

TOWNSHIP OF UNION PUBLIC SCHOOLS



Grade 3 Mathematics

Adopted Month Day, Year

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 1 - Module A

Unit Title: Mathematics – Introductory Multiplication and Division Concepts – Unit 1 – Module A

Grade level: Grade 3

Timeframe: 1st Marking Period

Rationale

Grade 3 – Introductory Multiplication and Division Concepts – Unit 1

Unit 1 focuses on an introduction to multiplication and division concepts. Learners build upon their Grade 2 work with arrays and repeated addition to work with equal groups and larger arrays. They explore this concept of multiplication together with the concept of division. By exploring the concepts together, learners learn to reason about the relationship between the two operations and come to understand division as an unknown-factor problem. Learners use increasingly sophisticated strategies to solve multiplication and division problems involving single digit numbers. As learners apply strategies to solve these problems, they begin working towards accuracy and efficiency (fluency) with these operations. By the end of the unit, learners use drawings and equations with a symbol for the unknown to represent simple two-step word problems using the four operations.

*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 can you use multiplication to find how many in all?

What strategies can you use to multiply?

How can you use division to find how many in each group or how many equal groups?

What strategies can you use to divide?

Standards

Standards (Taught and Assessed):

- 3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe and/or represent a context in which a total number of objects can be expressed as 5×7 .
- 3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe and/or represent a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.
- 3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Key: Major Cluster Supporting Cluster Additional Cluster

Highlighted Career Ready Practices and 21st 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 ■

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 Mods 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
We are learning to/that				
3.OA.A.1 – WALT interpret products of whole numbers in terms of the number of groups and objects**	Use manipulatives to model equal groups and arrays. Use drawings to connect to and explain equations. Remember each group as a single item to be counted Vocabulary: Equal groups, product, factor, repeated addition, multiply, array	Exit ticket Non verbal check ins- Ex) Thumbs up- thumbs down. Self Reflection Student conferences Teacher created pretests Observations/ checklists Quick write/Response card Standards Mastery Check (iReady)	Number Talk about repeated addition Use manipulatives or counters to represent equal groups Use manipulatives or counters to represent arrays Write multiplication equations using models Review text strategies to determine key components of the word problem (ex: CUBES)	Modifications per students' IEP, in addition to: Additional manipulatives Read text Clarify words Less problems Provide additional scaffolding Extended time Using prior knowledge
3.OA.A.3 – WALT use multiplication and division within 100 to solve word problems in situations involving: equal groups, arrays and measurement quantities	Use CUBES to solve word problems Represent a multiplication word problem with models, drawings, and equations.		Use equal groups, arrays, repeated addition or multiplication to solve the word problems	
3.OA.A.3 – WALT use drawings and equations with a symbol for the unknown number to represent multiplication and division word	Solve word problems with multiplication.		Use equal groups, arrays, repeated addition or multiplication to solve the unknown factor in	

<p>problems within 100</p>	<p>Vocabulary: Equal groups, product, factor, repeated addition, multiply, array, unknown</p>		<p>word problems</p> <p>Use teacher modeling. Use drawings and physical models to show equal groups.</p> <p>Hands on activities and practice</p> <p>Resources:</p> <p><u>Khan Academy- OA</u></p> <p><u>Prodigy Game-OA</u></p> <p><u>i-Ready - OA</u></p> <p><u>Learn Zillion 3.OA</u></p> <p><u>Nearpod Lessons</u></p> <p><u>Go Math!</u></p>	<p>Read text</p> <p>Clarify words</p> <p>Less problems</p> <p>Provide additional scaffolding</p>
<p>3.OA.A.2 – WALT interpret whole number quotients of whole numbers as the number of objects in each share (or groups) or as the number of shares (or groups) that result from partitioning a total number of objects**</p>	<p>Use division to determine the size of each group when the number of groups is known</p> <p>Use division to determine the number of groups when the size of each group is known.</p> <p>Represent division with models and drawings.</p> <p>Write an equation for a division situation.</p> <p>Use division to find how many in each group or how many equal groups</p>	<p>Exit ticket</p> <p>Non verbal check ins - Ex) Thumbs up-thumbs down.</p> <p>Self Reflection</p> <p>Student conferences</p> <p>Teacher created pretests</p> <p>Observations/checklists</p> <p>Quick write/Response card</p> <p>Standards Mastery Check (iReady)</p>	<p>Use division with equal groups.</p> <p>Use division with arrays. Relate repeated subtraction to representations of division.</p> <p>Write an equation for a division problem.</p> <p>Review text strategies to determine key components of the word problem (ex: CUBES)</p> <p>Use equal groups, arrays, repeated</p>	

	<p>Use strategies to divide</p> <p>Vocabulary: Equal groups, quotient, dividend, divisor, repeated subtraction, divide, array</p>		<p>subtraction or division to solve the word problems</p> <p>Use equal groups, arrays, repeated subtraction or division to solve the unknown factor in word problems</p>	
<p>3.OA.A.3 – WALT use multiplication and division within 100 to solve word problems in situations involving: equal groups, arrays and measurement quantities</p>	<p>Use CUBES to solve word problems</p> <p>Represent a multiplication word problem with models, drawings, and equations.</p>		<p>Use teacher modeling. Use drawings and physical models to show equal groups.</p> <p>Hands on activities and practice</p> <p>Resources:</p> <p><u>Khan Academy- OA</u></p> <p><u>Prodigy Game-OA</u></p> <p><u>i-Ready - OA</u></p> <p><u>Learn Zillion 3.OA</u></p> <p><u>Nearpod Lessons</u></p> <p><u>Go Math!</u></p>	
<p>3.OA.A.3 – WALT use drawings and equations with a symbol for the unknown number to represent multiplication and division word problems within 100</p>	<p>Solve word problems with multiplication.</p> <p>Vocabulary: Equal groups, quotient, dividend, divisor, repeated subtraction, divide, array, unknown</p>			

Benchmark Assessment 1

<p>Benchmark Assessment</p>	<p>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</p>
<p><i>Ed-Connect</i></p>	<p><i>Modifications per students' IEP, in addition to:</i></p> <p><i>Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i></p>

Benchmark Assessment 2

Benchmark Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<i>I-Ready</i>	<i>Modifications per students' IEP, in addition to: Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i>

Summative Assessments (add rows as needed)

Summative Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
Collaboratively Designed Assessment	<i>Modifications per students' IEP, in addition to: Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i>
Standards Mastery (I-Ready)	

Interdisciplinary Connections

Interdisciplinary Connections	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections

Unit 1 - Module B

Unit Title: Mathematics – Introductory Multiplication and Division Concepts – Unit 1 – Module B

Grade level: Grade 3

Timeframe: 1st Marking Period

Rationale

Grade 3 – Introductory Multiplication and Division Concepts – Unit 1

Unit 1 focuses on an introduction to multiplication and division concepts. Learners build upon their Grade 2 work with arrays and repeated addition to work with equal groups and larger arrays. They explore this concept of multiplication together with the concept of division. By exploring the concepts together, learners learn to reason about the relationship between the two operations and come to understand division as an unknown-factor problem. Learners use increasingly sophisticated strategies to solve multiplication and division problems involving single digit numbers. As learners apply strategies to solve these problems, they begin working towards accuracy and

efficiency (fluency) with these operations. By the end of the unit, learners use drawings and equations with a symbol for the unknown to represent simple two-step word problems using the four operations.

*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 can you use multiplication facts, place value, and properties to solve multiplication problems?

What strategies can you use to multiply?

What strategies can you use to divide?

What are some ways you can describe a pattern in a table?

How can you use an array or a multiplication table to find an unknown factor or product?

How can you write a set of related multiplication and division facts?

How can you round numbers?

Standards

Standards (Taught and Assessed):

3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \diamond \div 3$, $6 \times 6 = ?$.

3.OA.B.5 Apply properties of operations as strategies to multiply and divide. *Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property)*

3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two

one-digit numbers.

3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

3.OA.B.6 Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.

3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

3.OA.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

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
<i>Standards Pre-Assessment</i>	Tiered Instruction - 3 levels Mods 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>3.OA.A.5 – WALT apply properties of operations (commutative property) as strategies to multiply</p>	<p><i>Model the Commutative Property of Multiplication and use it to find products.</i></p> <p>Essential Vocabulary: <i>Commutative Property of Multiplication</i></p>	<p>Exit ticket</p> <p>Non verbal check ins- Ex) Thumbs up-thumbs down.</p> <p>Self Reflection</p> <p>Student conferences</p>	<p>Use counters or objects to model arrays and equal groups for both multiplication facts</p> <p><u>Nearpod Lessons</u></p> <p><u>Go Math!</u></p>	<p>Modifications per students' IEP, in addition to:</p> <p>Additional manipulatives</p> <p>Read text</p> <p>Clarify words</p> <p>Less problems</p> <p>Provide additional scaffolding</p> <p>Extended time</p> <p>Using prior knowledge</p>
<p>3.OA.D.9 – WALT identify arithmetic patterns, including patterns in the addition table or multiplication table, and explain them using properties of operations</p>	<p><i>Recall even and odd numbers</i></p> <p><i>Identify patterns on the multiplication table.</i></p> <p><i>Explain patterns on the multiplication table.</i></p> <p>Essential Vocabulary: <i>pattern, even, odd</i></p>	<p>Teacher created pretests</p> <p>Observations/checklists</p> <p>Quick write/Response card</p> <p>Standards Mastery Check (iReady)</p> <p>Performance Tasks</p> <p><u>Unknown Factor Assessment</u></p>	<p>Give each child a copy of a multiplication table and highlight/color various patterns on the table.</p> <p><u>Printable Multiplication Chart</u></p> <p><u>Nearpod Lessons</u></p> <p><u>Go Math!</u></p>	<p>Using prior knowledge</p>
<p>3.OA.A.4 – WALT determine the unknown whole number in a multiplication or division equation relating three whole numbers **</p> <p>3.OA.B.6 – WALT a related multiplication problem with an unknown factor can be used to solve a division</p>	<p><i>Recall basic understanding of multiplication and division and how to create equal groups and arrays</i></p> <p><i>Determine which operation is needed to find the unknown.</i></p>	<p>Student sharing activity: See resource below</p> <p>Use manipulatives or counters to represent arrays and equal groups to determine the unknown number</p> <p>Create Fact Family Triangles to demonstrate how multiplication and division are related and can be used to find unknown numbers</p>	<p>Student sharing activity: See resource below</p> <p>Use manipulatives or counters to represent arrays and equal groups to determine the unknown number</p> <p>Create Fact Family Triangles to demonstrate how multiplication and division are related and can be used to find unknown numbers</p>	

<p>problem</p>	<p><i>Multiply or divide, within 100, to find the unknown whole number in a multiplication or division equation.</i></p> <p><i>Write division number sentences as unknown factor problems.</i></p> <p><i>Solve multiplication and division of whole numbers by finding the unknown factor.</i></p> <p><i>Use an array, equal groups, or a multiplication table to find an unknown factor.</i></p> <p><i>write multiplication and division equations with an unknown factor.</i></p> <p><i>Identify factors of fact families.</i></p> <p><i>write additional equations using the three factors of the equation.</i></p> <p>Essential Vocabulary: <i>equal groups, factor, multiply, product, multiple divide, equal groups.</i></p>	<p><i>Read The Grapes of Math and create math riddles</i></p> <p><i>Student Sharing Activity</i></p> <p><u><i>Unknown Factor Video</i></u></p> <p><u><i>Unknown Factor Tic Tac Toe</i></u></p> <p><u><i>Multiplication/Division/Factor Game</i></u></p> <p><u><i>Nearpod Lessons</i></u></p> <p><u><i>Go Math!</i></u></p>	
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	<p><i>array, dividend, divisor, quotient, inverse operations, related facts,</i></p>		<p><i>Create fact cards for faster fluency.</i></p> <p><i>Play fact games on the computer.</i></p> <p><i>Work with a partner/group on center fact fluency games: examples Bingo</i></p> <p><u><i>Ice Cream Sundae Multiplication Game</i></u></p> <p><u><i>Multiplication Concentration Game</i></u></p> <p><u><i>Multiplication Facts Game</i></u></p> <p><u><i>Alien Division Game</i></u></p> <p><u><i>Nearpod Lessons</i></u></p> <p><u><i>Go Math!</i></u></p>	
<p>3.OA.C.7 – WALT multiply and divide within 100 using strategies such as the relationship between multiplication and division, or properties of operations (working towards accuracy and efficiency)</p>	<p><i>Write a set of related multiplication and division facts</i></p> <p><i>Identify factors in a fact family</i></p> <p><i>Demonstrate proficiency in multiplying one and two-digit numbers within 100</i></p> <p>Essential Vocabulary: <i>related facts</i></p>		<p>Review text strategies to determine key components of the word problem (ex: CUBES)</p> <p>Review keywords that signal the operation that needs to be used to complete the problem.</p> <p>Use teacher modeling. Use drawings and physical models equations.</p> <p>Hands on activities and practice.</p> <p>Resources:</p> <p><u><i>Khan Academy- OA</i></u></p> <p><u><i>Prodigy Game-OA</i></u></p>	
<p>3.OA.D.8 – WALT solve simple two-step word problems using the four operations</p>	<p><i>Use CUBES to solve word problems</i></p> <p><i>Use drawings and equations with a symbol for the unknown number to represent multiplication and division word problems within 100</i></p>			
<p>3.OA.D.8 – WALT represent two-step word problems using equations with a letter standing for the unknown quantity</p>	<p><i>Create and solve word problems with an unknown factor:</i></p>			

		<p><u><i>i-Ready - OA</i></u> <u><i>Learn Zillion 3.OA</i></u> <u><i>Go Math!</i></u> <u><i>Nearpod Lessons</i></u> <u><i>Vocabulary Word Problems Video</i></u></p>	
<p>3.NBT.A.1 – WALT round whole numbers to the nearest 10 or 100, using place value understanding</p>	<p><i>Recall place value: ones, tens, hundreds</i></p> <p><i>Name the places in 2 and 3 digit number</i></p> <p><i>Compare numbers using place value</i></p> <p><i>Determine whether a number rounds up or down</i></p> <p><i>Use a number line to round a whole number to the nearest 10 and 100</i></p> <p>Essential Vocabulary: <i>place value, ones, tens, hundreds, number line, digit, round</i></p>	<p><i>Number Talk about place value.</i> <i>Teach rounding songs/poems.</i> <i>Example:</i> <i>"The underlined digit says</i> <i>If I'm 5 or more raise the circled number score,</i> <i>If I'm 4 or less let the circled number rest,</i> <i>Now change the rest to zeros And you will all be math heroes."</i></p> <p><i>Create rounding number line manipulatives</i></p> <p><u><i>Nearpod Lessons</i></u> <u><i>Go Math!</i></u> <u><i>Vocabulary Rounding Video</i></u></p>	
<p>3.OA.D.8 – WALT assess the reasonableness of answers in two-step word problems using mental computation and estimation strategies including rounding</p>	<p><i>Use CUBES to solve word problems</i></p> <p><i>Count by tens and ones, use a number line, make compatible numbers, or use friendly numbers to find sums mentally.</i></p>	<p><i>Review text strategies to determine key components of the word problem (ex: CUBES)</i></p> <p><i>Use teacher modeling to review mental computation and estimation strategies including rounding.</i></p> <p><i>Hands on activities and practice.</i></p>	

	<p>Use a number line, friendly numbers, or the break apart strategy to find differences mentally.</p> <p>Use compatible numbers and rounding to estimate sums or differences.</p> <p>Essential Vocabulary: Compatible numbers, estimate</p>		<p>Resources:</p> <p><u>Khan Academy- OA</u></p> <p><u>Prodigy Game-OA</u></p> <p><u>i-Ready- OA</u></p> <p><u>Learn Zillion 3.OA</u></p> <p><u>Nearpod Lessons</u></p> <p><u>Go Math!</u></p>	
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Benchmark Assessment 1

<p>Benchmark Assessment</p> <p><i>Ed-Connect</i></p>	<p>Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections</p> <p><i>Modifications per students' IEP, in addition to:</i></p> <p><i>Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i></p>
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Benchmark Assessment 2

Benchmark Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
<i>I-Ready</i>	<i>Modifications per students' IEP, in addition to: Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i>

Summative Assessments (add rows as needed)

Summative Assessment	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections
Collaboratively Designed Assessment	<i>Modifications per students' IEP, in addition to:</i>
Standards Mastery (I-Ready)	<i>Additional manipulatives, Read text, Clarify words, Less problems, Provide additional scaffolding, Extended time</i>

Interdisciplinary Connections

Interdisciplinary Connections	Modifications (ELL, Special Education, Gifted, At-risk of Failure, 504) and Reflections



