February 2021

STATE OF NEW JERSEY
DEPARTMENT OF EDUCATION

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives by Domain

Description

Included here are the prerequisite concepts and skills necessary for students to learn grade level content based on the New Jersey Student Learning Standards in mathematics. This tool is intended to support educators in the identification of any gaps in conceptual understanding or skill that might exist in a student's understanding of mathematics standards. The organization of this document mirrors that of the New Jersey Student Learning Standards for mathematics, includes all grade- or course-level standards and the associated student learning objectives, and reflects a grouping of the standards by domain.

The tables are divided into three columns. The first column contains the grade level standard and student learning objectives, which reflect the corresponding concepts and skills in that standard. The second column contains standards from prior grades and the corresponding learning objectives, which reflect prerequisite concepts and skills essential for student attainment of the grade level standard as listed on the left. Given that a single standard may reflect multiple concepts and skills, all learning objectives for a prior grade standard may not be listed. Only those prior grade learning objectives that reflect prerequisite concepts and skills important for attainment of the associated grade level standard is listed. The third column contains the recommendations from Student Achievement Partners' recommendations (SAP) for the 2020-21 school year regarding preserving or reducing time as compared to a typical academic year.

Content Emphases Key: ■: Major Cluster ▢: Supporting Cluster ◎: Additional Cluster

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

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Domain: Operations and Algebraic Thinking

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. We are learning to/that… ▪ evaluate numerical expressions with parentheses, brackets, and braces, including expressions containing fractions and decimals ▪ use parentheses, brackets, or braces to group parts of a numerical expression	**3.OA.B.5** Apply properties of operations as strategies to multiply and divide. *Examples:* If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) We have learned to/that… ▪ apply properties of operations (associative property) as strategies to multiply	*Combine lessons* on writing and interpreting numerical expressions in order to *reduce* the amount of time spent on this topic.
5.OA.A.2 Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. *For example,* express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.	n/a	*Combine lessons* on writing and interpreting numerical expressions in order to *reduce* the amount of time spent on this topic.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
We are learning to/that… ▪ write simple numerical expressions from a description that record calculations with numbers ▪ interpret numerical expressions to compare their values without evaluating them		
5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so. We are learning to/that… ▪ generate two numerical patterns using two given rules and identify relationships between corresponding terms in the patterns ▪ form ordered pairs consisting of corresponding terms from the two patterns and graph the ordered pairs on a coordinate plane	**4.OA.C.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. 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. We have learned to/that… ▪ generate a number or shape pattern that follows a given rule ▪ identify the features of a pattern that are not explicit in the rule	*Eliminate* lessons and problems on analyzing relationships between numerical patterns.

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Domain: Number and Operations in Base Ten

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. We are learning to/that… ▪ recognize in a multi-digit number that a digit is 10 times the value of the digit to its right ▪ recognize in a multi-digit number that a digit is 1/10 the value of the digit to its left	**4.NBT.A.1** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example*, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division. We have learned to/that… ▪ recognize that a digit represents 10 times the value of what it represents in the place value to its right.	Allow for time to develop students' understanding of the foundational work of decimal fractions (4.NF.C) to support entry into understanding the place value system with decimals (5.NBT.A.1, 5.NBT.A.3, and 5.NBT.A.4).
5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. We are learning to/that… ▪ explain patterns in the number of zeros of the product when multiplying by powers of 10 ▪ explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10 ▪ denote powers of 10 by using whole-number exponents	n/a	Allow for time to develop students' understanding of the foundational work of decimal fractions (4.NF.C) to support entry into understanding the place value system with decimals (5.NBT.A.1, 5.NBT.A.3, and 5.NBT.A.4).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.NBT.A.3 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). We are learning to/that… ▪ read decimals to thousandths using base-ten numerals, number names, and expanded form ▪ write decimals to thousandths using base-ten numerals, number names, and expanded form	**4.NBT.A.2** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. We have learned to/that… ▪ read and write multi digit whole numbers in base-ten numerals, word, and expanded form **4.NF.C.6** Use decimal notation for fractions with denominators 10 or 100. *For example,* rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram. We have learned to/that… ▪ use decimal notation for fractions with denominators 10 or 100 **	Allow for time to develop students' understanding of the foundational work of decimal fractions (4.NF.C) to support entry into understanding the place value system with decimals (5.NBT.A.1, 5.NBT.A.3, and 5.NBT.A.4).
5.NBT.A.3 Read, write, and compare decimals to thousandths. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**4.NF.C.7** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <.	Allow for time to develop students' understanding of the foundational work of decimal fractions (4.NF.C) to support entry into understanding the place value system with decimals (5.NBT.A.1, 5.NBT.A.3, and 5.NBT.A.4).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
We are learning to/that… ▪ compare two decimals to thousandths based on place value understanding ▪ record comparisons of two decimals to thousandths using >, < or =	We have learned to/that… ▪ compare two decimals to hundredths by reasoning about their size. ▪ record the results of comparisons with the symbols >, =, or <	
5.NBT.A.4 Use place value understanding to round decimals to any place. We are learning to/that… ▪ round decimals to any place using place value understanding	**4.NBT.A.3** Use place value understanding to round multi-digit whole numbers to any place. We have learned to/that… ▪ round multi-digit numbers to any place using place value understanding.	Allow for time to develop students' understanding of the foundational work of decimal fractions (4.NF.C) to support entry into understanding the place value system with decimals (5.NBT.A.1, 5.NBT.A.3, and 5.NBT.A.4).
5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm. We are learning to/that… ▪ multiply multi-digit whole numbers using the standard algorithm working towards accuracy and efficiency	**4.NBT.B.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. We have learned to/that… ▪ multiply up to four-digit by one-digit numbers using strategies based on place value and properties of operations ▪ multiply two two-digit numbers using strategies based on place value and properties of operations	*Incorporate* foundational work on multiplying and dividing multi-digit whole numbers (4.NBT.B.5 and 4.NBT.B.6) to support students' work operating with multi-digit whole numbers and decimals (5.NBT.B). In relation to fluency expectations for multiplying multi-digit numbers, *eliminate* problems in which either factor has more than three digits.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
	4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm. We have learned to/that… ▪ add multi-digit whole numbers using the standard algorithm	
5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. We are learning to/that… ▪ find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on place value ▪ find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on properties of operations or the relationship between multiplication and division	**4.NBT.B.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. We have learned to/that… ▪ find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value ▪ find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on properties of operations and/or the relationship between multiplication and division	*Incorporate* foundational work on multiplying and dividing multi-digit whole numbers (4.NBT.B.5 and 4.NBT.B.6) to support students' work operating with multi-digit whole numbers and decimals (5.NBT.B).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
▪ illustrate and explain the division calculation by using equations, rectangular arrays, and/or area models	**4.NBT.B.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm. We have learned to/that… ▪ subtract multi-digit whole numbers using the standard algorithm	
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. We are learning to/that… ▪ add and subtract decimals to hundredths using concrete models or drawings ▪ add and subtract decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction ▪ relate the strategy to the concrete model or drawing, and explain the reasoning used ▪ multiply decimals to hundredths using models or drawings ▪ multiply decimals to hundredths using strategies based on place value,	**4.NBT.B.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm. We have learned to/that… ▪ add multi-digit whole numbers using the standard algorithm ▪ subtract multi-digit whole numbers using the standard algorithm **3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. We have learned to/that… ▪ add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction ▪ subtract within 1000 using strategies and algorithms based on place value,	No recommendations with regard to addition and subtraction of decimals in this cluster of standards.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
properties of operations, and/or the relationship between addition and subtraction ▪ divide decimals to hundredths using models or drawings ▪ divide decimals to hundredths using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction	properties of operations, and/or the relationship between addition and subtraction	

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Domain: Number and Operations - Fractions

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations SAP recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example,* 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, *a*/*b* + *c*/*d* = (*ad* + *bc*)/*bd*.). We are learning to/that… ▪ when adding or subtracting fractions, replacing given fractions with equivalent fraction produces an equivalent sum or difference of fractions with like denominators ▪ add and subtract fractions with unlike denominators, including mixed numbers, by replacing given fractions with equivalent fraction	**4.NF.A.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. We have learned to/that… ▪ explain why a fraction *a*/*b* is equivalent to a fraction (*n* × *a*)/ (*n* × *b*) by using visual fraction models ▪ recognize and generate equivalent fractions **4.NF.B.3** Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. 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. We have learned to/that… ▪ add and subtract mixed numbers with like denominators	*Incorporate* foundational work on equivalent fractions (4.NF.A.1) and on the conceptual understanding underlying fraction addition (4.NF.B.3) to support students' work on adding and subtracting fractions with unlike denominators (5.NF.A).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example,* recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2. We are learning to/that… ▪ solve word problems involving addition and subtraction of fractions including those with unlike denominators referring to the same whole ▪ benchmark fractions and number sense can be used in estimating and assessing the reasonableness of answers to word problems involving addition and subtraction of fractions	**4.NF.A.2** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 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 <. We have learned to/that… ▪ recognize that, when comparing two fractions, they must refer to the same whole ▪ compare two fractions with different numerators and denominators by comparing to benchmark fraction such as ½	*Incorporate* foundational work on equivalent fractions (4.NF.A.1) and on the conceptual understanding underlying fraction addition (4.NF.B.3) to support students' work on adding and subtracting fractions with unlike denominators (5.NF.A).
5.NF.B.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example*, interpret ¾ as the	**4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	n/a

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
result of dividing 3 by 4, noting that ¾ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size ¾. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie? We are learning to/that… ▪ interpret a fraction as division of the numerator by the denominator using visual fraction models or equations ▪ solve word problems involving division of whole numbers resulting in a fraction or mixed number quotient	We have learned to/that… ▪ multiply and divide to solve word problems involving multiplicative comparisons, using drawings and equations containing a variable to represent the problem **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example,* describe and/or represent a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8. We have learned to/that… ▪ interpret whole number quotients of whole numbers as the number of objects in each share (or groups) or as the number of shares (or groups) that result from partitioning a total number of objects** **3.OA.B.6** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
	We have learned to/that… ▪ a related multiplication problem with an unknown factor can be used to solve a division problem	
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $(a/b) \times q$ as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example,* use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.) b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas. We are learning to/that… ▪ apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction	**4.NF.B.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 $5 \times (¼)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$. 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 $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as 6/5. (In general, $n \times (a/b) = (n \times a)/b$.). We have learned to/that… ▪ a fraction a/b is a multiple of $1/b$ ▪ a multiple of a/b is also a multiple of $1/b$ using a visual fraction model ▪ multiply a fraction by a whole number by using the idea that a/b is a multiple of $1/b$ **	*Incorporate* foundations for multiplying fractions by whole numbers (4.NF.B.4) to support students' work in multiplying fractions and whole numbers by fractions (5.NF.B.4).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
▪ interpret the product $(a/b) \times q$ as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ ** ▪ interpret the product of a fraction and a fraction as $(a/b) \times (c/d) = ac/bd$ ** ▪ tile a rectangle using the appropriate fractional unit square in order to find the area of a rectangle that has fractional side lengths ▪ show that the area found by tiling would be that same as multiplying the side lengths ▪ multiply fractional side lengths to find areas of rectangles ▪ represent fraction products as rectangular areas		
5.NF.B.5 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product	**4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ 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. We have learned to/that… ▪ interpret multiplication equations as a comparison statement ▪ represent verbal comparison statements as multiplication equations ▪ distinguish multiplicative comparison from additive comparison	n/a

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1. We are learning to/that… ▪ interpret multiplication as scaling (resizing) by comparing the size of a product to the size of one factor without performing the multiplication ▪ explain why multiplying a given number by a fraction greater than one results in a product greater than one and why multiplying a given number by a fraction less than one results in a product smaller than the given number ▪ multiplying a fraction a/b by n/n ($a/b = (n \times a)/(n \times b)$) has the same effect as multiplying a/b by 1 and creates an equivalent fraction	**4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. We have learned to/that… ▪ multiply and divide to solve word problems involving multiplicative comparisons, using drawings and equations containing a variable to represent the problem **4.NF.A.1** Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ 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. We have learned to/that… ▪ explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models ▪ understand that the number and size of the parts of equivalent fractions differ even though the two fractions are the same size ▪ recognize and generate equivalent fractions	

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. We are learning to/that… ▪ solve real world problems involving multiplication of fractions and mixed numbers	**4.OA.A.2** Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. We have learned to/that… ▪ multiply and divide to solve word problems involving multiplicative comparisons, using drawings and equations containing a variable to represent the problem	n/a
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example,* create a story context for (1/3) ÷ 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	**4.NF.B.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 × (¼), 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*.)	n/a

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4. We are learning to/that… ▪ compute and interpret the quotients of a unit fraction by a non-zero whole number ** ▪ compute and interpret the quotients of a non-zero whole number by a unit fraction **	We have learned to/that… ▪ a fraction *a*/*b* is a multiple of 1/*b* ▪ a multiple of *a*/*b* is also a multiple of 1/*b* ▪ multiply a fraction by a whole number using the idea that *a*/*b* is a multiple of 1/*b* ** **3.NF.A.1** Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by a parts of size 1/*b*. We have learned to/that… ▪ a fraction is a quantity formed when a whole is partitioned into equal parts where a unit fraction (*1/b*) is the quantity formed by 1 part when a whole is partitioned into *b* equal parts. (For example, ¼ is the quantity that is formed by 1 part of the 4 total parts when the whole is partitioned into 4 equal parts) ▪ a fraction *a/b* as the quantity formed by *a* parts, where each part has a size of *1/b*. (For example, ¾ is the quantity that is formed by 3 parts of the 4 total parts where each part has a size of ¼.) **3.OA.B.6** Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
	We have learned to/that… ▪ a related multiplication problem with an unknown factor can be used to solve a division problem	
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example*, how much chocolate will each person get if 3 people share ½ lb. of chocolate equally? How many ⅓-cup servings are in 2 cups of raisins? We are learning to/that… ▪ solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions**	**4.NF.B.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. 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? We have learned to/that… ▪ solve word problems involving multiplication of a fraction by a whole number, using fraction models and equations to represent the problem	

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Domain: Measurement and Data

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. We are learning to/that… ▪ convert among different-sized standard measurement units within a given measurement system ▪ use conversions in solving multi-step, real world problems	**4.MD.A.1** Know relative sizes of measurement units within one system of units including km, m, cm. mm; kg, g; lb, oz.; *l*, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ... We have learned to/that… ▪ express measurements in larger units in terms of a smaller unit within a single system of measurement **4.MD.A.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number	*Combine* lessons on converting measurement units in order to reduce the amount of time spent on this topic.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
	line diagrams that feature a measurement scale. We have learned to/that… ▪ solve word problems that require expressing measurements given in a larger unit in terms of a smaller unit, using the four operations	
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example,* given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. We are learning to/that… ▪ make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8) ▪ use operations with fractions to solve problems involving information presented in line plots	**4.MD.B.4** Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example,* from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. We have learned to/that… ▪ make a line plot to display a data set of measurements using unit fractions (½, ¼, ⅛) ▪ use data presented in line plots to solve problems involving addition and subtraction of fractions.	*Limit* lessons and problems on representing and interpreting data using line plots that do not strongly reinforce the fraction work of this grade (5.NF).

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.MD.C.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. We are learning to/that… ▪ a cube with side length 1 unit is called a "unit cube", has "one cubic unit" of volume, and can be used to measure volume ▪ a solid figure which can be packed without gaps or overlaps using (*n*) unit cubes has a volume of *n* cubic units	**3.MD.C.5** Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 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. We have learned to/that… ▪ a square with side length 1 unit, called "a unit square," is said to have 'one square unit of area ▪ a unit square can be used to measure area ▪ area is an attribute of a plane figure ▪ the number of *n* square units covering a plane figure without gaps or overlaps, determines its area	For curricula and lessons that are well aligned to common factors and multiples, including using distributive property for expressions as detailed in this standard, *no special considerations* for shifting how time is dedicated are recommended. Time spent on instruction and practice should **not** be reduced.
5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units. We are learning to/that… ▪ measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units.	**3.MD.C.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and nonstandard units). We have learned to/that… ▪ measure area by counting unit squares including square cm, square m, square in, square ft, and nonstandard units	For curricula and lessons that are well aligned to common factors and multiples, including using distributive property for expressions as detailed in this standard, *no special considerations* for shifting how time is dedicated are recommended. Time spent on instruction and practice should **not** be reduced.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. We are learning to/that… ▪ find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths ▪ represent volumes as the product of three whole numbers	**3.MD.C.7** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. We have learned to/that… ▪ find the area of a rectangle with whole-number side lengths by tiling it **3.OA.B.5** Apply properties of operations as strategies to multiply and divide. Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.) We have learned to/that… ▪ apply properties of operations (associative property) as strategies to multiply	For curricula and lessons that are well aligned to common factors and multiples, including using distributive property for expressions as detailed in this standard, *no special considerations* for shifting how time is dedicated are recommended. Time spent on instruction and practice should **not** be reduced.

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. We are learning to/that… ▪ apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems	**4.MD.A.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. We have learned to/that… ▪ apply the area formula for rectangles in real world and mathematical problems. ▪ apply perimeter formulas for rectangles in real world and mathematical problems **3.MD.C.7** Relate area to the operations of multiplication and addition. b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. We have learned to/that… ▪ multiply side lengths of rectangles to find areas in the context of real world and mathematical problems ▪ represent whole-number products as rectangular areas	For curricula and lessons that are well aligned to common factors and multiples, including using distributive property for expressions as detailed in this standard, *no special considerations* for shifting how time is dedicated are recommended. Time spent on instruction and practice should **not** be reduced.

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. We are learning to/that… ▪ recognize volume as additive and find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems	**3.MD.C.7** Relate area to the operations of multiplication and addition. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. We have learned to/that… ▪ recognize area as additive by finding areas of rectangles ▪ recognize area as additive by finding areas of rectilinear figures ** ▪ decompose rectilinear figures into non-overlapping rectangles and find their areas to solve real world problems	For curricula and lessons that are well aligned to common factors and multiples, including using distributive property for expressions as detailed in this standard, *no special considerations* for shifting how time is dedicated are recommended. Time spent on instruction and practice should **not** be reduced.

Grade 5: New Jersey Student Learning Standards for Mathematics - Prerequisite Standards and Learning Objectives

Domain: Geometry

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate). We are learning to/that… ▪ a coordinate system is defined by a pair of perpendicular lines called axes with the intersection of the lines, the origin, occurring at 0 on each line ▪ a given point in the coordinate plane is located using an ordered pair of numbers called coordinates ▪ the first number in an ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis.	n/a	*Incorporate* foundational understandings of number lines (such as found in the work of 4.NF) into the work of extending number lines to the coordinate plane, as detailed in this cluster. *Emphasize* interpreting coordinate values of points in the context of a situation.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations SAP recommendation to preserve or reduce time in 20-21 as compared to a typical year
▪ the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate)		
5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. We are learning to/that… ▪ represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane ▪ interpret coordinate values of points in the context of the real world and mathematical problems	n/a	*Incorporate* foundational understandings of number lines (such as found in the work of 4.NF) into the work of extending number lines to the coordinate plane, as detailed in this cluster. *Emphasize* interpreting coordinate values of points in the context of a situation.
5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example*, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. We are learning to/that… ▪ the attributes belonging to a category of two-dimensional figures also belong to all subcategories	**3.G.A.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). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	*Combine* lessons on classifying two-dimensional figures into categories based on properties in order to reduce the amount of time spent on this topic.

Standard and Student Learning Objectives	Previous Grade(s) Standards and Student Learning Objectives	Instructional Considerations *SAP* recommendation to preserve or reduce time in 20-21 as compared to a typical year
	We have learned to/that… ▪ shapes (quadrilaterals) in different categories may share attributes, and that the shared attributes can define a larger category ▪ recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories	
5.G.B.4. Classify two-dimensional figures in a hierarchy based on properties. We are learning to/that… ▪ classify two-dimensional figures in a hierarchy based on properties	n/a	*Combine* lessons on classifying two-dimensional figures into categories based on properties in order to reduce the amount of time spent on this topic.