALT</b> a coordinate system is defined by a pair of perpendicular lines called axes with the intersection of the lines, the origin, occurring at 0 on each line</p> <p><b>5.G.A.1 - WALT</b> a given point in the coordinate plane is located using an ordered pair of numbers called coordinates</p> <p><b>5.G.A.1 - WALT</b> the first number in an ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis.</p> <p><b>5.G.A.1 - WALT</b> the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate)</p>	<p>Recall that the x-coordinate comes first before the y-coordinate in an ordered pair similar to the letter “x” coming before the letter “y” alphabetically.</p> <p>Recall that to plot a point, you must move across the x-axis first and then up the y-axis second (think alphabetically).</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Direct Instruction of Identifying Key Points of a Coordinate Plane- Have students look at a sample graph and highlight/label the following:</p> <ul style="list-style-type: none"> <li>• X-axis</li> <li>• Y-axis</li> <li>• X-coordinate</li> <li>• Y-coordinate</li> <li>• Origin</li> <li>• Ordered Pair</li> <li>• Point</li> </ul> <p>Activity #2: BattleShip Activity</p> <p>Activity #3: Mystery Picture Activity</p> <p>Resources: Toolbox Unit 5 Lesson 28 Instruct - Interactive Tutorial - Understand the Coordinate Plane Toolbox Unit 5 Lesson 28 Instruct - Ready Instruction Book Toolbox Unit 5 Lesson 28 Practice - Practice &amp; Problem Solving Book Toolbox Tools for Instruction</p>	<p><i>Modifications per students' IEP</i></p> <p><i>iReady' Toolbox student-led activities</i></p> <p><i>RTI activities</i></p>



<p><b>5.G.A.2 - WALT</b> represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane</p> <p><b>5.G.A.2 - WALT</b> interpret coordinate values of points in the context of the real world and mathematical problems</p>	<p>When creating ordered pairs from a table, remember that the x-coordinate is first and the y-coordinate is second.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p><u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 5 Lesson 28 Student-led Activities</u></p> <p><u>Toolbox Unit 5 Lesson 29 Instruct-Ready Instruction Book</u></p> <p><u>Toolbox Unit 5 Lesson 29 Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction</u></p> <p><u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 5 Lesson 29 Student-led Activities - Moves on a Coordinate Plane</u></p> <p><u>Go math textbook</u></p> <p><u>Khan Academy Coordinate Plane</u></p> <p><u>IXL Grade 5 lessons:</u></p> <p><u>IXL T.3</u> <u>IXL T.8</u></p> <p><u>Activity #1:</u> <u>Relating Points to the Real World - Meerkat Activity</u></p> <p><u>Activity #2:</u> <u>Create a Line Graph by Polling Class &amp; Discuss Meaning of the Points</u></p> <p><u>Resources:</u> <u>On-level - Toolbox Unit 5 Lesson 29 Student-led Activities - Use Graphs to Answer Questions</u></p> <p><u>Go Math textbook</u></p>	<p><i>Modifications per students' IEP</i></p> <p><i>Ready Toolbox student-led activities</i></p> <p><i>RTI activities</i></p>
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<p><b>5.OA.B.3 – WALT</b> generate two numerical patterns using two given rules and identify relationships between corresponding terms in the patterns</p> <p><b>5.OA.B.3 – WALT</b> form ordered pairs consisting of corresponding terms from the two patterns and graph the ordered pairs on a coordinate plane</p>	<p>Look at two consecutive terms and compare their values. Repeat this until you find a pattern. Test the pattern/rule on consecutive terms to ensure the pattern/rule is correct.</p> <p>The first pattern will be your x-coordinates and the second pattern will be your y-coordinates.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p><u>Khan Academy Coordinate Plane</u></p> <p>Activity #1: Direct Instruction</p> <p>Activity #2: Create a Table-</p> <ul style="list-style-type: none"> <li>• Have students create a table of two patterns using two rules</li> <li>• Create order pairs from the table</li> <li>• Plot points on a coordinate plane</li> </ul> <p>Resources:  <u>Toolbox Unit 3 Lesson 20 Instruct - Interactive Tutorial - Analyze Patterns &amp; Relationships</u>  <u>Toolbox Unit 3 Lesson 20 Instruct - Interactive Tutorial - Practice: Analyze Patterns &amp; Relationships</u>  <u>Toolbox Unit 3 Lesson 20 Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 3 Lesson 20 Practice - Practice &amp; Problem Solving Book</u>  <u>Toolbox Tools for Instruction</u>  <u>Teacher-led Activities - Tools for Instruction</u>  <u>On-level - Toolbox Unit 3 Lesson 20 Student-led Activities - Use Number Sequence Vocabulary</u>  <u>On-level - Toolbox Unit 3 Lesson 20 Student-led Activities - Plot Points</u>  Go Math textbook  <u>Khan Academy Number Patterns</u></p>	<p><i>Modifications per students' IEP</i></p> <p><i>Ready Toolbox student-led activities</i></p> <p><i>RTI activities</i></p>
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			IXL Grade 5 lessons: <u>IXL U.9</u>	<i>Modifications per students' IEP</i> <i>iReady Toolbox student-led activities</i> <i>RTI activities</i>
<b>5.O.A.1 – WALT</b> evaluate numerical expressions with parentheses, brackets, and braces, including expressions containing fractions and decimals)	Use "PEMDAS" or "GEMDAS" to solve numerical expressions. Cross out each letter of PEMDAS as each step is completed. Highlight or underline each part of the expression that is being solved at each step.	Exit Slips Standards Assessment Toolbox assessment	Activity #1: Solve Numerical Expressions involving Decimals  Activity #2: Solve Numerical Expressions involving Fractions  Resources: Toolbox Unit 3 Lesson 19 Instruct - <u>Interactive Tutorial - Numerical Expressions and Order of Operations</u>  GO Math textbook	<i>Modifications per students' IEP</i> <i>iReady Toolbox student-led activities</i> <i>RTI activities</i>
<b>5.O.A.1 – WALT</b> use parentheses, brackets, or braces to group parts of a numerical expression	When you have groups within groups, solve the smallest group first and work your way out to the largest group.	GO Math standards assessment	IXL Grade 5 lessons: <u>IXL O.5</u> <u>IXL O.6</u> <u>IXL O</u>  <u>Khan Academy Algebraic Thinking lessons</u>	<i>Modifications per students' IEP</i> <i>iReady Toolbox student-led activities</i> <i>RTI activities</i>
<b>5.O.A.A.2 – WALT</b> write simple numerical expressions from a description that record calculations with numbers	Highlight keywords such as "each," "every," "times," "more," "less," "spent," "left over," etc.	Exit Slips Standards Assessment Toolbox assessment	Activity #1: Using example word problems that involve decimals, aid students in highlighting/breaking down each step of the word problems in order to then show how it contributes to creating a numerical expression.  Activity #2: Using example word problems that involve fractions, aid students in highlighting/breaking down each step of the word problems in order to then show how it contributes to creating a numerical expression.	<i>Modifications per students' IEP</i> <i>iReady Toolbox student-led activities</i> <i>RTI activities</i>
<b>5.O.A.A.2 – WALT</b> interpret numerical expressions to compare their values without evaluating them		GO Math standards assessment		

		<p>Activity #3: Have students create their own word problems (involving decimals and fractions) and the corresponding numerical expressions. Students can exchange word problems and try to come up with the correct numerical expressions.</p> <p>Resources:  <u>Toolbox Unit 3 Lesson 19 Instruct-Interactive Tutorial - Write and Evaluate Expressions</u>  <u>Toolbox Unit 3 Lesson 19 Instruct-Ready Instruction Book</u>  <u>Toolbox Unit 3 Lesson 19 Practice &amp; Problem Solving Book</u>  Toolbox Unit 3 Lesson 19 Teacher-led Activities - Tools for Instruction  On level - <u>Toolbox Unit 3 Lesson 19 Student-led Activity - Less Than, Equal to, Greater Than</u>  On level - <u>Toolbox Unit 3 Lesson 19 Student-led Activity - Make It True Numerical Expression</u>  On level - <u>Toolbox Unit 3 Lesson 19 Student-led Activity - Find the Expression</u>  GO Math textbook  <u>Khan Academy Algebraic Thinking lessons</u></p>	
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			IXL Grade 5 Lessons: IXL O.3 IXL O.4	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.G.1 5.G.2	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.OA.3	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.G.1 assessment 5.G.2 assessment 5.OA.3 assessment	<i>Modifications per IEPs</i>

**Interdisciplinary Connections**

<b>Interdisciplinary Connections</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<i>Modifications per students' IEP Tiered questions</i>

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## Unit IV Module B

### Unit Title: Mathematics – The Coordinate System and Classifying two Dimensional Figures – Unit 4 – Module B

<b>Grade level: Grade 5</b>	<b>Timeframe: 2 weeks</b>
<b>Rationale</b>	

*Grade 5 – The Coordinate System and Classifying Two-Dimensional Figures – Unit 4*

The focus of Unit 4 is defining a coordinate system and understanding the relationship between coordinates and axes. Learners define the first quadrant of the coordinate system and represent real world and mathematical problems by graphing points in that quadrant. Learners also form ordered pairs that they have generated using two given rules to generate two numerical patterns using two given rules. They analyze and identify apparent relationships between corresponding terms. After revisiting their earlier work writing simple numerical expressions, learners extend their understanding of classifying figures into categories to understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. They use this new understanding of categories and subcategories to classify two-dimensional figures in a hierarchy based on their properties.

### Essential Questions

What does the word “classify” mean, and how is it helpful when looking at two-dimensional figures?  
 How do the number of the sides, vertices, and angles of a two-dimensional figure aid in classifying it?  
 How can identifying parallel lines, perpendicular lines, congruent sides, congruent angles, and right angles aid in classifying quadrilaterals?  
 How can identifying angles and congruent sides aid in classifying triangles?

## Standards

### Standards (Taught and Assessed):

- 5.G.B.3** Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*
- 5.G.B.4** Classify two-dimensional figures in a hierarchy based on properties.

<b>Key:</b>	Major Cluster	Supporting Cluster	Additional Cluster
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### Highlighted Career Ready Practices and 21<sup>st</sup> Century Themes/Skills

- 9.1.4.A.1 Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- 9.1.4.A.2 Evaluate available resources that can assist in solving problems.
- 9.1.4.A.5 Apply critical thinking and problem-solving skills in classroom and family settings.
- 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.

### Social-Emotional Learning Competencies

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making



## Instructional Plan

### Pre-Assessment and Reflection

<b>Pre-Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Modifications per students' IEPs RTI

### Student Learning Objectives (SLO), Strategies, Formative Assessment, Activities and Resources (add rows as needed)

<b>SLO – WALT</b>	<b>Student Strategies</b>	<b>Formative Assessment</b>	<b>Activities and Resources</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<p><b>5.G.B.3 – WALT</b> the attributes belonging to a category of two-dimensional figures also belong to all subcategories</p> <p><b>5.G.B.3 5.G.B.4 – WALT</b> classify two-dimensional figures in a hierarchy based on properties</p>	<p>Recall that two-dimensional figures each have the same amount of sides, angles, and vertices.</p> <p>Count up the sides, angles, and/or vertices to identify two-dimensional figures.</p> <p>Look for parallel lines, perpendicular lines, right angles, obtuse angles, congruent sides, congruent angles, etc to help classify two-dimensional figures.</p> <p>Use matching tick marks to identify congruent sides and angles.</p>	<p>Exit Slips</p> <p>Standards Assessment</p> <p>Toolbox assessment</p> <p>GO Math standards assessment</p>	<p>Activity #1: Make Observations &amp; Create a Chart of Two-dimensional Figures</p> <ul style="list-style-type: none"> <li>• Drawing of Polygon</li> <li>• Polygon name</li> <li>• # of sides</li> <li>• # of angles</li> <li>• # of vertices</li> </ul> <p>Activity #2: Polygon Scavenger Hunt - Identify polygons in the real-world</p> <p>Activity #3: Create a Hierarchy Flowchart from Observations of the Relationship between Two-dimensional Figures</p> <p>Activity #4:</p>	<p><i>Modifications per students' IEP</i></p> <p><i>Ready Toolbox student-led activities</i></p> <p><i>RTI activities</i></p>



			<p>Make Observations &amp; Classify Triangles</p> <ul style="list-style-type: none"> <li>• Drawing of Triangles</li> <li>• Name of Triangle</li> <li>• Any congruent sides/angles?</li> <li>• Any right or obtuse angles?</li> </ul> <p>Activity #5: Triangle Scavenger Hunt- Identify triangles in the real-world</p> <p>Resources:  <u>Toolbox Unit 5 Lesson 30</u>  <u>Instruct - Interactive Tutorial - Classify Two-Dimensional Figures</u>  <u>Toolbox Unit 5 Lesson 30</u>  <u>Instruct - Ready Instruction Book</u>  <u>Toolbox Unit 5 Lesson 30</u>  <u>Practice - Practice &amp; Problem Solving Book</u></p> <p><u>Toolbox Tools for Instruction</u>  <u>Teacher-led Activities - Tools for Instruction</u></p> <p><u>On-level - Toolbox Unit 5 Lesson 30 Student-led Activities - Organize Polygons on a Venn Diagram</u></p> <p><u>On-level - Toolbox Unit 5 Lesson 30 Student-led Activities - Organize Triangles on a Venn Diagram</u></p>
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			Go Math textbook IXL Grade 5 lessons: <u>IXL AA.5</u> <u>IXL AA.9</u> <u>IXL AA.11</u> <u>IXL Z.9</u> <u>IXL AA.3</u>	
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**Benchmark Assessment 1**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.G.3</i>	<i>Modifications per IEPs</i>

**Benchmark Assessment 2**

<b>Benchmark Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
<i>5.G.4</i>	<i>Modifications per IEPs</i>

**Summative Assessments (add rows as needed)**

<b>Summative Assessment</b>	<b>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</b>
5.G.3 assessment	<i>Modifications per IEPs</i>
5.G.4 assessment	

**Interdisciplinary Connections**

Interdisciplinary Connections	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
Open-ended and Extended Constructed Responses - Students will be given real-world mathematical scenarios in which they have to analyze, solve, and provide written explanations to support their mathematical reasoning.	<p><i>Modifications per students' IEP</i></p> <p><i>Tiered questions</i></p>

