Coventry Public Schools of Rhode Island

Dedicated to Excellence

Yearly Framework - Grade 5

Mathematics

Grade 5 MATH

The table below has links on the titles that will bring you right to that part of the document.

Quarter 1 *Common Task: Mission Two*	Quarter 2 *Common Task: Mission Three*	Quarter 3 *Common Task: Mission Four*	Quarter 4 *Common Task: Mission Five*
Mission 1: Place Value and Decimal Fractions 5 weeks, 16 lessons *Mission 2: Base Ten Operations (Topics A-C)* 4 weeks, 12 lessons	*Mission 2: Base Ten Operations (Topics D-H)* 5 weeks, 17 lessons *Mission 3: Add and Subtract Fractions* 4 weeks, 16 lessons	*Mission 4: Multiply and Divide Fractions and Decimals* 8 weeks, 33 lessons *Mission 5: Volume, Area, Shapes (Topics A-B)* 2 weeks, 9 lessons	*Mission 5: Volume, Area, Shapes (Topics C-D)* 3 weeks, 12 lessons *Mission 6: The Coordinate Plane* 6 weeks, 23 lessons

Mission 1: Place Value and Decimal Fractions

Time: Quarter 1

- Topic A: Multiplicative Patterns on the Place Value Chart
- Topic B: Decimal Fractions and Place Value Patterns
- Topic C: Place Value and Rounding Decimal Fractions
- **Mid-Unit Assessment: Topics A-C**
- Topic D: Adding and Subtracting Decimals
- Topic E: Multiplying Decimals
- Topic F: Dividing Decimals
- **End-of-Unit Assessment: Topics D-F**

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Understand the Place Value System.

5.NBT.1 Recognize that in a multi-digit number, including decimals, a digit in any 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.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.NBT.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.4 Use place value understanding to round decimals to any place.

Perform operations with multi-digit whole numbers and with decimals to the hundredths.

5.NBT.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 and multiplication and division; relate the strategy to a written method and explain the reasoning used.

Convert like measurement units within a given measurement system.

5.MD.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.

Supporting Standards in this Module:

Understand the Place Value System.

4.NBT.1 Recognize that in a multi-digit number, a digit in any 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.

4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.

Understand Decimal Notation for Fractions, and Compare Decimal Fractions

4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

4.NF.6 Use decimal notation to represent fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or < and justify the conclusion,e.g. by using a visual model.

Convert like measurement units within a given measurement system.

4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Topic A: Multiplicative Patterns on the Place Value Chart

Topic A opens the module with a conceptual exploration of the multiplicative patterns of the base ten system using place value disks and a place value chart. Students notice that multiplying by 1,000 is the same as multiplying by 10 × 10 × 10. Since each factor of 10 shifts the digits one place to the left, multiplying by 10 ×10 × 10—which can be recorded in exponential form as 10^3 (5.NBT.2)—shifts the position of the digits to the left 3 places, thus changing the digits' relationships to the decimal point (5.NBT.2). Application of these place value understandings to problem solving with metric conversions completes Topic A (5.MD.1).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 1-4	***Focus Targets:*** • Use place value understanding to relate adjacent base ten units from millions to thousandths. • Reason concretely and pictorially using place value understanding to relate adjacent base ten units from millions to thousandths. • Reason abstractly using place value understanding to relate adjacent base ten units from millions to thousandths. • Use exponents to name place value units and explain patterns in the placement of the decimal point. • Use exponents to denote powers of 10 with application to metric conversions.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** → MP.6 Attend to precision. → MP.7 Look for and make use of structure. → MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Word Walls	***Focus Standards:*** • 5.NBT.1 • 5.NBT.2 ***Supporting Standards:*** • 5.MD.1 • 4.NBT.1 • 4.NBT.3 • 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	

Topic B: Decimal Fractions and Place Value Patterns

Topic B moves into the naming of decimal fraction numbers in expanded units (e.g., 4.23 = 4 ones 2 tenths 3 hundredths), and word forms and concludes with using like units to compare decimal fractions. Now, in Grade 5, students use exponents and the unit fraction to represent expanded form (e.g., $2 \times 10^2 + 3 \times \left(\frac{1}{10}\right) + 4 \times \left(\frac{1}{100}\right) = 200.34$) (5.NBT.3). Further, students reason about differences in the values of like place value units and express those comparisons with symbols (>, <, and =).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 5-6	***Focus Targets:*** • Read, write and compare decimals to the thousandths • Name decimal fractions in expanded, unit, and word forms by applying place value reasoning.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets)	***Focus Standards:*** • 5.NBT.3 ***Supporting Standards:*** • 4.NBT.1 • 4.NBT.3	

	• Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.	• Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Word Walls	• 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	

Topic C: Place Value and Rounding Decimal Fractions

Students generalize their knowledge of rounding whole numbers to round decimal numbers in Topic C, initially using a vertical number line to interpret the result as an approximation and then eventually moving away from the visual model (5.NBT.4).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 7-8	***Focus Targets:*** • Round a given decimal to any place using place value understanding ***Supporting Targets:*** • Round a given decimal to any place using place value understanding and the vertical number line.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Prompt assessment feedback/strategic review • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning.	***Focus Standards:*** • 5.NBT.4 ***Supporting Standards:*** • 4.NBT.1 • 4.NBT.3 • 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	***Mid-Unit Assessment**

		Suggested Tools and Representations: • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Word Walls		

Mid-Unit Assessment: Topics A-C

(assessment ½ day, return ½ day, remediation or further applications 1 day)
Standards Addressed: 5.NBT.1, 5.NBT.2, 5.NBT.3, 5.NBT.4, 5.MD.1

Topic D: Adding and Subtracting Decimals

Students use the relationships of adjacent units and generalize whole-number algorithms to decimal fraction operations (5.NBT.7). Topic D uses unit form to connect general methods for addition and subtraction with whole numbers to decimal addition and subtraction (e.g., 7 tens + 8 tens = 15 tens = 150 is analogous to 7 tenths + 8 tenths = 15 tenths = 1.5).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 9-10	***Focus Targets:*** • Add and subtract decimals. • Add decimals using pictorial strategies, place value strategies and relate those strategies to a written method. • Subtract decimals using pictorial strategies, place value strategies and relate those strategies to a written method.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Word Walls	***Focus Standards:*** • 5.NBT.3a • 5.NBT.7 ***Supporting Standards:*** • 4.NBT.1 • 4.NBT.3 • 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	

Topic E: Multiplying Decimals

Topic E bridges the gap between Grade 4 work with multiplication and the standard algorithm by focusing on an intermediate step—reasoning about multiplying a decimal by a one-digit whole number. The area model, with which students have had extensive experience since Grade 3, is used as a scaffold for this work.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 11-12	***Focus Targets:*** • Multiply a decimal fraction using concrete models or drawings. • Multiply a decimal fraction by single-digit whole numbers, relate to a written method through application of the area model and place value understanding, and explain the reasoning used. • Multiply a decimal fraction by single-digit whole numbers, including using estimation to confirm the placement of the decimal point.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Standard Algorithm • Word Walls	***Focus Standards:*** • 5.NBT.7 • 5.NBT.3a ***Supporting Standards:*** • 5.MD.1 • 4.NBT.1 • 4.NBT.3 • 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	

Topic F: Dividing Decimals

Topic F concludes Module 1 with a similar exploration of division of decimal numbers by one-digit whole-number divisors. Students solidify their skills with an understanding of the algorithm before moving on to long division involving two-digit divisors in Module 2.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 13-16	***Focus Targets:*** • Divide decimals using concrete models or drawings • Divide decimals by single-digit whole numbers involving easily identifiable	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson	***Focus Standards:*** • 5.NBT.3 • 5.NBT.7	***End-of-Unit**

	multiples using place value understanding and relate to a written method. ***Supporting Targets:*** • Divide decimals with a remainder using place value understanding and relate to a written method. • Divide decimals using place value understanding including remainders in the smallest unit. • Solve word problems using decimal operations.	• Prompt assessment feedback/strategic review • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Number lines (a variety of templates, including a large one for the back wall of the classroom) • Place value charts (at least one per student for an insert in their personal board) • Place value disks • Standard Algorithm • Word Walls	***Supporting Standards:*** • 4.NBT.1 • 4.NBT.3 • 4.NF.5 • 4.NF.6 • 4.NF.7 • 4.MD.1 • 4.MD.2	
End-of-Unit Assessment: Topics D-F assessment ½ day, return ½ day, remediation or further applications 1 day) Standards Addressed: 5.NBT.3, 5.NBT.7				

Mission 2: Multi-Digit Whole Number and Decimal Fraction Operations (Topics A-C)

Time: Quarter 1; Mission 2 is a Priority Content for Common Task Data

- Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication
- Topic B: The Standard Algorithm for Multi-Digit Whole Number Multiplication
- Topic C: Decimal Multi-Digit Multiplication
- **Mid-Unit Assessment A: Topics A-C**

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Write and interpret numerical expressions.

5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols, e.g., (6 x 30) + (6 x 1/2).

5.OA.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 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

Understand the place value system.

5.NBT.1 Recognize that in a multi-digit number, including decimals, a digit in any 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.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 power of 10.

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5.NBT.5 Fluently multiply multi-digit whole numbers (including two-digit x four-digit numbers and, three-digit x three-digit numbers) using the standard algorithm.

5.NBT.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.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 and multiplication and division; relate the strategy to a written method and explain the reasoning used.

Convert like measurement units within a given measurement system.

5.MD.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.

Supporting Standards in this Module:

Use Place Value understanding and Properties of Operations to Perform Multi-Digit Arithmetic.

4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.

4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-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.

Use the Four Operations with Whole Numbers to Solve Problems

4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.3 Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

a. Know multiplication facts and related division facts through 12 x 12.

Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication

Topics A through D provide a sequential study of multiplication. To link to prior learning and set the foundation for understanding the standard multiplication algorithm, students begin at the concrete-pictorial level in Topic A. They use place value disks to model multi-digit multiplication of place value units, for example, 42 × 10, 42 × 100, 42 × 1,000, leading to problems such as 42 × 30, 42 × 300, and 42 × 3,000 (5.NBT.1, 5.NBT.2). They then round factors in Lesson 2 and discuss the reasonableness of their products. Throughout Topic A, students evaluate and write simple expressions to record their calculations using the associative property and parentheses to record the relevant order of calculations (5.OA.1).

Materials	*Learning Targets*	*Strategies/Instructional Practices/*	*Standards*	*Assessments*
Zearn Lessons 1-2	***Focus Targets:*** • Estimate multi-digit products by rounding factors to a basic fact and using place value patterns. • Multiply multi-digit whole numbers and multiples of 10 using place value patterns and the distributive and associative properties.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Using estimation and basic facts ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls	***Focus Standards:*** • 5.NBT.1 • 5.NBT.2 • 5.OA.1 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

Topic B: The Standard Algorithm for Multi-Digit Whole Number Multiplication

In Topic B, place value understanding moves toward understanding the distributive property via area models, which are used to generate and record the partial products (5.OA.1, 5.OA.2) of the standard algorithm (5.NBT.5).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 3-9	***Focus Targets:*** • Fluently multiply multi-digit whole numbers *(including two-digit x four-digit numbers and, three-digit x three-digit numbers)* using the standard algorithm	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson	***Focus Standards:*** • 5.OA.1 • 5.OA.2 • 5.NBT.5	

	Supporting Targets: • Write and interpret numerical expressions, and compare expressions using a visual model. • Convert numerical expressions into unit form as a mental strategy for multi-digit multiplication. • Connect visual models and the distributive property to partial products of the standard algorithm without renaming. • Connect area models and the distributive property to partial products of the standard algorithm with renaming. • Connect area models and the distributive property to partial products of the Fluently multiply multi-digit whole numbers *(including two-digit x four-digit numbers and, three-digit x three-digit numbers)* using the standard algorithm and using estimation to check for reasonableness of the product. • Fluently multiply multi-digit whole numbers *(including two-digit x four-digit numbers and, three-digit x three-digit numbers)* using the standard algorithm to solve multi-step word problems.	• Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Using estimation and basic facts ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Standard Algorithms • Word Walls	***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

Topic C: Decimal Multi-Digit Multiplication

Topic C moves students from whole numbers to multiplication with decimals, again using place value as a guide to reason and make estimations about products (5.NBT.7).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 10-12	***Focus Targets:*** • Multiply decimals to tenths and hundredths, using concrete models or drawings and strategies based on place value, properties of operations. • Multiply decimal fractions with tenths by multi-digit whole numbers using place value understanding to record partial products. • Multiply decimal fractions by multi-digit whole numbers through conversion to a whole number problem and reasoning about the placement of the decimal.	***Strategies/Instructional Practices:*** • Using estimation and basic facts • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange	***Focus Standards:*** • 5.NBT.7 • 5.OA.1 • 5.OA.2 • 5.NBT.1 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4	***Mid-Unit A Assessment** to assess Topics A-C use exit slips and tower of power alerts as well as anecdotal class performance and problem sets

	• Reason about the product of a whole number and a decimal with hundredths using place value understanding and estimation.	• Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Standard Algorithms • Word Walls	• 4.NBT.5 • 4.NBT.6	

Mission 2: Multi-Digit Whole Number and Decimal Fraction Operations (Topics D-H)

Time: Quarter 2; Mission 2 is a Priority Content for Common Task Data

- Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication
- **Mid-Unit Assessment: Topics A-D**
- Topic E: Mental Strategies for Multi-Digit Whole Number Division
- Topic F: Partial Quotients and Multi-Digit Whole Number Division
- Topic G: Partial Quotients and Multi-Digit Decimal Division
- Topic H: Measurement Word Problems with Multi-Digit Division
- **End-of-Unit Assessment: Topics E-H**

Standards Assessed in this Module:

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Write and interpret numerical expressions.

5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols, e.g., (6 x 30) + (6 x 1/2).

5.OA.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 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

Understand the place value system.
5.NBT.1 Recognize that in a multi-digit number, including decimals, a digit in any 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.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 power of 10.
Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.NBT.5 Fluently multiply multi-digit whole numbers (including two-digit x four-digit numbers and, three-digit x three-digit numbers) using the standard algorithm.
5.NBT.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.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 and multiplication and division; relate the strategy to a written method and explain the reasoning used.
Convert like measurement units within a given measurement system.
5.MD.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.

Supporting Standards in this Module:

Use Place Value understanding and Properties of Operations to Perform Multi-Digit Arithmetic.
4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-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.
Use the Four Operations with Whole Numbers to Solve Problems
4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.3 Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
a. Know multiplication facts and related division facts through 12 x 12.

Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication

In Topic D, students explore multiplication as a method for expressing equivalent measures. For example, they multiply to convert between meters and centimeters or ounces and cups with measurements in both whole number and decimal form (5.MD.1).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 13-15	***Focus Targets:*** • Use whole number multiplication to express equivalent measurements. ***Supporting Targets:***	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson	***Focus Standards:*** • 5.NBT.5 • 5.NBT.7 • 5.MD.1	***Mid-Unit**

	• Use fraction and decimal multiplication to express equivalent measurements. • Solve two-step word problems involving measurement conversions.	• Prompt assessment feedback/strategic review • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • Work Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls	• 5.NBT.1 • 5.NBT.2 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

Mid-Unit Assessment: Topics A-D

(assessment ½ day, return ½ day, remediation or further applications 1 days)
Standards Addressed: 5.OA.1, 5.OA.2, 5.NBT.1, 5.NBT.2, 5.NBT.5, 5.NBT.7, 5.MD.1

Topic E: Mental Strategies for Multi-Digit Whole Number Division

Topic E begins concretely with place value disks as an introduction to division with multi-digit whole numbers (5.NBT.6). In the same lesson, 420 ÷ 60 is interpreted as 420 ÷ 10 ÷ 6. Next, students round dividends and two-digit divisors to nearby multiples of 10 in order to estimate single-digit quotients (e.g., 431 ÷ 58 ≈ 420 ÷ 60 = 7) and then multi-digit quotients. This work is done horizontally, outside the context of the written vertical method.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 16-18	***Focus Targets:*** • Estimate quotients and check for reasonability for multi-digit whole number division. • Divide by 10 patterns for multi-digit whole number division. • Use basic facts to approximate quotients with two-digit divisors.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets)	***Focus Standards:*** • 5.NBT.1 • 5.NBT.2 • 5.NBT.6	

		• Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls	***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

Topic F: Partial Quotients and Multi-Digit Whole Number Division

The series of lessons in Topic F lead students to divide multi-digit dividends by two-digit divisors using the written vertical method. Each lesson moves to a new level of difficulty with a sequence beginning with divisors that are multiples of 10 to non-multiples of 10. Two instructional days are devoted to single-digit quotients with and without remainders before progressing to two- and three-digit quotients (5.NBT.6).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 19-23	***Focus Targets:*** • Divide multi-digit dividends by two-digit divisors ***Supporting Targets:*** • Divide two- and three-digit dividends by multiples of 10 with single-digit quotients, and make connections to the written/vertical method. • Divide two- and three-digit dividends by two-digit divisors with single-digit quotients, and make connections to a written/vertical method. • Divide three- and four-digit dividends by two-digit divisors resulting in two- and three-digit quotients, reasoning about the	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:***	***Focus Standards:*** • 5.NBT.6 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

	decomposition of successive remainders in each place value.	➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls		

Topic G: Partial Quotients and Multi-Digit Decimal Division

In Topic G, students use their understanding to divide decimals by two-digit divisors in a sequence similar to that of Topic F with whole numbers (5.NBT.7).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 24-27	***Focus Targets:*** • Divide decimals by two-digit divisors ***Supporting Targets:*** • Divide decimal dividends by multiples of 10, reasoning about the placement of the decimal point and making connections to a written method. • Use basic facts to approximate decimal quotients with two-digit divisors, reasoning about the placement of the decimal point. • Divide decimal dividends by two-digit divisors, estimating quotients, reasoning about the placement of the decimal point, and making connections to a written method.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks	***Focus Standards:*** • 5.NBT.2 • 5.NBT.7 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	

		• Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls		

Topic H: Measurement Word Problems with Multi-Digit Division

In Topic G, students use their understanding to divide decimals by two-digit divisors in a sequence similar to that of Topic F with whole numbers (5.NBT.7).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 28-29	***Focus Targets:*** • Solve division word problems involving multi-digit division with group size unknown and the number of groups unknown.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Prompt assessment feedback/strategic review • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ P.2 Reason abstractly and quantitatively ➔ MP.7 Look for and make use of structure ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Area models (e.g., an array) • Number bond • Place value disks • Partial product (an algorithmic method that takes base ten decompositions of factors, makes products of all pairs, and adds all products together) • Partial quotient (an algorithmic method using successive approximation) • Word Walls	***Focus Standards:*** • 5.NBT.6 • 5.NBT.7 ***Supporting Standards:*** • 4.OA.1 • 4.OA.3 • 4.NBT.4 • 4.NBT.5 • 4.NBT.6	***End-of-Unit Assessment** **Priority Common Task Assessment**

End-of-Unit Assessment: Topics A-H

(assessment ½ day, return ½ day, remediation or further application 1 days)
Standards Addressed: 5.OA.1, 5.OA.2, 5.NBT.1, 5.NBT.2, 5.NBT.5, 5.NBT.6, 5.NBT.7, 5.MD.1

Mission 3: Add and Subtract Fractions

Time: Quarter 2; Mission 3 is a Priority Content for Common Task Data

- Topic A: Equivalent Fractions
- Topic B: Making Like Units Pictorially
- **Mid-Unit Assessment: Topics A-B**
- Topic C: Making Like Units Numerically
- Topic D: Further Applications
- **End-of-Unit Assessment: Topics C-D**

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Use equivalent fractions as a strategy to add and subtract fractions.

5.NF.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.2 Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), 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.

Supporting Standards in this Module:

Extend Understanding of Fraction Equivalence and Ordering

4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.

Build Fractions from Unit Fractions

4.NF.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (The whole can be a set of objects.)

b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using drawings or a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.

c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.

Topic A: Equivalent Fractions

In Topic A, students revisit the foundational Grade 4 expectations addressing equivalence. When equivalent, fractions can be represented by the same amount of area of a rectangle as well as the same point on a number line. Students subdivide areas and divide number line lengths to model this equivalence. Furthermore, equivalence is evidenced when adding fractions with the same denominator. The sum may be decomposed into parts (or recomposed into an equal sum).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 1-2	***Focus Targets:*** • Make equivalent fractions with the number line, the area model, and numbers. • Make equivalent fractions with sums of fractions with like denominators.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.5 Use appropriate tools strategically ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Fraction strips • Number line • A variety of templates • Paper strips for modeling equivalence • Rectangular fraction model • Tape diagrams • Word Walls	***Focus Standards:*** • N/A ***Supporting Standards:*** • 4.NF.1 • 4.NF.3	

Topic B: Making Units Pictorially

In Topic B, students use the familiar rectangular fraction model to add and subtract fractions with unlike denominators. Students make like units for all addends or both minuend and subtrahend. First, they draw a wide rectangle and partition it with vertical lines as they would a tape diagram, representing the first fraction with a bracket and shading. They then partition a second congruent rectangle with horizontal lines to show the second fraction. Next, they partition both rectangles with matching lines to create like units. This strategy pictorially proves 3 sixths are equal to 1 half and 2 sixths are equal to 1 third. Students practice making these models extensively until they internalize the process of making like units. Students use the same systematic drawing for addition as they do for subtraction. In this manner, students are prepared to generalize with understanding to multiply the numerator and denominator by the same number. The topic closes with a lesson devoted to solving two-step word problems involving addition and subtraction of fractions.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 3-7	***Focus Targets:*** ● Add and subtract fractions with unlike denominators ● Add fractions with unlike units using the strategy of creating equivalent fractions. ● Add fractions with sums between 1 and 2. ● Subtract fractions with unlike units using the strategy of creating equivalent fractions. ● Subtract fractions from numbers between 1 and 2. ● Solve two-step word problems.	***Strategies/Instructional Practices:*** ● Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice ● Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints ● Debriefing the lesson ● Prompt assessment feedback/strategic review ● Independent practice is not limited to but should include the note sheet and problem sets ● Paper practice (homework/problem sets) ● Direct Feedback ● Modeling with Interactive Questioning ● White Board Exchange ● Anticipate, Monitor, Select, Sequence, Connect ● Take Turns ● Think-Pair-Share ● RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.5 Use appropriate tools strategically ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** ● Fraction strips ● Number line ● A variety of templates ● Paper strips for modeling equivalence ● Rectangular fraction model ● Tape diagrams ● Word Walls	***Focus Standards:*** ● 5.NF.1 ● 5.NF.2 ***Supporting Standards:*** ● 4.NF.1 ● 4.NF.3	***Mid-Unit Assessment**

Mid-Unit Assessment: Topics A-B

(assessment ½ day, return ½ day, remediation or further applications 1 day); Standards Addressed: 5.NF.1, 5.NF.2

Topic C: Making Like Units Numerically

In Topic C, students use the number line when adding and subtracting fractions greater than or equal to 1. The number line helps students see that fractions are analogous to whole numbers. The number line makes it clear that numbers on the left are smaller than numbers on the right, which leads to an understanding of integers in Grade 5. Using this tool, students recognize and manipulate fractions in relation to larger whole numbers and to each other. For example, "Between which two whole numbers does the sum of $1\frac{3}{4}$ *and* $5\frac{3}{5}$ *lie?" This leads to an understanding of and skill with solving more complex problems often*

embedded within multi step word problems: Cristina and Matt's goal is to collect a total of $3\frac{1}{2}$ gallons of sap from the maple trees. Cristina collected $1\frac{3}{4}$ gallons. Matt collected $5\frac{3}{5}$ gallons. By how much did they beat their goal? Word problems are a part of every lesson. Students are encouraged to utilize tape diagrams, which facilitate analysis of the same part-whole relationships they have worked with since Grade 1.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 8-12	***Focus Targets:*** • Add and subtract fractions with unlike denominators. • Add fractions to and subtract fractions from whole numbers using equivalence and the number line as strategies. • Add fractions making like units numerically. • Add fractions with sums greater than 2. • Subtract fractions making like units numerically. • Subtract fractions greater than or equal to 1.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Debriefing the lesson • Independent practice is not limited to but should include the note sheet and problem sets • Paper practice (homework/problem sets) • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Take Turns • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.5 Use appropriate tools strategically ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** • Fraction strips • Number line • A variety of templates • Paper strips for modeling equivalence • Rectangular fraction model • Tape diagrams • Word Walls	***Focus Standards:*** • 5.NF.1 • 5.NF.2 ***Supporting Standards:*** • 4.NF.1 • 4.NF.3	

Topic D: Further Applications

Topic D opens with students estimating the value of expressions involving sums and differences with fractions. "Will your sum be less than or greater than one half? One? How do you know?" Though these conversations have been embedded within many Lesson Synthesis questions up to this point, by setting aside an instructional day to dig deeply into logical arguments, students see that it is very easy to forget to make sense of numbers when calculating. This is really the theme of this topic—reasoning while using fractions. In Lesson 14, students look for number relationships before calculating, for example, to use the associative property or part–whole understanding. Looking for relationships allows them to see shortcuts and connections that are so often bypassed in the rush to get the answer. In Lesson 15, students solve multi-step word problems and actively assess the reasonableness of their answers. In Lesson 16, they explore part–whole relationships while solving a challenging problem: "One half of Nell's money is equal to 2 thirds of

Jennifer's." This lesson challenges the underlying assumption of all fraction arithmetic—that when adding and subtracting, fractions are always defined in relationship to the same whole amount. The beauty of this exploration is to see students grasp that $\frac{1}{2}$ of one thing can be equivalent to $\frac{2}{3}$ of another!

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 13-16	***Focus Targets:*** ● Solve word problems involving the addition and subtraction of fractions ● Use fraction benchmark numbers to assess reasonableness of addition and subtraction equations. ● Strategize to solve multi-term problems. ● Solve multi-step word problems; assess reasonableness of solutions using benchmark numbers. ● Explore part-to-whole relationships.	***Strategies/Instructional Practices:*** ● Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice ● Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints ● Debriefing the lesson ● Prompt assessment feedback/strategic review ● Independent practice is not limited to but should include the note sheet and problem sets ● Paper practice (homework/problem sets) ● Direct Feedback ● Modeling with Interactive Questioning ● White Board Exchange ● Anticipate, Monitor, Select, Sequence, Connect ● Take Turns ● Think-Pair-Share ● RDW or Read, Draw Write (an Equation and a Statement) ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.5 Use appropriate tools strategically ➔ MP.7 Look for and make use of structure. ➔ MP.8 Look for and express regularity in repeated reasoning. ***Suggested Tools and Representations:*** ● Fraction strips ● Number line ● A variety of templates ● Paper strips for modeling equivalence ● Rectangular fraction model ● Tape diagrams ● Word Walls	***Focus Standards:*** ● 5.NF.1 ● 5.NF.2 ***Supporting Standards:*** ● 4.NF.1 ● 4.NF.3	***End-of-Unit Assessment** **Priority Common Task Assessment**

End-of-Module Assessment: Topics A-D

(assessment ½ day, return ½ day, remediation or further applications 1 day)
Standards Addressed: 5.NF.1, 5.NF.2

Mission 4: Multiplication and Division of Fractions and Decimal Fractions

Time: Quarter 3; Mission 4 is a Priority Content for Common Task Data

- Topic A: Line Plots of Fraction Measurements
- Topic B: Fractions as Division
- Topic C: Multiplication of a Whole Number by a Fraction
- Topic D: Fraction Expressions and Word Problems
- **Mid-module assessment topics A-D**
- Topic E: Multiplication of a Fraction by a Fraction
- Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems
- Topic G: Decision of Fractions and Decimal Fractions
- Topic H: Interpretation of Numerical Expressions
- **End of Mission assessment topics A-H**

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Write and Interpret numerical expressions

5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols, e.g., (6 x 30) + (6 x 1/2).

5.OA.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 × (8 +7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5.NBT.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 and multiplication and division; relate the strategy to a written method and explain the reasoning used.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ 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 three wholes are shared equally among four people each person has a share of size 3/4. If nine 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.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

a. Interpret the product of (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model and/or area model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)

5.NF.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. For example, without multiplying tell which number is greater 225 or ¾ x 225; 11/50 or 3/2 x 11/50?

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×a)/(n×b) to the effect of multiplying a/b by 1.

5.NF.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.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students capable of multiplying fractions can generally develop strategies to divide fractions by reasoning about the relationship between multiplication and division. However, division of a fraction by a fraction is not a requirement at this grade level.)
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) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 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 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷
(1/5) = 20 because 20 × (1/5) = 4.
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 three people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in two cups of raisins?

Convert like measurement units within a given measurement system.

5.MD.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.

Represent and interpret data

5.MD.2 Make a line plot (dot 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 (dot plot). 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.

Supporting Standards in this Module:

Extend Understanding of Fraction Equivalence and Ordering

4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.

4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

4.NF.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (The whole can be a set of objects.)
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using drawings or a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.
c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.

4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
a. Understand a fraction *a/b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*
b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*
c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

Understand Decimal Notation for Fractions, and Compare Decimal Fractions

4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

4.NF.6 Use decimal notation to represent fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

Topic A: Line Plots of Fraction Measurements

In Module 4, students learn to multiply fractions and decimal fractions and begin working with fraction division. Topic A opensthe 38-day module with an exploration of fractional measurement. Students construct line plots by measuring the same objects using three different rulers accurate to ½, ¼, ⅛ of an inch. (5.MD.2). Students compare the line plots and explain how changing the accuracy of the unit of measure affects the distribution of points. This is foundational to the understanding that measurement is inherently imprecise because it is limited by the accuracy of the tool at hand. Students use their knowledge of fraction operations to explore questions that arise from the plotted data. The interpretation of a fraction as division is inherent in this exploration. For measuring to the quarter inch, one inch must be divided into four equal parts, or 1 ÷ 4. This reminder of the meaning of a fraction as a point on a number line, coupled with the embedded, informal exploration of fractions as division, provides a bridge to Topic B's more formal treatment of fractions as division.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 1	***Focus Targets:*** • Make a line plot to display data. • Solve problems to interpret a line plot ***Supporting Targets:*** • Measure and compare pencil lengths to the nearest half, fourth, and eighth of an inch, and analyze the data through line plots (dot plots).	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	***Focus Standards:*** • 5.MD.2 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	

Topic B: Fractions as Division

Topic B focuses on interpreting fractions as division. Equal sharing with area models (both concrete and pictorial) provides students with an opportunity to understand division of whole numbers with answers in the form of fractions or mixed numbers (e.g., seven brownies shared by three girls, three pizzas shared by four people). Discussion also includes an interpretation of remainders as a fraction (5.NF.3). Tape diagrams provide a linear model of these problems. Moreover, students see that, by renaming larger units in terms of smaller units, division resulting in a fraction is similar to whole number division. Topic B continues as students solve real-world problems (5.NF.3) and generate story contexts for visual models. The topic concludes with students making connections between models and equations while reasoning about their results (e.g., between what two whole numbers does the answer lie?).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 2-5	***Focus Targets:*** • Interpret a fraction as division. • Use tape diagrams to model fractions as	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice	***Focus Standards:*** • 5.NF.3	

	division. • Solve word problems involving the division of whole numbers with answers in the form of fractions or whole numbers.	• Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	

Topic C: Multiplication of a Whole Number by a Fraction

In Topic C, students interpret finding a fraction of a set (¾ of 24) as multiplication of a whole number by a fraction (¾ of 24) and use tape diagrams to support their understandings (5.NF.4a). This, in turn, leads students to see division by a whole number as being equivalent to multiplication by its reciprocal. That is, division by 2, for example, is the same as multiplication by ½. Students also use the commutative property to relate a fraction of a set to the Grade 4 repeated addition interpretation of multiplication by a fraction. This offers opportunities for students to reason about various strategies for multiplying fractions and whole numbers. Students apply their knowledge of a fraction of a set and previous conversion experiences (with scaffolding from a conversion chart, if necessary) to find a fraction of a measurement, thus converting a larger unit to an equivalent smaller unit (e.g. ⅓ minutes = 20 seconds and 2 ½ feet= 27 inches).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 6-9	***Focus Targets:*** • Interpret finding fraction of a set as multiplication of a whole number ***Supporting Targets:*** • Relate fractions as division to fraction of a set. • Multiply any whole number by a fraction using tape diagrams. • Relate a fraction of a set to the repeated addition interpretation of fraction multiplication. • Find a fraction of a measurement, and solve word problems.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically	***Focus Standards:*** • 5.NF.4a • 5.MD.1 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	

		Suggested Tools and Representations: • Area models • Number lines • Tape diagrams		

Topic D: Fraction Expressions and Word Problems

Interpreting numerical expressions opens Topic D as students learn to evaluate expressions with parentheses (5.OA.1). They then learn to interpret numerical expressions, such as 3 times the difference between ⅔ and ⅙ or two-thirds the sum of 7 and 9 (5.OA.2). Students generate word problems that lead to the same calculation (5.NF.4a), such as "Kelly combined 7 ounces of carrot juice and 5 ounces of orange juice in a glass. Jack drank ⅔ 3 of the mixture. How much did Jack drink?" Solving word problems (5.NF.6) allows students to apply new knowledge of fraction multiplication in context, and tape diagrams are used to model multi-step problems requiring the use of addition, subtraction, and multiplication of fractions.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 10-12	***Focus Targets:*** • Compare and evaluate expressions with parentheses. • Solve and create fraction word problems involving addition, subtraction, and multiplication.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically Suggested Tools and Representations: • Area models • Number lines • Tape diagrams	***Focus Standards:*** • 5.OA.1 • 5.OA.2 • 5.NF.4a • 5.NF.6 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	***Mid-Unit Assessment**

Mid-Module Assessment: Topics A-D

(assessment ½ day, return ½ day, remediation or further applications 1 day)

Standards Addressed: 5.OA.1, 5.OA.2, 5.NF.3, 5.NF.4a, 5.NF.6, 5.MD.1, 5.MD.2

Topic E: Multiplication of a Fraction by a Fraction

Topic E introduces students to multiplication of fractions by fractions—both in fraction and decimal form (5.NF.4a, 5.NBT.7). The topic starts with multiplying a unit fraction by a unit fraction and progresses to multiplying two non-unit fractions. Students use area models, rectangular arrays, and tape diagrams to model the multiplication. These familiar models help students draw parallels between whole number and fraction multiplication, as well as solve word problems. This intensive work with fractions positions students to extend their previous work with decimal-by-whole number multiplication to decimal-by-decimal multiplication. Just as students used unit form to multiply fractional units by wholes in Module 2 (e.g., 3.5 × 2 = 35 tenths × 2 ones = 70 tenths), they connect fraction-by-fraction multiplication to multiply fractional units-by-fractional units (3.5 × 0.2 = 35 tenths × 2 tenths = 70 hundredths). Reasoning about decimal placement is an integral part of these lessons. Finding fractional parts of customary measurements and measurement conversion (5.MD.1) concludes Topic E. Students convert smaller units to fractions of a larger unit (e.g., 6 inches = 1/2 foot). The inclusion of customary units provides a meaningful context for many common fractions (e.g.,1/2 pint = 1 cup, 1/3 yard = 1 foot, 1/4 gallon = 1 quart). This topic, together with the fraction concepts and skills learned in Module 3, opens the door to a wide variety of application word problems (5.NF.6).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 13-20	***Focus Targets:*** • Multiply unit fractions by unit fractions. • Multiply unit fractions by non-unit fractions. • Multiply non-unit fractions by non-unit fractions. • Solve word problems using tape diagrams and fraction-by-fraction multiplication. • Relate decimal and fraction multiplication. • Convert measures involving whole numbers, and solve multistep word problems. • Convert mixed unit measurements, and solve multi-step word problems.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	***Focus Standards:*** • 5.NBT.7 • 5.NF.4a • 5.NF.6 • 5.MD.1 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	

Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems

Students interpret multiplication in Grade 3 as equal groups, and in Grade 4 students begin understanding multiplication as comparison. Here, in Topic F, students once again extend their understanding of multiplication to include scaling (5.NF.5). Students compare the product to the size of one factor, given the size of the other factor (5.NF.5a) without calculation (e.g., 486 × 1,327.45 is twice as large as 243 × 1,327.45 because 486 = 2 × 243). This reasoning, along with the other work of this module, sets the stage for students to reason about the size of products when quantities are multiplied by numbers larger than 1 and smaller than 1. Students relate their previous work with equivalent fractions to interpreting multiplication by n/n as multiplication by 1. (5.NF.5b). Students build on their new understanding of fraction equivalence as multiplication by n/n to convert fractions to decimals and decimals to fractions. For example, 3/25 is easily renamed in hundredths as 12/100 using multiplication of 4/4. The word form of twelve hundredths is then used to notate this quantity as a decimal. Conversions between fractional forms are limited to fractions whose denominators are factors of 10, 100, or 1,000. Students apply the concepts of the topic to real-world, multi step problems (5.NF.6).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 21-24	***Focus Targets:*** • Interpret multiplication by scaling • Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1. ***Supporting Targets:*** • Compare the size of the product to the size of the factors. • Solve word problems using fraction and decimal multiplication.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine • Suggested fluency routines may include: xtramath, times tables.com, and weekly sprints ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	***Focus Standards:*** • 5.NF.5 • 5.NF.6 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	

Topic G: Division of Fractions and Decimal Fractions

Topic G begins the work of division with both fractions and decimal fractions. Students use tape diagrams and number lines to reason about the division of a whole number by a unit fraction and a unit fraction by a whole number (5.NF.7). Using the same thinking developed in Module 2 to divide whole numbers, students reason about how many fourths are in 5 when considering such cases as 5 ÷ ¼. They also reason about the size of the unit when ¼ is partitioned into 5 equal equal parts ¼ ÷ 5. Using this thinking as a backdrop, students are introduced to decimal fraction divisors and use equivalent fraction and place value thinking to reason about the size of quotients, calculate quotients, and sensibly place the decimal in quotients (5.NBT.7).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 25-31	***Focus Targets:*** • Divide a whole number by a unit fraction. • Divide a unit fraction by a whole number. • Solve problems involving fraction division. • Write equations and word problems corresponding to tape and number line diagrams. • Connect division by a unit fraction to division by 1 tenth and 1 hundredth. • Divide decimal dividends by non-unit decimal divisors.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine • Suggested fluency routines may include: xtramath, times tables.com, and weekly sprints	***Focus Standards:*** • 5.OA.1 • 5.NBT.7 • 5.NF.7 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4	

	• Divide decimal dividends by non-unit decimal divisors.	***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	• 4.NF.5 • 4.NF.6	

Topic H: Interpretation of Numerical Expressions

The module concludes with Topic H, in which numerical expressions involving fraction-by-fraction multiplication are interpreted and evaluated (5.OA.1, 5.OA.2). Students create and solve word problems involving both multiplication and division of fractions and decimal fractions.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 32-33	***Focus Targets:*** • Interpret and evaluate numerical expressions including the language of scaling and fraction division. ***Supporting Targets:*** • Create story contexts for numerical expressions and tape diagrams, and solve word problems.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine • Suggested fluency routines may include: xtramath, times tables.com, and weekly sprints ***Supporting Mathematical Practices:*** ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.4 Model with mathematics. ➔ MP.5 Use appropriate tools strategically ***Suggested Tools and Representations:*** • Area models • Number lines • Tape diagrams	***Focus Standards:*** • 5.OA.1 • 5.OA.2 ***Supporting Standards:*** • 4.NF.1 • 4.NF.2 • 4.NF.3 • 4.NF.4 • 4.NF.5 • 4.NF.6	***End of Unit Assessment** **Priority Common Task Assessment**

End-of-Module Assessment: Topics E-H

(assessment ½ day, return ½ day, remediation or further applications 1 day)

Standards Addressed: 5.OA.1, 5.OA.2, 5.NBT.7, 5.NF.3, 5.NF.4a, 5.NF.5, 5.NF.6, 5.NF.7, 5.MD.1, 5.MD.2

Mission 5: Concepts of Volume

Time: Quarter 3(topics A-B); Mission 5 is a Priority Content for Common Task Data

- Topic A: Concepts of Volume
- Topic B: Volume and the Operations of Multiplication and Addition
- ***Mid-Module Assessment: Topics A-B***

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

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

a. Interpret the product of (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model and/or area model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (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.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.

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

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

a. 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.

b. 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.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised Units.

5.MD.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 edge 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.*

b. Apply the formulas V = l × w × h and V = b × h (where B stands for the area of the base) 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.

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.

Classify two-dimensional figures into categories based on their properties.

5.G.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.4 Classify two-dimensional figures in a hierarchy based on properties. For example, all rectangles are parallelograms, because they are all quadrilaterals with two pairs of opposite sides parallel.

Supporting Standards in this Module:

Geometric Measurement: Understand Concepts of Area and Relate Area to Multiplication and to Addition.

3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.

a. A square with side length one unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.

b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.

Solve Problems Involving Measurement and Conversions of Measurements

4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. Note: When finding areas of rectangular regions answers will be in square units. For example, the area of a 1 cm x 1 cm rectangular region will be 1 square centimeter (1 cm2 , students are not expected to use this notation.) When finding the perimeter of a rectangular region answers will be in linear units. For example, the perimeter of the region is: 1cm + 1cm + 1cm +1cm = 4 cm or 2(1cm) + 2(1cm) = 4 cm).

Geometric Measurement: Understand Concepts of Angle and Measure Angles

4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Reason with Shapes and Their Attributes.

3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Compare and classify shapes by their sides and angles (right angle/non-right angle). Recognize rhombuses, rectangles, squares, and trapezoids as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Draw and Identify Lines and Angles, and Classify Shapes by Properties of their Lines and Angles.

4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

Topic A: Concepts of Volume

In Topic A, students extend their spatial structuring to three dimensions through an exploration of volume. Students come to see volume as an attribute of solid figures and understand that cubic units are used to measure it (5.MD.3). Using improvised, customary, and metric units, they build three-dimensional shapes, including right rectangular prisms, and count units to find the volume (5.MD.4). By developing a systematic approach to counting the unit cubes, students make connections between area and volume. They partition a rectangular prism into layers of unit cubes and reason that the number of unit cubes in a single layer corresponds to the number of unit squares on a face. They begin to conceptualize the layers themselves, oriented in any one of three directions, as iterated units. This understanding allows students to reason about containers formed by box templates and nets, reasonably predict the number of cubes required to fill them, and test their predictions by packing the containers.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 1-3	***Focus Targets:*** • Make connections between area and volume ***Supporting Targets:*** • Explore volume by building with and counting unit cubes. • Find the volume of a right rectangular prism by packing with cubic units and counting. • Compose and decompose right rectangular prisms using layers.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine	***Focus Standards:*** • 5.MD.3 • 5.MD.4 ***Supporting Standards:*** • 3.MD.5 • 4.MD.3 • 4.MD.5 • 4.MD.6 • 4.MD.7	

		Supporting Mathematical Practices: ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure ***Suggested Tools and Representations:*** • Area model • Centimeter cubes • Centimeter grid paper • Isometric dot paper • Patty paper (measuring 5.5 in × 5.5 in) • Protractor • Ruler • Set square or right angle template • Tape diagram	• 3.G.1 • 4.G.2 • 5.NF.4	

Topic B: Volume and the Operations of Multiplication and Addition

Concrete understanding of volume and multiplicative reasoning (5.MD.3) come together in Topic B as the systematic counting from Topic A leads naturally to formulas for finding the volume of a right rectangular prism (5.MD.5). Students solidify the connection between volume as packing and volume as filling by comparing the amount of liquid that fills a container to the number of cubes that can be packed into it. This connection is formalized as students see that 1 cubic centimeter is equal to 1 milliliter. Complexity increases as students use their knowledge that volume is additive to partition and calculate the total volume of solid figures composed of non-overlapping, rectangular prisms. Word problems involving the volume of rectangular prisms with whole number edge lengths solidify understanding and give students the opportunity to reason about scaling in the context of volume. Topic B concludes with a design project that gives students the opportunity to apply the concepts and formulas they have learned throughout Topics A and B to create a sculpture of a specified volume composed of varied rectangular prisms with parameters given in the project description

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 4-9	***Focus Targets:*** • Use multiplication to calculate volume. • Use multiplication to connect volume as packing with volume as filling. • Find the total volume of solid figures composed of two non-overlapping rectangular prisms. • Solve word problems involving the volume of rectangular prisms with whole number edge lengths. • Apply concepts and formulas of volume to design a sculpture using rectangular prisms within given parameters. • Apply concepts and formulas of volume to design a sculpture using rectangular prisms within given parameters.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively	***Focus Standards:*** • 5.MD.3 • 5.MD.5 ***Supporting Standards:*** • 3.MD.5 • 4.MD.3 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 3.G.1 • 4.G.2 • 5.NF.4	***Mid-Unit Assessment**

		➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure ***Suggested Tools and Representations:*** • Area model • Centimeter cubes • Centimeter grid paper • Isometric dot paper • Patty paper (measuring 5.5 in × 5.5 in) • Protractor • Ruler • Set square or right angle template • Tape diagram		
Mid-Unit Assessment: Topics A-B *(assessment 1 day, return ½ day, remediation or further applications 1/2 day)* Standards Addressed: 5.MD.3, 5.MD.4, 5.MD.5				

Mission 5: Concepts of Volume

Time: Quarter 4 (topics C-D); Mission 5 is a Priority Content for Common Task Data

- Topic C: Area of Rectangular Figures with Fractional Side Lengths
- Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes
- ***End-of-Module Assessment: Topics C-D***

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

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

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.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.*

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

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

a. 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.

b. 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.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised Units.
5.MD.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 edge 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.*
b. Apply the formulas V = l × w × h and V = b × h (where B stands for the area of the base) 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.
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.
Classify two-dimensional figures into categories based on their properties.
5.G.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.4 Classify two-dimensional figures in a hierarchy based on properties. For example, all rectangles are parallelograms, because they are all quadrilaterals with two pairs of opposite sides parallel.

Supporting Standards in this Module:

Geometric Measurement: Understand Concepts of Area and Relate Area to Multiplication and to Addition.
3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.
a. A square with side length one unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.
b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
Solve Problems Involving Measurement and Conversions of Measurements
4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. Note: When finding areas of rectangular regions answers will be in square units. For example, the area of a 1 cm x 1 cm rectangular region will be 1 square centimeter (1 cm2 , students are not expected to use this notation.) When finding the perimeter of a rectangular region answers will be in linear units. For example, the perimeter of the region is: 1cm + 1cm + 1cm +1cm = 4 cm or 2(1cm) + 2(1cm) = 4 cm).
Geometric Measurement: Understand Concepts of Angle and Measure Angles
4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
Reason with Shapes and Their Attributes.
3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Compare and classify shapes by their sides and angles (right angle/non-right angle). Recognize rhombuses, rectangles, squares, and trapezoids as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
Draw and Identify Lines and Angles, and Classify Shapes by Properties of their Lines and Angles.
4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

Topic C: Area of Rectangular Figures with Fractional Side Lengths

In Topic C, students extend their understanding of area as they use rulers and set squares to construct and measure rectangles with fractional side lengths and find their areas. Students apply their extensive knowledge of fraction multiplication to interpret areas of rectangles with fractional side lengths (5.NF.4b) and solve real-world problems involving these figures (5.NF.6), including reasoning about scaling through contexts in which volumes are compared. Visual models and equations are used to represent the problems through the Read-Draw-Write (RDW) protocol.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 10-15	***Focus Targets:*** • Measure to find the area of rectangles with fractional side lengths. ***Supporting Targets:*** • Find the area of rectangles with whole-by-mixed and whole-by-fractional number side lengths by tiling, record by drawing, and relate to fraction multiplication. • Find the area of rectangles with mixed-by-mixed and fraction-by-fraction side lengths by tiling, record by drawing, and relate to fraction multiplication. • Multiply mixed number factors, and relate to the distributive property and the area model. • Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations. • Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure ***Suggested Tools and Representations:*** • Area model • Centimeter cubes • Centimeter grid paper • Isometric dot paper • Patty paper (measuring 5.5 in × 5.5 in) • Protractor • Ruler • Set square or right angle template • Tape diagram	***Focus Standards:*** • 5.NF.4b • 5.NF.6 ***Supporting Standards:*** • 3.MD.5 • 4.MD.3 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 3.G.1 • 4.G.2 • 5.NF.4	

Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes

In Topic D, students draw two-dimensional shapes to analyze their attributes and use those attributes to classify them. Familiar figures, such as parallelograms, rhombuses, squares, trapezoids, etc., have all been defined in earlier grades and, in Grade 4, students have gained an understanding of shapes beyond the intuitive level. Grade 5 extends this understanding through an in-depth analysis of the properties and defining attributes of quadrilaterals. Grade 4's work with the protractor is applied to construct various quadrilaterals. Using measurement tools illuminates the attributes used to define and recognize each quadrilateral (5.G.3). Students see, for example, that the same process they used to construct a parallelogram also produces a rectangle when all angles are constructed to measure 90°. Students then analyze defining attributes and create a hierarchical classification of quadrilaterals (5.G.4).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 16-21	***Focus Targets:*** • Draw and identify varied two-dimensional figures from given attributes. ***Supporting Targets:*** • Draw trapezoids to clarify their attributes, and define trapezoids based on those attributes. • Draw parallelograms to clarify their attributes, and define parallelograms based on those attributes. • Draw rectangles and rhombuses to clarify their attributes, and define rectangles and rhombuses based on those attributes. • Draw squares to clarify their attributes, and define squares based on those attributes. • Classify two-dimensional figures in a hierarchy based on properties.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure ***Suggested Tools and Representations:*** • Area model • Centimeter cubes • Centimeter grid paper • Isometric dot paper • Patty paper (measuring 5.5 in × 5.5 in) • Protractor • Ruler • Set square or right angle template • Tape diagram	***Focus Standards:*** • 5.G.3 • 5.G.4 ***Supporting Standards:*** • 3.MD.5 • 4.MD.3 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 3.G.1 • 4.G.2 • 5.NF.4	***End of Unit Assessment-** **Priority Common Task Assessment**
End-of-Unit Assessment: Topics C-D *(assessment 1 day, return ½ day, remediation or further applications ½ day)* Standards Addressed: %.NF.4b, 5.NF.6,5.MD.3, 5.MD.4, 5.MD.5, 5.G.3, 5.G.4				

Mission 6: Problem Solving with the Coordinate Plane

Time: Quarter 4

- Topic A: Coordinate Systems
- Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules

- **Mid-Module Assessment**
- Topic C: Drawing Figures in the Coordinate Plane
- Topic D: Problem Solving in the Coordinate Plane
- **End-of-Module Assessment**
- Topic E: Multi-Step Word Problems
- Topic F: The Years In Review: A Reflection on A Story of Units

Standards Assessed in this Module:

Note: The Rhode Island Core Standards were adopted in March 2021 and draw from the Common Core State Standards for Mathematics and the Mathematics Curriculum Frameworks. Notations in red signify amendments or alterations, highlighting shifts within the standards.

Write and interpret numerical expressions.
5.OA.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 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.
Analyze patterns and relationships.
5.OA.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.
Graph points on the coordinate plane to solve real-world and mathematical problems.
5.G.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 zero 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., xx-axis and xx-coordinate, yy-axis and yy-coordinate).
5.G.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.

Supporting Standards in this Module:

Use the Four Operations with Whole Numbers to Solve Problems
4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
Generate and Analyze Patterns.
4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*
Geometric Measurement: Understand Concepts of Angle and Measure Angles
4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
e. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.
f. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Draw and Identify Lines and Angles, and Classify Shapes by Properties of their Lines and Angles

4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

Use equivalent fractions as a strategy to add and subtract fractions.

5.NF.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.2 Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), 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.

Supporting Standards in this Module:

Extend Understanding of Fraction Equivalence and Ordering

4.NF.1 Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.

Build Fractions from Unit Fractions

4.NF.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (The whole can be a set of objects.)

b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using drawings or a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.

c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.

Use equivalent fractions as a strategy to add and subtract fractions.

5.NF.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.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.3 Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ 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 three wholes are shared equally among four people each person has a share of size 3/4. If nine 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.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.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Students capable of multiplying fractions can generally develop strategies to divide fractions by reasoning about the relationship between multiplication and division. However, division of a fraction by a fraction is not a requirement at this grade level.)

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) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 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 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.
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 three people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in two cups of raisins?

Convert like measurement units within a given measurement system.

5.MD.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.

Geometric Measurement: Understand concepts of Volume

5.MD.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 edge 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.*
b. Apply the formulas V = l × w × h and V = b × h (where B stands for the area of the base) 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.
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.

Topic A: Coordinate Systems

In Topic A, students come to realize that any line, regardless of orientation, can be made into a number line by first locating zero, choosing a unit length, and partitioning the length-unit into fractional lengths as desired. They are introduced to the concept of a coordinate as describing the distance of a point on the line from zero. As students construct these number lines in various orientations on a plane, they explore ways to describe the position of points not located on the lines. This discussion leads to the discovery that a second number line, perpendicular to the first, creates an efficient, precise way to describe the location of these points. Thus, points can be located using coordinate pairs, (aa, bb), by starting at the origin, traveling a distance of aa units along the xx-axis, and traveling a distance of bb units along a line parallel to the yy-axis. Students describe given points using coordinate pairs and, conversely, use given coordinate pairs to plot points (5.G.1). The topic concludes with an investigation of patterns in coordinate pairs along lines parallel to the axes, which leads to the discovery that these lines consist of the set of points whose distance from the xx- or yy-axis is constant.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 1-6	***Focus Targets:*** • Investigate patterns in vertical and horizontal lines, and interpret points on the plane as distances from the axes • Construct a coordinate system on a line. • Construct a coordinate system on a plane. • Name points using coordinate pairs, and use the coordinate pairs to plot points.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively	***Focus Standards:*** • 5.G.1 ***Supporting Standards:*** • 4.OA.1 • 4.OA.5 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 4.G.1 • 5.NF.2 • 5.NF.3 • 5.NF.6 • 5NF.7c	

		➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure ***Suggested Tools and Representations:*** • Protractor • Ruler • Set square • Tape diagrams	• 5.MD.1 • 5.MD.5	

Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules

Students move into plotting points and using them to draw lines in the plane in Topic B (5.G.1). They investigate patterns relating the xx- and yy-coordinates of the points on the line and reason about the patterns in the ordered pairs, laying important groundwork for Grade 6 proportional reasoning. Topic B continues as students use given rules (e.g., multiply by 2 and then add 3) to generate coordinate pairs, plot points, and investigate relationships. Patterns in the resultant coordinate pairs are analyzed, leading students to discover that such rules produce collinear sets of points. Students next generate two number patterns from two given rules, plot the points, and analyze the relationships within the sequences of the ordered pairs (5.OA.3). Patterns continue to be the focus as students analyze the effect on the steepness of the line when the second coordinate is produced through an addition rule as opposed to a multiplication rule (5.OA.2, 5.OA.3). Students also create rules to generate number patterns, plot the points, connect those points with lines, and look for intersections.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 7-12	***Focus Targets:*** • Analyze and Interpret a number pattern from ordered pairs, and plot the points • Create a rule to generate a number pattern, and plot the points • Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs. • Generate two number patterns from given rules, plot the points, and analyze the patterns. • Compare the lines and patterns generated by addition rules and multiplication rules. • Analyze number patterns created from mixed operations.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them ➔ MP.2 Reason abstractly and quantitatively ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.4 Model with mathematics. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure	***Focus Standards:*** • 5.OA.2 • 5.OA.3 • 5.G.1 ***Supporting Standards:*** • 4.OA.1 • 4.OA.5 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 4.G.1 • 5.NF.2 • 5.NF.3 • 5.NF.6 • 5NF.7c • 5.MD.1 • 5.MD.5	***Mid-Unit Assessment**

		Suggested Tools and Representations: • Protractor • Ruler • Set square • Tape diagrams		

Mid-Unit Assessment: Topics A-B

(assessment 1 day, return 1 day, remediation or further applications 1 day)
Standards Addressed: 5.OA.2, 5.OA.3, 5.G.1

Topic C: Drawing Figures in the Coordinate Plane

Topic C finds students drawing figures in the coordinate plane by plotting points to create parallel, perpendicular, and intersecting lines. They reason about what points are needed to produce such lines and angles and then investigate the resultant points and their relationships. Students also reason about the relationships among coordinate pairs that are symmetric about a line (5.G.1).

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 13-17	***Focus Targets:*** • Construct parallel line segments on a rectangular grid. • Construct parallel line segments, and analyze relationships of the coordinate pairs. • Construct perpendicular line segments on a rectangular grid. • Construct perpendicular line segments, and analyze relationships of the coordinate pairs. • Draw symmetric figures using distance and angle measure from the line of symmetry.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ***Suggested Tools and Representations:*** • Protractor • Ruler • Set square • Tape diagrams	***Focus Standards:*** • 5.G.1 • 5.G.2 ***Supporting Standards:*** • 4.OA.1 • 4.OA.5 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 4.G.1 • 5.NF.2 • 5.NF.3 • 5.NF.6 • 5NF.7c • 5.MD.1 • 5.MD.5	

Topic D: Problem Solving in the Coordinate Plane

Problem solving in the coordinate plane is the focus of Topic D. Students draw symmetric figures using both angle size and distance from a given line of symmetry (5.G.2). Line graphs are also used to explore patterns and make predictions based on those patterns (5.G.2, 5.OA.3). To round out the topic, students use coordinate planes to solve real-world problems.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 18-20	***Focus Targets:*** • Use coordinate systems to solve real world problems. ***Supporting Targets:*** • Draw symmetric figures on the coordinate plane. • Plot data on line graphs and analyze trends.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Prompt assessment feedback/strategic review • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine ***Supporting Mathematical Practices:*** ➔ MP.1 Make sense of problems and persevere in solving them. ➔ MP.2 Reason abstractly and quantitatively. ➔ MP.3 Construct viable arguments and critique the reasoning of others. ➔ MP.6 Attend to precision. ➔ MP.7 Look for and make use of structure. ***Suggested Tools and Representations:*** • Protractor • Ruler • Set square • Tape diagrams	***Focus Standards:*** • 5.OA.3 • 5.G.2 ***Supporting Standards:*** • 4.OA.1 • 4.OA.5 • 4.MD.5 • 4.MD.6 • 4.MD.7 • 4.G.1 • 5.NF.2 • 5.NF.3 • 5.NF.6 • 5NF.7c • 5.MD.1 • 5.MD.5	***End of Unit Assessment**

End-of-Unit Assessment: Topics A-D

(assessment 1 day, return 1 day, remediation or further applications 1 day)
Standards Addressed: 5.OA.2, 5.OA.3, 5.G.1, 5.G.2

Topic E: Multi-Step Word Problems (optional)

Topic E provides an opportunity for students to encounter complex, multi-step problems requiring the application of concepts and skills mastered throughout the Grade 5 curriculum. They use all four operations with both whole numbers and fractions in varied contexts. The problems in Topic E are designed to be nonroutine, requiring students to persevere to solve them. While wrestling with complexity is an important part of Topic E, the true strength of this topic is derived from the time allocated for students to construct arguments and critique the reasoning of their classmates. After students have been given adequate time to ponder and solve the problems, two lessons are devoted to sharing approaches and solutions. Students partner to justify their conclusions, communicate them to others, and respond to the arguments of their peers.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 21-25	***Focus Targets:*** • Make sense of complex, multi-step problems, and persevere in solving them. Share and critique peer solutions.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine • Suggested fluency routines may include: xtramath, times-tables.com, and weekly sprints	***Focus Standards:*** • 5.NF.2 • 5.NF.3 • 5.NF.6 • 5.NF.7c • 5.MD.1 • 5.MD.5 • 5.G.2	

Topic F: The Years In Review: A Reflection on A Story of Units (optional)

In the final topic of Module 6 and, in fact, A Story of Units, students spend time producing a compendium of their learning. They not only reach back to recall learning from the very beginning of Grade 5, but they also expand their thinking by exploring such concepts as the Fibonacci sequence. Students solidify the year's learning by creating and playing games, exploring patterns as they reflect on their elementary years. All materials for the games and activities are then housed for summer use in boxes created in the final two lessons of the year.

Materials	*Learning Targets*	*Strategies/Instructional Practices*	*Standards*	*Assessments*
Zearn Lessons 26-34	***Supporting Targets:*** • Solidify writing and interpreting numerical expressions. • Solidify fluency with Grade 5 skills. • Solidify the vocabulary of geometry. • Explore the Fibonacci sequence. • Explore patterns in saving money. • Design and construct boxes to house materials for summer use.	***Strategies/Instructional Practices:*** • Daily mix of fluency, problem solving, whole group, differentiated small group and independent practice • Debriefing the lesson • Direct Feedback • Modeling with Interactive Questioning • White Board Exchange • Anticipate, Monitor, Select, Sequence, Connect • Think-Pair-Share • RDW or Read, Draw Write (an Equation and a Statement) • Digital Lesson Routine • Suggested fluency routines may include: xtramath, times-tables.com and weekly sprints	***Focus Standards:*** • N/A ***Supporting Standards:*** • N/A	