Mathematics Standards Clarification for
Grade 5

2019

The

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Standards-Based Instruction for
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Operations and Algebraic Thinking

In preparation for the Expressions and Equations domain in grades 6–8, fifth graders begin to explore, interpret, and evaluate numerical expressions. Working with patterns that began in Grade 4 extends to generating patterns, forming ordered pairs, graphing on a coordinate plane, and then analyzing the graphical representations (Gojak and Miles, 2016).

Cluster

Write and interpret numerical expressions.

NVACS 5.OA.A.1 (Additional Works)

Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

Element	Exemplar
Standards for Mathematical Practice	● MP 7 As students explore order of operations and apply the rules in a variety of situations, they look for patterns and the structure of what is happening. ● MP 8 Students make generalizations about the order of operations and grouping symbols and apply these rules to writing and solving expressions that include more than one operation and/or grouping symbol.
Instructional Strategies	● Common Misconceptions: Students often believe multiplication must be done before division, as well as addition before subtraction. Avoid using tricks such as PEMDAS. Instead, students should have opportunities to build an understanding of why order matters. ● Create a word problem that might be solved using a given expression. ● Practice putting in parentheses into an equation to make it true. ● Explain thinking when using the order of operations to solve a variety of problems. ● Evaluate and justify written expressions.
Prerequisite Skills	● Understanding of all operations.
Connections Within and Beyond Grade Level	Within: ● Interpret numerical expressions. ● Interpret multiplication as scaling. Beyond: ● Read and evaluate expressions in which letters stand for numbers.

Element	Exemplar
Instructional Examples/Lessons/Tasks	[Watch Out for Parentheses](#) (Illustrative Mathematics) [Bowling for Numbers](#) (Illustrative Mathematics) [Using Operations and Parentheses](#) (Illustrative Mathematics)
Assessment Examples	Sample Smarter Balanced Item [5.OA.A.1 SBAC Sample Assessment Items](#)

Operations and Algebraic Thinking

Cluster

Write and interpret numerical expressions.

NVACS 5.OA.A.2 (Additional Works)

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product.

Element	Exemplar
Standards For Mathematical Practice	• MP 1 Students will combine appropriate expressions to obtain a solution. • MP 7 As students extend previous experiences, particularly with multiplication and division, they apply their knowledge of the structure of place value in these operations. • MP 8 Students make generalizations about the order of operations and grouping symbols and apply these rules to writing and solving expressions that include more than one operation and/or grouping symbol.
Instructional Strategies	• Expressions should express a calculation, for example: 2 x (8+7) to express the calculation "add 8 and 7, then multiply by 2". • Expressions should be no more complex than in an application of the associative or distributive property, for example: (8 + 27) + 2 or (6 x 30) + (6 x 7). Note, however, that the numbers in expressions need not always be whole numbers. • Determine whether there is more than one way to write an expression.
Prerequisite Skills	• Understanding of all operations. • Use parentheses, brackets, or braces in numerical expressions.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: - Generate equivalent expressions using properties of operations. - Identify when two expressions are equivalent. - Use distributive property to create a new expression for example: express $36 + 8$ as $4(9 + 2)$. Beyond: - Write and interpret numerical expressions. - Write, read, and evaluate expressions in which letters stand for numbers.
Instructional Examples/Lessons/Tasks	- Comparing Products (Illustrative Mathematics) - Words to Expressions 1 (Illustrative Mathematics) - Video Game Scores (Illustrative Mathematics) - Seeing is Believing (Illustrative Mathematics)
Assessment Examples	- Sample Smarter Balanced Item 5.OA.A.2 SBAC Sample Assessment Items

Operations and Algebraic Thinking

Cluster

Analyze patterns and relationships.

NVACS 5.OA.B.3 (Additional Works)

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.

Element	Exemplar
Standards for Mathematical Practice	● MP 5 Correctly plots points on the coordinate grid and creates a corresponding table and graph. ● MP 7 Students will notice a pattern that may be generalized as real world problems are represented on the coordinate plane.
Instructional Strategies	● Work only in the first quadrant of the coordinate plane. ● Work only with positive numbers. ● Use a T-chart to generate a numerical pattern, including problems with two rules or two patterns. ● Describe their patterns on a T-chart and how that corresponds to their coordinate graph.
Prerequisite Skills	● Generate number and shape patterns that follow a given rule. ● Perform all four operations.
Connections Within and Beyond Grade Level	Within: ● Define a coordinate system. ● Interpret coordinate values of points in the context of the situation. Beyond: ● Graph points in all quadrants of the coordinate plane. ● Proportional relationships and functions.
Instructional Examples/Lessons/Tasks	● Sidewalk Patterns (Illustrative Mathematics) ● Animal Speed and Cookies
Assessment Examples	● Sample Smarter Balanced Item 5.OA.B.3 SBAC Sample Assessment Items

Number And Operations In Base Ten

Fifth graders extend their work with place value to include decimal numbers to the thousandths place. They use efficient algorithms to multiply multi-digit whole numbers. They begin to divide whole numbers with two digit divisors. They extend their understanding of whole number operations to adding, subtraction, multiplying and dividing decimals to hundredths.

The domain is not taught in isolation from the Operations and Algebraic Thinking domain. Students work across domains to develop a deep understanding of addition and subtraction by focusing on the instructional shift of rigor, that is, developing conceptual understanding, building skill and fluency, and applying all four operations in problem contexts (Gojak and Miles, 2016).

Cluster

Understand the place value system.

NVACS 5.NBT.A.1 (Major Works)
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.

Element	Exemplar
Standards for Mathematical Practice	● MP 4 Students should use models to help develop an understanding of the relationship between adjacent places in both whole numbers and decimals and reinforce conceptual understanding of individual places as well as the magnitude of of a number across place values on both sides of the decimal point. ● MP 8 Use repeated reasoning to understand and explain patterns in numbers of zeros and/or placement of a decimal point when a number is multiplied or divided by powers of 10.
Instructional Strategies	● Use numeral cards, playing cards, dice, and money to generate numbers, including decimals, to compare the values of various places. ● Use manipulatives, pictures, numbers and words to explore multiplication of whole numbers and decimal numbers by powers of 10. ● Recognize and name place values for base-ten numerals to the thousandths place using place value charts and expanded form. (Gojak and Miles, 2016)
Prerequisite Skills	● Understand place value for multi-digit whole numbers.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: ● Powers of 10 Beyond: ● Calculate with exponents ● Scientific Notation ● Operations with decimals
Instructional Examples/Lessons/Tasks	● [Which One is It?](#) (Illustrative Mathematics)
Assessment Examples	● [Millions and Billions of People](#) (Illustrative Mathematics)

Number And Operations In Base Ten

Cluster

Understand the place value system.

NVACS 5.NBT.A.2 (Major Works)

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.

Element	Exemplar
Standards for Mathematical Practice	● MP 6 When making mathematical arguments about a solution, strategy, or conjecture, mathematically proficient students learn to craft careful explanations that communicate their reasoning by referring specifically to each important mathematical element. ● MP 3 Make conjectures and build a logical progression of statements to explore the pattern in the number of zeros when multiplying by a power of 10.
Instructional Strategies	● Explore multiplication of whole numbers and decimal numbers by powers of 10 using concrete materials, pictures, numbers, and words. ● Describe patterns they find and justify why those patterns work. ● Connect previous work with the meaning of multiplication to activities and problem solving situations, asking if their answer is reasonable by estimating and calculating an exact product. ● Explain their reasoning when using a standard algorithm, which should include use of the properties of multiplication and place value.
Prerequisite Skills	● Understand place value and whole numbers using manipulatives and multiple representations.
Connections Within and Beyond Grade Level	Within: ● Powers of 10 Beyond: ● Calculate with exponents ● Scientific Notation
Instructional Examples/Lessons/Tasks	● Multiplying Decimals by 10 (Illustrative Mathematics)
Assessment Examples	● Place Value and Decimals Assessment (Canvas) ● Patterns Involving Patterns of 10 (Goalbook Pathways)

Number And Operations In Base Ten

Cluster

Understand the place value system.

NVACS 5.NBT.A.3 (Major Works)

Read, write, and compare decimals to thousandths.

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

Element	Exemplar
Standards for Mathematical Practice	• MP 5 Students should have experiences with placing decimal numbers on a number line in order to help compare. • MP 6 It is imperative that students read decimal numbers correctly to reinforce the meaning of the decimal and its place value. For example, 1.12 should be read as "one and twelve hundredths" and not "one point twelve". Teachers should model this and the expectation should be clear. This not only reinforces the value of the decimal number but also explicitly connects decimal numbers to fraction numbers. • MP 7 Students apply their understanding of the structure within the base-ten system and fraction-decimal equivalents to precisely communicate their understanding of relative sizes of decimal numbers.
Instructional Strategies	• Generate a list of equivalent decimals with different place values. 0.3 = 0.30 = 0.300. • Compare decimals by using a place value chart to compare the digits in each decimal place. • Use manipulatives, pictures, numbers and words to explain their reasoning.
Prerequisite Skills	• Read and write multi-digit whole numbers. • Place value names and their values. • Know how to write numbers in expanded form.

Element	Exemplar

Connections Within and Beyond Grade Level	Within:
	    ● There are numbers between 2.37 and 2.38
	    ● Find the decimal located between any two decimals
	    ● Use a linear model to show that there is always another decimal to be found between any two decimal
	    ● Scientific Notation
	Beyond:
	    ● Operations with decimals
	    ● Comparing fractions

Instructional Examples/Lessons/Tasks	● [Drawing Pictures to Illustrate Decimal Comparisons](#) (Illustrative Mathematics)
Assessment Examples	● Sample Smarter Balanced Item [5.NBT.A.3 SBAC Sample Assessment Items](#)

Number And Operations In Base Ten

Cluster

Understand the place value system.

NVACS 5.NBT.A.4 (Major Works)
Use place value understanding to round decimals to any place.

Element	Exemplar
Standards for Mathematical Practice	● MP 5 Students should have experiences with placing decimal numbers on a number line in order to round.
Instructional Strategies	● Students use a number line model to round decimal numbers to a given place.
Prerequisite Skills	● Understand place value, whole numbers and decimals using number lines and other strategies. ● Round multi-digit whole numbers to any place using place value.
Connections Within and Beyond Grade Level	Within: ● Flexible rounding ● To round a number means to select a compatible number
Instructional Examples/Lessons/Tasks	● Rounding to Tenths and Hundredths (Illustrative Mathematics)
Assessment Examples	● Sample Smarter Balanced Item 5.NBT.A.4 SBAC Sample Assessment Items

Number And Operations In Base Ten

Cluster

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

NVACS 5.NBT.B.5 (Major Works)

Fluently multiply multi-digit whole numbers using the standard algorithm.

Element	Exemplar
Standards for Mathematical Practice	● MP 2 Students can contextualize quantities and operations by using images or stories. They interpret symbols as having meaning, not just as directions to carry out a procedure. ● MP 7 Students look for patterns and structure by using what they know to step back for an overview or shift in perspective.
Instructional Strategies	● Explain reasoning when using a standard algorithm, which should include use of the properties of multiplication and place value.
Prerequisite Skills	● Basic multiplication facts ● Understand how to decompose numbers ● Understand place value ● Illustrate and explain multiplication using equations, rectangular arrays, and/or area models ○ 5.NBT.B.5 Model Examples
Connections Within and Beyond Grade Level	Within: ● Understand the standard algorithm is not memorized steps, but making sense on the procedure as a process. ● Standard algorithm may be more useful in some instances than in others. ● Mental strategies may be more useful than the standard algorithm such as 23 x 100. (A., 2018) ● Distributive Property Beyond: ● Create and identify equivalent expressions.
Instructional Examples/Lessons/Tasks	● Elmer's Multiplication Error (Illustrative Mathematics)
Assessment Examples	● Sample SBAC Assessment Item 5.NBT.B.5 SBAC Sample Assessment Items

Number And Operations In Base Ten

Cluster

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

NVACS 5.NBT.B.6 (Major Works)

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.

Element	Exemplar
Standards for Mathematical Practice	● MP 2 Students can contextualize quantities and operations by using images or stories. They interpret symbols as having meaning, not just as directions to carry out a procedure. ● MP 7 Students look for patterns and structure by using what they know to step back for an overview or shift in perspective.
Instructional Strategies	● Students use the area model, rounding, and partial quotient as strategies for division. ● Students solve problems in which the remainder is the answer, in which the remainder is dropped, or in which the quotient should be one more because of a remainder. ● Students solve problems that include various division situations and can explain their reasoning using pictures, words, and numbers.
Prerequisite Skills	● Arrays and area models ● Basic computation facts
Connections Within and Beyond Grade Level	Beyond: ● Standard algorithm for division ● Division of fractions and decimals
Instructional Examples/Lessons/Tasks	● The fifth grade at Juan's school is going to go on a field trip. There are four fifth grade classes at his school. Each class has 28 students and one teacher. Each class will also have 2 parent helpers on the trip. A bus can hold a maximum of 44 people not including the driver. How many buses should the school reserve? Explain your thinking. ● 5.NBT.B.6 Model Examples
Assessment Examples	● Sample SBAC Assessment Item 5.NBT.B.6 SBAC Sample Assessment Items

Number And Operations In Base Ten

Cluster

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

NVACS 5.NBT.B.7 (Major Works)

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.

Element	Exemplar
Standards for Mathematical Practice	● MP 1 Students will not only need to make sense of real world problems, but they will also need to make sense of the concept dividing fractions. Solving real world problems will give meaning to this concept and help students gain a better understanding of the situation. ● MP 4 Students should connect visual representations to writing division equations. ● MP 5 Students should use concrete objects or pictures to help conceptualize, create, and solve problems.
Instructional Strategies	● Students explain their work using pictures, words, and numbers. ● Students connect visual representations to writing division equations. ● Using keywords is not helpful and removes making sense of the problem. Instead, ask supporting questions to help the students explain the situation. (Gojak and Miles, 2016)
Prerequisite Skills	● Multiply a whole number of up to four digits by a one-digit whole number. ● 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.
Connections Within and Beyond Grade Level	Within: ● Operations with fractions. Beyond: ● Understand decimal relationships will connect to fractional relationships. ● Order of operations with decimals and fractions.
Instructional Examples/Lessons/Tasks	● [The Value of Education](#) (Illustrative Mathematics)

Element	Exemplar
Assessment Examples	● Sample SBAC Assessment Item [5.NBT.B.7 SBAC Sample Assessment Items](#)

Numbers and Operations - Fractions

Fifth graders build on previous experiences with fractions and use a variety of visual models and strategies to add and subtract fractions and mixed numbers with unlike denominators. Problem solving provides contexts for students to use mathematical reasoning to determine whether their answers make sense. They extend their understanding of fractions as a division representation of the numerator divided by the denominator. Students use this understanding in the context of dividing whole numbers with answers in the form of a fraction or understanding of multiplication of fractions using visual models and connecting the meaning to the meaning of multiplication of whole numbers. The meaning of the operation is the same; however, the procedure is different. Students use visual models and problem solving contexts to develop understanding of dividing a unit fraction by a whole number and a whole number by a unit fraction. Once conceptual understanding is established, students generalize efficient procedures for multiplying and dividing fractions (Gojack and Miles, 2016).

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

NVACS 5.NF.A.1 (Major Works)
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, $a/b + c/d = (ad + bc)/bd$)

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students work with replacing given fractions with equivalent fractions using reasoning and sense making to ensure that the replacement is indeed an equivalent fraction. - MP 4 and MP 5 Students may connect visual fraction models to reason about equivalent fractions and equivalent sums and differences.
Instructional Strategies	- Successful teaching for fractions suggests four steps: 1. Use contexts 2. Use a variety of models 3. Include estimation and informal methods 4. Address misconceptions (Siegler, Carpenter, et al., 2010) - Use tools, visual models and mathematical reasoning to find equivalent fractions until they are able to generalize or understand more abstract procedures.
Prerequisite Skills	- Understand equivalent fractions. - Add and subtract fractions with like denominators to determine that these operations will work when fractions have equal sized pieces. - Connect visual representations and concrete models.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: - Connect visual representations and concrete models Beyond: - Understand fractions as division to be connected to fractions as ratios and proportions - Connect adding and subtracting fractions to adding and subtracting decimals - Identity property of multiplication allows creation of equivalent fractions - Ratio tables - Rates and unit rates
Instructional Examples/Lessons/Tasks	- Finding Common Denominators to Add (Illustrative Mathematics) - Finding Common Denominators to Subtract (Illustrative Mathematics) - Making S'Mores (Illustrative Mathematics)
Assessment Examples	- Sample SBAC Assessment Item 5.NF.A.1 SBAC Sample Assessment Items

Numbers and Operations - Fractions

Cluster

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

NVACS 5.NF.A.2 (Major Works)

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 $3/7 < 1/2$.

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students are asked to "Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers" in this standard. - MP 2 Students use contextual understandings (word problems) to create a mathematical model (visual fraction models or equation). - MP 4 and MP 5 Students are asked to "use visual fraction models or equations to represent the problem".
Instructional Strategies	- Work with addition and subtraction word problems using all 15 problem types/situations with whole numbers and fraction addition with like denominators. (n.d., 2018) - Make sense of quantities and their relationships using various problem situations and represent mathematical problems using numerical expressions. (Siegler, Carpenter, et al., 2010)
Prerequisite Skills	- Addition with whole numbers and like fractions - Addition and subtraction word problems using all 15 problem types/situation.(n.d., 2018) - Estimate with fractions - Know benchmark fractions
Connections Within and Beyond Grade Level	Within: - Connect visual representations and concrete models - Add and subtract mixed numbers Connect adding and subtracting fractions to adding and subtracting decimals Beyond: - Identity property of multiplication allows creation of equivalent fractions - Write and interpret numerical expressions - Equivalent ratios
Instructional Examples/Lessons/Task	[Do These Add Up?](#) (Illustrative Mathematics)

Element	Exemplar
Assessment Examples	• Sample SBAC Assessment Item [5.NF.A.2 SBAC Sample Assessment Items](#)

Numbers and Operations - Fractions

Cluster

Apply and extend previous understandings of multiplication and division.

NVACS 5.NF.B.3 (Major Works)

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

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students use a variety of problem solving situations to develop an understanding of multiplication of fractions. - MP 2 Students use contextual understandings (word problems) to create a mathematical model (visual fraction models or equation). - MP 4 and MP 5 Students are asked to "use visual fraction models or equations to represent the problem".
Instructional Strategies	- Actual modeling and/or representation of the division process. - Representational models are critical tools for extending understandings related to the division of whole numbers to division of whole numbers and unit fractions. - Explore division as a fraction through word problems. - Understand the context of the problem instead of using "keyword strategies". - Understand the meaning of division and try different strategies to decide whether their answers make sense. - Context plays a very important role in sense making. - Students can more easily decide if their answer is reasonable through thoughtful modeling of the context of a problem. - Explore how a dividend is related to a numerator and a divisor is related to a denominator.
Prerequisite Skills	- Understand division with whole numbers - Understand fraction as part of a whole - Understand and interpret remainders

Element	Exemplar
Connections Within and Beyond Grade Level	Within: ● Connect understandings of dividing with whole numbers and decimals with dividing with fractions ● Quotient may be larger or smaller than the dividend or divisor Beyond: ● Connect dividing fractions to dividing decimals ● Connect division concepts learned with whole number to fractions and decimals (rational) ● Extend division of fractions to include fractions divided by fractions ● Extend understanding of fractions as division to ratios, rates, unit rates, and proportions
Instructional Examples/Lessons/Tasks	● What is 23 ÷ 5? (Illustrative Mathematics) ● How Much Pie? (Illustrative Mathematics)
Assessment Examples	● Sample SBAC Assessment Item 5.NF.B.3 SBAC Sample Assessment Items

Numbers and Operations - Fractions

Cluster

Apply and extend previous understandings of multiplication and division.

NVACS 5.NF.B.4 (Major Works)

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

- **5.NF.B.4.a**
  Interpret the product $(a/b) \times q$ as a parts 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, $(a/b) \times (c/d) = (ac)/(bd)$).
- **5.NF.B.4.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.

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students use a variety of problem solving situations to develop an understanding of multiplication of fractions. - MP 2 Students use contextual understandings (word problems) to create a mathematical model (visual fraction models or equation). - MP 4 and MP 5 Students are asked to "use visual fraction models or equations to represent the problem".

Element	Exemplar
Instructional Strategies	- Fraction multiplication should rely heavily on using visual models. - Build a conceptual understanding of how and why multiplication with fractions resizes through partitioning. - Use set models, number lines and area models while working with whole numbers. - Create a rectangle with fractional side lengths or visually demonstrate using the distributive property to multiply mixed numbers. (n.d., 2018) - Connecting visuals with operations. - Memorized procedures are likely to be forgotten or confused with other operations. - Compute with fractions flexibly and accurately. - An example of flexible thinking to solve a fraction multiplication problem is shown below. In 5th grade this student is using the Commutative Property to switch the numerators on the fractions and create a much easier problem. *5.NF.B.4 Model Examples*
Prerequisite Skills	- Understand multiplication with whole numbers - Understand fraction as part of a whole - Understand that multiplication is repeated addition - Apply repeated addition to unit fractions
Connections Within and Beyond Grade Level	Within: - Connect multiplying with whole numbers and multiplying with fractions. - Understand that the product may be larger or smaller than either or both of the factors. Beyond: - Connect multiplying fractions to multiplying decimals. - Connect multiplication concepts learned with whole number to fractions and decimals (rational). - Extend multiplying fractions to algebraic situations, percentages, ratios and proportions.
Instructional Examples/Lessons/Tasks	- Cornbread Fundraiser (Illustrative Mathematics) - Chavone's Bathroom Tiles (Illustrative Mathematics) - The Big Pad (3-Act Tasks)
Assessment Examples	- Sample SBAC Assessment Item 5.NF.B.4 SBAC Sample Assessment Items

Numbers and Operations - Fractions

Cluster

Apply and extend previous understandings of multiplication and division.

NVACS 5.NF.B.5 (Major Works)

Interpret multiplication as scaling (resizing), by:

- **5.NF.B.5.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.
- **5.NF.B.5.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 principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.fraction less than 1 results in a product smaller than the given number; and relating the

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students reason about and then compare the size of a products and factors without performing the indicated multiplication. - MP 3 Students explain why multiplying a given number by a fraction greater than one results in a product greater than the given number creating well-reasoned viable arguments, examples and visual models as evidence to support their argument. Students engage with each other's reasoning and critique the reasoning of others while deepening their own justifications and rational. Students also explain why multiplying a given number by a fraction less than one results in a product smaller than the given number and relate the principle of fraction equivalence. - MP 4 and MP 5 Students use visual models, tools and strategies to support explanations. - MP 6 Student arguments use precise and accurate mathematical terminology to express their conjectures and arguments.
Instructional Strategies	- Extend understanding of multiplication with whole numbers to include multiplication with fractions. - Common misconception: multiplication always creates greater numbers. - Build on student understanding of whole number multiplication, we can say that 3 x ½ , is "3 groups of ½ ,", "3 rows of ½ ", or even "3 half of a time" (jump halfway to 3 on a number line). - Interpret multiplication as scaling.

Element	Exemplar
Prerequisite Skills	- Understand multiplication with whole numbers - Understand fraction as part of a whole - Understand that multiplication is repeated addition - Apply repeated addition to unit fractions
Connections Within and Beyond Grade Level	Within: - Connect understandings of multiplying with whole numbers and multiplying with fractions - Understand that the product may be larger or smaller than either or both of the factors Beyond: - Connect multiplying fractions to multiplying decimals - Connect multiplication concepts learned with whole number to fractions and decimals (rational) - Extend multiplying fractions to algebraic situations, percentages, ratios and proportions
Instructional Examples/Lessons/Tasks	- Grass Seedlings (Illustrative Mathematics) - Reasoning about Multiplication (Illustrative Mathematics)
Assessment Examples	Sample SBAC Assessment Item 5.NF.B.5 SBAC Sample Assessment Items

Numbers and Operations - Fractions

Cluster

Apply and extend previous understandings of multiplication and division.

NVACS 5.NF.B.6 (Major Works)

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

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Students are asked to "Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers" in this standard. - MP 2 Students use contextual understandings (word problems) to create a mathematical model (visual fraction models or equation). - MP 4 and MP 5 Students are asked to "use visual fraction models or equations to represent the problem".
Instructional Strategies	- Engage in making sense of quantities and their relationships using various problem situations and represent mathematical problems using numerical expressions. - Work with multiplication word problems using all problem types/situations with whole numbers and fraction addition with like denominators. (n.d., 2018)
Prerequisite Skills	- Multiplication word problems using problem types/situations with whole numbers - Understand multiplication with whole numbers - Understand fraction as part of a whole - Understand that multiplication is repeated addition - Apply repeated addition to unit fractions
Connections Within and Beyond Grade Level	Within: - Connect understandings of multiplying with whole numbers and multiplying with fractions - Understand that the product may be larger or smaller than either or both of the factors Beyond: - Connect multiplying fractions to multiplying decimals - Connect multiplication concepts learned with whole numbers to fractions and decimals (rational) - Extend multiplying fractions to algebraic situations, percentages, ratios and proportions
Instructional Examples/Lessons/Tasks	[Half a Recipe](#) (Illustrative Mathematics)

Element   Exemplar

Assessment Examples	● [5.NF.B.6 SBAC Sample Assessment Items](#)

Numbers and Operations - Fractions

Cluster

Apply and extend previous understandings of multiplication and division.

NVACS 5.NF.B.7 (Major Works)

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

- **5.NF.B.7.a**
Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.
- **5.NF.B.7.b**
Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.
- **5.NF.B.7.c**
Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

Element	Exemplar
Standards for Mathematical Practice	● MP 1 Students reason about mathematics using real world problems. Students avoid "keyword" strategies and reason about what is happening and what this means mathematically choosing the appropriate operation and adjusting their approach as needed. ● MP 2 Students take contextualized situations and are able to transfer these using a mathematical model (equation or expression). ● MP 4 and MP 5 Students use visual fraction models and relationships to explore fraction ideas. ● MP 8 Students will identify attributes to classify shapes should create a graphic organizer to help them make sense of the hierarchy of shapes.

Element	Exemplar
Instructional Strategies	● Engage in division explorations with a whole number and a unit fraction including a non-zero whole number divided by a unit fraction and a fraction divided by a non-zero whole number. ● Rely on models and contextualized situations (real world problems). ● Engage in the actual modeling and/or representation of the division process. ● Use different strategies to decide whether answers make sense. ● Context plays a very important role in sense making. ● Students can more easily decide if their answer is reasonable through thoughtful modeling of the context of a problem.
Prerequisite Skills	● Understand division with whole numbers ● Understand fraction as part of a whole ● Understand and interpret remainders
Connections Within and Beyond Grade Level	Within: ● Connect visual representations and concrete models. Beyond: ● Connect dividing fractions to adding and dividing decimals. ● Use division concepts learned to connect to whole number to rational. ● Identity property of multiplication allows creation of equivalent fractions. ● Write and interpret numerical expressions.
Instructional Examples/Lessons/Tasks	● Painting a Room (Illustrative Mathematics) ● How Many Marbles? (Illustrative Mathematics) ● How Many Servings of Oatmeal? (Illustrative Mathematics)
Assessment Examples	● Sample SBAC Assessment Item 5.NF.B.7 SBAC Sample Assessment Items

Measurement and Data

Fifth graders will convert like measurement units within a given measurement system and continue to represent and interpret data. In this domain, students will center their learning on geometric measurement with a spotlight on understanding the concept of volume (Gojak and Miles, 2016).

Cluster

Convert like measurement units within a given measurement system.

NVACS 5.MD.A.1 (Supporting Works)

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.

Element	Exemplar
Standards for Mathematical Practice	• MP 2 Instead of just computing answers, students reason about both the relationship between fraction and decimal operations and the relationship between whole number computation and fraction/decimal computation. • MP 7 Students will discover the relationship of base-ten conversions within the metric system.
Instructional Strategies	• Solve real world problems involving conversions of metric and customary units. • Focus on the connection between fractions and decimals. • Provide activities to measure with all types of tools, rulers, yardsticks, tape measures, scales, cups, quarts, beakers, etc.
Prerequisite Skills	• Know relative sizes of measurement units within one system of units • Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit • Use the four operations to solve word problems
Connections Within and Beyond Grade Level	Within: • Add, subtract, multiply, and divide decimals to hundredths • Understand how powers of 10 affect decimal placement in a number
Instructional Examples/Lessons/Tasks	• [Converting Fractions of a Unit into a Smaller Unit](#) (Illustrative Mathematics) • [Convert Units Word Problems](#) (Khan Academy) • [Convert Metric Units Word Problems](#) (Khan Academy)

Element   Exemplar

Assessment Examples	- SBAC Sample Item 5.MD.A.1 SBAC Sample Assessment Items - Achieve the Core (Achieve the Core)

Measurement and Data

Cluster
Represent and interpret data.

NVACS 5.MD.B.2 (Supporting Works)
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.

Element	Exemplar
Standards for Mathematical Practice	- MP 2 Students will attend to the meaning of the measured objects and plots on the number line and will use operations involving fractions. - MP 5 Students will use a ruler to measure objects to the nearest ⅛, ¼, and ½ inch. Students use line plots and other tools/technology to reason about problem situations. - MP 6 Students will attend to precision with specific vocabulary to describe and analyze data of objects measured and displayed on line plots.
Instructional Strategies	- Allow students to measure 10 objects found in the classroom to the nearest one-eighth of an inch. Place these measurements on a line plot. When complete analyze the data. - Have students measure with liquid. Use the measurements from a beaker to create a line plot to show data. - Provide balance scales to measure mass of objects and use the measurements to create a line plot.
Prerequisite Skills	- Make a line plot to display a data set of measurements in fractions of a unit. - 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 $1/b$. - Understand how to place fractions on a number line.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: ● Understand how to multiply a fraction or whole number by a fraction. ● Solve real world problems involving multiplication of fractions and mixed numbers. ● Add and subtract fractions with unlike denominators. ● Understand that a set of data collected are used to answer a question and has a distribution. Beyond: ● Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
Instructional Examples/Lessons/Tasks	● Fractions on a Line Plot (Illustrative Mathematics) ● Interpret Dot Plots with Fraction Operations (Khan Academy)
Assessment Examples	● Sample SBAC Assessment Item 5.MD.B.2 SBAC Sample Assessment Items

Measurement and Data

Cluster
Geometric measurement: understand concepts of volume.

NVACS 5.MD.C.3 (Major Works)
Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- **5.MD.C.3.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.
- **5.MD.C.3.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.

Element	Exemplar
Standards for Mathematical Practice	• MP 5 Students use manipulatives to build cubes and rectangular prisms. • MP 6 Students will attend to precision with specific vocabulary to describe the measurement of volume.
Instructional Strategies	● Find volume of different sizes of rectangular boxes with the cube method. Use one cube to find the volume of a prism and then later check work using the filling method. ● Have students explain their thinking about how many layers would be needed to fill a box when just the bottom/base is filled. ● Recognize volume as an attribute of solid figures and zeros in on the understanding of volume measurement. ● A 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume ● Select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. (Gojak and Miles, 2016)
Prerequisite Skills	● Recognize volume as a three dimensional space. ● Plane figures can be covered without gaps or overlaps by *n* unit squares is said to have an area of n square units. ● A square with a side length 1 unit, called a unit square is said to have one square unit of area and can be used to measure area.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: - Explain that volume is equivalent to the area of the base of a rectangular prism multiplied by the height of the prism. - Use real world problems and apply the formulas V= $l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms. - Recognize volume as additive: calculate 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. - Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. - Apply the formulas $V = l \ x \ w \ x \ h$ and $V = B \ x \ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. Beyond: - Calculating volume of triangular prisms, spheres, cones, and cylinders.
Instructional Examples/Lessons/Tasks	- How Many Blocks Performance Task (Noyce Foundation) - Volume with Unit Cubes (Khan Academy)
Assessment Examples	- Sample SBAC Assessment Item 5.MD.C.3 SBAC Sample Assessment Items

Measurement and Data

Cluster

Geometric measurement: understand concepts of volume.

NVACS 5.MD.C.4 (Major Works)

Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

Element   Exemplar

Standards for Mathematical Practice	• MP 5 Use manipulatives to build rectangular prisms to discover volume.
Instructional Strategies	• Multiple opportunities are needed in order for students to reason and come up with the understanding of the volume before they are given the formula. • 5.MD.C.4 Model Examples
Prerequisite Skills	• A plane figure can be covered without gaps or overlaps to show area. • Recognize volume as an attribute of solid figures.
Connections Within and Beyond Grade Level	Within: • Relate volume to the operations of multiplication and addition. • Use formula to calculate the volume of rectangular prisms. Beyond: • Find the volume of a right rectangular prism with fractional edge lengths. • Calculate volume for spheres, triangular prisms, cones, and cylinders.
Instructional Examples/Lessons/Tasks	• Compare Volumes with Unit Cubes (Khan Academy)
Assessment Examples	• Sample SBAC Assessment Item 5.MD.C.4 SBAC Sample Assessment Items

Measurement and Data

Cluster
Geometric measurement: understand concepts of volume.

NVACS 5.MD.C.5 (Major Works)
Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

- **5.MD.C.5.a**
  Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
- **5.MD.C.5.b**
  Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
- **5.MD.C.5.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.

Element	Exemplar
Standards for Mathematical Practice	- MP 1 Solve real world problems involving volume. - MP 4 Apply the formula $V = l\ x\ w\ x\ h$ and $V = B\ x\ h$ for rectangular prisms with whole-number edge lengths. - MP 6 Use vocabulary to describe measurement of volume. - MP 7 Use structure of area to understand and apply it to volume.
Instructional Strategies	- Develop conceptual understanding of the volume of a rectangular prism. - Apply the formula to find volume of rectangular prisms. - Students understand the base of a rectangular prism is $B = l\ x\ w$, they can look and explain how many layers there are of the base in order to calculate the volume.
Prerequisite Skills	- Apply area and perimeter formulas for rectangles and squares. - Apply properties of operations (commutative, associative, and distributive) as strategies to multiply. - Recognize volume as an attribute of three-dimensional space. - Understand that when finding volume by using cubes there can be no overlaps or gaps. - Understand how to multiply.

Element	Exemplar
Connections Within and Beyond Grade Level	Within: ● Apply the formulas $V = l \times w \times h$ and $V = B \times h$ to find volumes of right rectangular prisms with fractional sides. Beyond: ● Calculate volume of triangular prisms, spheres, cones, and cylinders.
Instructional Examples/Lessons/Tasks	● Practice Volume 1 (Khan Academy) ● Volume Formula Intuition (Khan Academy) ● Cari's Aquarium (Illustrative Mathematics)
Assessment Examples	● Multiple the Area of the Base (SBAC Sample Item) ● Recognize Volume as Additive (SBAC Sample Item) ● Apply the Formula $L \times W \times H$ (SBAC Sample Item)

Geometry

In fifth grade, students will be thinking about the underlying structure of the coordinate system and learning how axes make it possible to locate points anywhere on a coordinate plane. At this grade level, students will also represent real-world and mathematical problems by graphing and interpreting points in the first quadrant of that attributes belonging to a category of two-dimensional shapes that belong to all subcategories of that category. As a result of this learning, students will develop a foundational understanding for future concepts with the coordinate system and also be able to classify and better understand geometric shapes (Gojak and Miles, 2016).

Cluster

Graph points on the coordinate plane to solve real-world and mathematical problems.

NVACS 5.G.A.1 (Additional Works)

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).

Element	Exemplar
Standards for Mathematical Practice	- MP 4 Identify important quantities and map them on a graph. - MP 5 Using graph paper and the coordinate plane to plot points. - MP 6 Using the coordinate plane accurately to plot points, understanding the *x*-axis and *y*-axis for quadrant one.
Instructional Strategies	- Vocabulary development including: *x*-axis, *y*-axis, *x*-coordinate, *y*-coordinate, origin, coordinate grid, ordered pair. - 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. - Describe given points using coordinate pairs and, conversely, use given coordinate pairs to plot points. - Graphing in the first quadrant of a coordinate plane.
Prerequisite Skills	- Finding points on a number line. - Representing data on a line plot.

Element	Exemplar
Connections Within and Beyond Grade Level	Beyond: • Work with all four quadrants. • Plot points on axes that uses scales other than 1. • Development of integer understanding. • Graphing linear and nonlinear functions. • Identify y-intercept. • Calculate slope. • Solve systems of equations by graphing.
Instructional Examples/Lessons/Tasks	• [Desmos Battle Boats](#) (Desmos) • [Battle Ship using Grid Paper](#) (Illustrative Mathematics) • [Graphing Points on the Coordinate Plane](#) (SBAC Digital Library- free account required)
Assessment Examples	• [Sample Smarter Balanced Assessment Item](#) (Achieve the Core)

Geometry

Cluster
Graph points on the coordinate plane to solve real-world and mathematical problems.

NVACS 5.G.A.2 (Additional Works)
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.

Element	Exemplar
Standards for Mathematical Practice	• MP 1 Solving real world problems require students to make sense of the data and points given. • MP 3 Constructing arguments to justify why the answer makes sense. • MP 4 Plotting data on graphs and interpreting the meaning on graphs. • MP 5 Using graph paper and coordinate plane.
Instructional Strategies	• Graph ordered pairs to analyze the data and solve a problem. • What is represented by the x-coordinates and y-coordinates? • How does the coordinate graph help to solve this problem?
Prerequisite Skills	• Graph and interpret points in the first quadrant of the coordinate grid. • Knowledge of directionality.
Connections Within and Beyond Grade Level	Within: • Identify y-intercept. Beyond: • Interpreting the solution of a system of equations in the context of the problem. • Interpreting what y-intercept and slope mean in context of a linear equation.
Instructional Examples/Lessons/Tasks	• [Meerkat Coordinate Plane Task](#) (Illustrative Mathematics)
Assessment Examples	• [Sample Smarter Balanced Assessment Item](#) (Achieve the Core)

Geometry

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

NVACS 5.G.B.3 (Additional Works)
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.

Element	Exemplar
Standards for Mathematical Practice	• MP 1 Explain correspondence between verbal descriptions. Draw diagrams of important features and relationships. • MP 3 Constructing arguments to justify why the shape fits or does not fit within the category. • MP 4 Analyze relationships to draw conclusions. • MP 6 Use clear definitions in discussions and in own reasoning.
Instructional Strategies	• Create a Venn diagram showing the classification of quadrilaterals. ○ [5.G.B.3 Model Examples](#)
Prerequisite Skills	• Understand shapes and shared attributes in different categories. • Classify two dimensional figures based on parallel lines, perpendicular lines or angle size.
Connections Within and Beyond Grade Level	Within: • Classify two-dimensional figures in a hierarchy based on properties. • Identify properties of different 3-dimensional figures. Beyond: • Apply area formulas for quadrilaterals.
Instructional Examples/Lessons/Tasks	• [Always, Sometimes, Never](#) (Illustrative Mathematics) • [Rectangles and Parallelograms](#) (Illuminations- requires NCTM membership)
Assessment Examples	• [Sample Smarter Balanced Assessment Item](#) (Achieve the Core)

Geometry

Cluster

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

NVACS 5.G.B.4 (Additional Works)

Classify two-dimensional figures in a hierarchy based on properties.

Element	Exemplar
Standards for Mathematical Practice	MP 1 Making sense of classifications and how they relate to forming hierarchy. MP 3 Constructing arguments to determine a hierarchy of two-dimensional shapes. MP 4 Analyze relationships to draw conclusions. MP 6 Use clear definitions in discussions and in own reasoning.
Instructional Strategies	● Create a hierarchy map of the 2 dimensional figures ○ 5.G.B.4 Model Examples
Prerequisite Skills	● Classifying shapes based on properties.
Connections Within and Beyond Grade Level	Within: ● Classify shapes in order to create a hierarchy. ● Identify characteristics of 3-dimensional figures. Beyond: ● Apply area formulas for quadrilaterals.
Instructional Examples/Lessons/Tasks	● What Do These Shapes Have in Common? (Illustrative Mathematics) ● What is a Trapezoid (Part 2)? (Illustrative Mathematics)
Assessment Examples	● Classify Two-Dimensional Figures Based on Properties (OpenEd)

Acknowledgements

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