



URBANDALE
COMMUNITY SCHOOL DISTRICT

5th Grade Mathematics

Learning Requirements & Proficiency Scales

What are grade level learning requirements and how should they be used?

Learning requirements are the student and parent/guardian friendly statement that indicates the knowledge, understandings, and skills students are expected to learn. In addition, educators communicate, post, and share course learning requirements with students and families in order to establish a compelling “why” and “what” within their classroom learning system.

Teachers use the learning requirements to guide their planning and assessment within their classroom. Individual and grade/content teams should use learning requirements daily to inform planning, delivery of instruction, and assessment within the professional learning process and individual actions. Finally, learning requirements were established from course/grade level standards by assessing each standard's relevance, endurance, appearance on assessments, and leverage. Therefore, these are the learning outcomes that are prioritized for the grade/course and therefore should occupy the most instructional time for both whole group, small group and individual intervention.

What are proficiency scales and how should they be used?

Proficiency scales are a structure that articulates levels of learning that aligns to the learning requirement. Each proficiency scale is unidimensional meaning it outlines the levels of learning related to a single skill, concept, or understanding. The fulcrum for the proficiency scale is the score of 3.0 level. When students demonstrate competence at the score of 3.0, we say they are proficient. The score of 2.0 content is necessary for students to be able to achieve proficiency and important for the teacher to instruct directly. The score of 4.0 content is advanced and typically requires students to apply the score of 3.0 content in novel situations that they did not receive direct instruction on in class. Score of 1.0 signifies that a student cannot demonstrate proficiency in any of the content independently, but can do so, at least partially, with aid and cueing. Finally, the score value of 0.0 signifies that even with help, the student cannot demonstrate even partial competence in any of the content the scale articulates.

Teachers should use proficiency scales individually and collectively in the following ways:

- To plan instruction paying specific attention to level 2.0 to identify foundational vocabulary, knowledge, understanding, and skills to execute.
- To communicate levels of proficiency with students so students understand how they go from learning to knowing and doing.
- To assess students during instruction and as a result of instruction.
- To assess students on formative and summative assessments.
- Collectively a grade or content team should use the proficiency scales within a learning requirement in the design of common formative assessments and to assess students proficiency on common formative assessments.

Grading for Learning Implementation Expectations

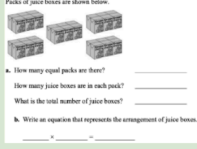
How are learning requirements and proficiency scales used to determine course/content area scores or grades?

A score (level of proficiency) for a learning requirement is determined by using a body of evidence. Best practice is to provide multiple opportunities for students to demonstrate their knowledge, understandings, and execution of skills. Evidence can be collected through observations, presentations, projects, interviews, written expressions, quick checks, and/or tests. The evidence opportunity is tiered 2.0-4.0 in order to allow the student to demonstrate their full level of proficiency. For efficiency purposes, teachers should first focus on grade level or the 3.0 level of proficiency to determine if the student is proficient and if they are not, then review the evidence for level 2.0 or 4.0. The last piece of evidence should hold the most weight when making a decision about a student's level of proficiency.

In the example below, the student has received scores for multiple pieces of evidence connected to one learning requirement. Since the evidence shows learning progress over time, the scores are not averaged. The last piece of evidence holds the most weight in determining the overall learning requirement proficiency because it is the most recent evidence of student learning.

Evidence	Score	Learning Requirement	Level of Proficiency
Cool Down	1.0	I can represent and solve multiplication and division problems.	3.0
Section Checkpoint	2.0		
Center Observational Data	3.0		
Unit Assessment	3.0		

The Anatomy of the Proficiency Scale

Grade 3 Mathematics		
Learning Requirement: I can represent and solve problems involving multiplication. Prioritized Standard: 3.OA.A.1 Interpreted products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.		
Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Develop strategies for multiplying two-digit numbers	When given the problem 8×37 , reason that $37 = 30 + 7$ and $30 = 3 \times 10$, then use the distributive properties to rewrite the problem as $8 \times 3 \times 10 + 8 \times 7$.
3.0 Meets Grade Level Standard	The student will: Represent multiplication problems using models or diagrams (for example, when given the problem, represent the problem as an array of objects arranged in rows and columns and identify the total number of objects as).	
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary array, factor, multiplication, multiply, product Perform basic processes such as: - Identify the components of a multiplication problem (factors, multiplication symbol, and product). - Describe multiplication as repeated addition or as groups of a factor. For example, describe the problem as sets of added together () or as "three fours." - Represent multiplication using groups of equal objects. For example, describe as representing the total number of objects in groups of objects each. - Represent multiplication using arrays of objects. For example, describe as representing the total number of objects in an array of rows and columns. - Identify the multiplication problem represented by a given model or diagram. For example, when given an array of objects arranged in rows and columns, explain that the array represents the problem.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Proficiency scales are designed to provide clarity to what is grade level and the knowledge, understanding, and skills necessary to meet grade level or 3.0. The score of 3.0 and 4.0 includes a focus statement that the teacher uses to know what to look for when assessing the piece of evidence. The Sample Performance Task provides an example of how that statement might manifest or show up. The Sample Performance Task could be used as an example to understand the rigor of grade level and the deeper level performance. The score of 4.0 is at a level with the content that requires students to make inferences and applications that go beyond what the teacher directly addresses in class. The score of 2.0 content contains a list of vocabulary terms and details that students should know to be able to demonstrate competence at the score of 3.0 level. The contents of level 2.0 should be used by teams to plan instruction that includes the vocabulary and content listed within it. If less than 80% of students are scoring a 2.0 or less on the content within a proficiency scale or reporting topic the teacher and/or team should provide whole class reteaching using what is outlined in 2.0. In addition, if a student has not reached a level of proficiency of a 3.0 the teacher and/or team should use the knowledge, understandings, and skills within the 2.0 to diagnose the need and match an supplemental intervention during the intervention block to support the student in reaching proficiency.

Grade 5 Learning Requirements & Proficiency Scales

Unit	Learning Requirements
Unit 1	<u>I can solve problems involving volume.</u>
	<u>I can write and interpret numerical expressions.</u>
Unit 2	<u>I can solve problems involving multiplication of fractions and mixed numbers.</u>
	<u>I can solve problems involving division of fractions.</u>
	<u>I can write and interpret numerical expressions.</u> **
Unit 3	<u>I can solve problems involving multiplication of fractions.</u> **
	<u>I can solve problems involving division of fractions.</u> **
Unit 4	<u>I can fluently solve problems involving multiplying multi-digit numbers.</u>
	<u>I can solve problems involving quotients of whole numbers with up to 4-digit dividends and 2-digit divisors.</u>
	<u>I can solve problems involving volume.</u> **
Unit 5	<u>I can read, write, compare, and round decimals.</u>
	<u>I can add and subtract decimals to hundredths.</u>
	<u>I can multiply and divide decimals to hundredths.</u>
Unit 6	<u>I can generalize place value understanding for whole numbers and decimals.</u>
	<u>I can solve problems involving multiplication of fractions.</u> **
	<u>I can solve problems involving addition and subtraction of fractions.</u>
	<u>I can solve problems involving measurement.</u>
Unit 7	<u>I can represent and solve problems by graphing points on the coordinate plane.</u>
	<u>I can classify two-dimensional figures based on their properties.</u>
	<u>I can generate and analyze patterns.</u>

** Repeated Learning Requirement

Grade 5 Reporting (3.0 level of proficiency)	Trimester 1		Trimester 2			Trimester 3	
Learning Requirement	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Solve problems involving volume							
Write and interpret numerical expressions							
Solve problems involving multiplication of fractions							
Solve problems involving division of fractions							
Fluently solve problems involving multiplying multi-digit numbers							
Solve problems involving quotients of whole numbers with up to 4-digit dividends and 2-digit divisors							
Read, write, compare, and round decimals							
Add and subtract decimals to hundredths							
Multiply and divide decimals to hundredths							
Generalize place value understanding for whole numbers and decimals							
Solve problems involving addition and subtraction of fractions							
Solve problems involving measurement							
Represent and solve problems by graphing points on the coordinate plane							
Classify two-dimensional figures based on their properties							
Generate and analyze patterns							

Learning Requirement: I can **solve problems involving volume.**

Prioritized Standard: 5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. (DOK 1,2)

- 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.
- Apply the formulas $V = l \times w \times h$ and $V = b \times h$ (where b stands for the area of the base) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
- 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 (composite figures), applying this technique to solve real world problems.

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Given the volume of a rectangular prism, determine the possible dimensions of the prism.	The volume of the rectangular prism is 120 cubic inches. What might the dimensions be?
3.0 Meets Grade Level Standard	The student will: - Use the associative property of multiplication to find the volume of a right rectangular prism with whole number side lengths and relate it to packing a solid with unit cubes - Apply the formulas $V = l \times w \times h$ and $V = B \times h$, and relate the formulas to a unit cube filled model - Calculate the volume of solid figures composed of two non-overlapping right rectangular prisms by decomposing the figure and adding the volumes of the two parts; apply this technique to solve real-world problems.	Cari is the lead architect for the city's new aquarium. All of the tanks in the aquarium will be rectangular prisms where the side lengths are whole numbers. - Cari's first tank is 4 feet wide, 8 feet long, and 5 feet high. How many cubic feet of water can her tank hold? - Cari knows that certain types of fish need at least 240 cubic feet of water in their tank. Create 3 separate tanks that hold exactly 240 cubic feet of water. - In the back of the aquarium, Cari realizes that the ceiling is only 10 feet high. She needs to create a tank that can hold exactly 100 cubic feet of water. Name one way that she could build a tank that is not taller than 10 feet.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: Base, length, width, height, unit cube, volume, cubic units, right rectangular prism Perform basic processes such as:	

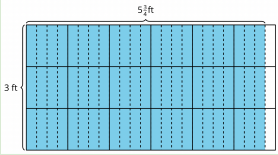
	• Explain that the volume of a three-dimensional figure is measured by calculating the number of unit cubes (cubes having a length, width, and height of 1 unit) that can fit inside the figure without gaps or overlaps. • Represent volume in cubic units. • Explain that the number of rows of unit cubes that will fit lengthwise in a right rectangular prism is equal to its length in equivalent units, the number of rows of unit cubes that will fit widthwise in the prism is equal to its width in equivalent units, and the number of layers of unit cubes that can be stacked vertically inside the prism is equal to its height in equivalent units. • Decompose and explain that the volume of a three-dimensional figure is equal to the sum of the volumes of the smaller three-dimensional figures that make up the larger figure.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.

Learning Requirement: I can write and interpret numerical expressions.

Prioritized Standards:

5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols, including expressions in which whole numbers and fractions appear. (DOK 1)

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 $\frac{1}{2}$ " as $\frac{1}{2} \times (8+7)$. Recognize that $3 \times (\frac{18}{19} + \frac{2}{3})$ is three times as large as $\frac{18}{19} + \frac{2}{3}$, without having to calculate the indicated sum or product. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Describe a situation that represents a given equation or expression. - Use knowledge of properties of operations, the relationships between operations, and the four operations to solve open-middle problems.	Using the digits 0 through 9, at most one time each, place a digit in each box to create two true statements: one where the value on each side of the equal sign is greater than 30 and one where it's less than 30. You may reuse all the digits for each equation. $\square\square \div (\square\square) = \square + \square \times \square$
3.0 Meets Grade Level Standard	The student will: - Evaluate numerical expressions. - Write numerical expressions to represent verbal descriptions and word problems.	Decide whether each equation is true or false. Explain or show your reasoning. $3 \div 7 = 3/7$. $18 \div 5 = 5/18$. $15 \div 6 = 2 \frac{1}{2}$. Select all of the expressions that represent the shaded area in square feet.  $3 + 5 \frac{3}{4}$ $3 \times 5 \frac{3}{4}$ $3 \times (5 + \frac{3}{4})$ $(3 \times 5) + \frac{3}{4}$ $3 \times 6 - (3 \times \frac{1}{4})$
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: bracket, braces, expression, parentheses Perform basic processes such as: - State the order of operations (parentheses, exponents, multiplication/division, addition/subtraction). - Describe the properties of operations (associative, commutative, and distributive). - Explain that expressions inside parentheses can themselves contain parentheses and that brackets are substituted for the outer pair of parentheses in such cases.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can **solve problems involving multiplication of fractions and mixed numbers.**

Prioritized Standards:

5.NF.B.4 Apply and extend earlier understandings of multiplication to multiply a fraction or whole number by a fraction. (This standard does not include mixed numbers)

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 $a \times q \div b$. Recognize that $1/b \times q = q \div b$ (dividing by a whole is the same as multiplying by the reciprocal. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)

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

5.NF.B.5 Interpret multiplication as scaling (resizing), by: (DOK 1, 2, 3)

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

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Find an unknown factor in a multiplication problem involving fractional factors.	$\frac{3}{4} \times \square = \frac{1}{3}$ What portion of $\frac{3}{4}$ of a whole is equal to $\frac{1}{3}$ of that same whole? Using the digits 1 to 9, at most 1 time each, place a digit in each box to make a true equation. $\frac{\square}{\square} \times \frac{\square}{\square} = \frac{2}{3}$
3.0 Meets Grade Level Standard	The student will: - Multiply fractions by fractions using a diagram or model or numerically $(\frac{a}{b} \times \frac{c}{d} = \frac{a \times c}{b \times d})$. - Solve real world problems involving multiplication of fractions.	Kelly is making $\frac{1}{2}$ of a recipe. The full recipe calls for $\frac{1}{4}$ cup flour. How many cups of flour should Kendra use?
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: fraction, denominator, numerator, equivalent fraction, whole number Perform basic processes such as: Explain that multiplying a whole number by a fraction is the same as taking a number of portions of that whole number.	

	• Explain that multiplying a fraction by a fraction is the same as taking a portion of the fraction. • Compare the size of a product of fractions to its factors without calculating the product. • Explain that multiplying a number by a value that is less than 1 represents taking a portion of the number and will result in a product that is smaller than the number. • Explain that multiplying a number by a value that is greater than 1 represents the sum of the number and additional instances or portions of the number and will result in a product that is larger than the number.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.

Learning Requirement: I can **solve problems involving division of fractions.**

Prioritized Standard: 5.NF.B.7 Apply and extend earlier understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (This standard does not include dividing fractions by fractions). (DOK 1,2)

- Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(\frac{1}{3}) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(\frac{1}{3}) \div 4 = \frac{1}{12}$ because $\frac{1}{12} \times 4 = \frac{1}{3}$.
- Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (\frac{1}{5}) = 20$ because $20 \times (\frac{1}{5}) = 4$.
- 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 $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ -cup servings are in 2 cups of raisins?

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Extend understanding of creating story contexts to include partitive and measurement types of division to vary problem types.	How are the quotients of $8 \div \frac{1}{4}$ and $16 \div \frac{1}{2}$ related? Justify your thinking with models, patterns, or words. Create two different types of story problems that could be represented by the equation $15 \div \frac{1}{4} = 60$.
3.0 Meets Grade Level Standard	the student will: - Divide a whole number by a unit fraction or a unit fraction by a whole number. - Justify solutions using visual models, drawings, and equations to represent the problem context. - Interpret context situations or write story contexts to represent division involving whole number and unit fractions.	Solve. Verify your answer using a number line. $8 \div \frac{1}{5}$ $\frac{1}{3} \div 6$ Sam bought 3 pounds of cheese. He wants to put $\frac{1}{3}$ of a pound in a bag. How many bags of cheese will Sam have? Write a story problem that matches the equation: $\frac{1}{3} \div 5$
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: quotient, dividend, divisor, unit fraction, non-unit fraction Perform basic processes such as: - Describe fractions, including fractions greater than one, as a number of equal portions of a whole. - Describe a division problem, especially a problem in which the dividend is smaller than the divisor, as a partitioning of the number of wholes specified by the dividend into the number of equal portions specified by the divisor.	

	• Interpret the fraction symbol as division. • Explain that the number of times a given unit fraction can fit into a single whole is equal to the denominator of the unit fraction. • Describe a division problem as asking the question, “How many or how much of the divisor is equal to the dividend?” • Explain that a whole number can be divided by a unit fraction by first determining how many of the unit fraction equal 1 and then multiplying that number by the whole number. • Explain that dividing a whole number by a unit fraction will produce a larger whole number. • Explain that dividing a unit fraction by a whole number will produce a smaller unit fraction. • Explain that, just like whole-number dividends, fractional dividends can be divided by whole-number divisors by partitioning the fraction into the number of equal portions specified by the divisor. • Partition a given unit fraction into a given number of equal portions and identify the size of one of those smaller portions in relation to the entire whole.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.

Learning Requirement: I can **fluently solve problems involving multiplying multi-digit numbers**.

Prioritized Standard: 5.NBT.B.5 Fluently multiply whole multi-digit numbers including using an algorithm. Algorithms may include the standard algorithm, partial products, area model. (DOK 1)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Explain how the order of the digits and changing the group size and size of groups affects the product. - Solve real-world, multiplicative contexts.	Explain what happens to the product if each factor is multiplied by 2? What happens to the product if one factor is doubled and the other factor is divided by 2? Use what you know about place value in the standard algorithm to explain your answer. (Is the product of 42×63 over or under 2,400?)
3.0 Meets Grade Level Standard	The student will: Multiply multi-digit whole numbers using an algorithm.	Solve. 938×24 $1,293 \times 374$
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: standard algorithm, factor, product, multiply, partial product Perform basic processes such as: - Calculate the product of any two one-digit whole numbers from memory. - Perform multiplication by representing problems using models, area models, or rectangular arrays. - Perform multiplication by reasoning about place value and the Associative Property. - Perform multiplication by decomposing multi-digit numbers into a sum of partial products.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can solve problems involving quotients of whole numbers with up to 4-digit dividends and 2-digit divisors.

Prioritized Standard: 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, including the standard algorithm. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Create real-world story problems involving 4-digit dividends and two-digit divisors.	Write a division problem that has a four-digit dividend and a two-digit divisor in which the quotient is an even number and there is no remainder.
3.0 Meets Grade Level Standard	The student will: - Find whole-number quotients and remainders using strategies that involve representations based on place value, properties of operations, and/or the relationship between multiplication and division. - Justify solutions through tools, equations, rectangular arrays, and/or area models.	Solve and justify your solution. $749 \div 7$ $64,000 \div 4$.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: quotient, remainder, dividend, divisor Perform basic processes such as: - Model division problems using appropriate tools. - Find all factor pairs for a given whole number below 100. - Explain that a remainder is the "left over" portion of a divisor that does not completely fit into the dividend and will always be smaller than the divisor.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can **generalize place value understanding for whole numbers and decimals.**

Prioritized Standards:

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. (DOK 1)

5.NBT.A.2 Explain and use patterns in the number of zeros of the product when multiplying a number by powers of 10 and use 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. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Solve word problem situations involving multiplication and division with powers of 10.	One gold nugget weighs 0.008 ounces. A second gold nugget weighs 0.8 ounces. How many times as much as the first nugget does the second nugget weigh? How many times as much as the second nugget does the first nugget weigh?
3.0 Meets Grade Level Standard	the student will: - Shift a decimal value in relation to its decimal point by multiplying or dividing it by a power of 10. - Explain 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.	What multiplication or division operation is necessary to convert 21.483 to: 2,148.3? 214.83? 0.21483? 2.1483?
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: decimal, decimal point, hundredths, place value, tenths, thousandths, value, whole number Perform basic processes such as: - Express a whole number as a decimal value. - Identify whole number and decimal place values.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

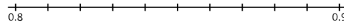
Learning Requirement: I can read, write, compare, and round decimals.

Prioritized Standards:

5.NBT.A.3 Read, write, and compare decimals to thousandths. (DOK 1)

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

5.NBT.A.4 Use place value understanding to round decimals to any place. For example, 5.43 rounded to the tenths is 5.4 because the last digit must be in the place the decimal is rounded to. (DOK 1)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Use knowledge of place value to solve open-middle problems and explain reasoning.	Use the digits 0–9 at most only once to create two decimal numbers, written to the thousandths, that both round to the same whole number. Explain your reasoning.
3.0 Meets Grade Level Standard	the student will: - Read, write, and compare decimal values to thousandths. - Round decimals to any place.	Locate and label 0.83, 0.85, and 0.89 on the number line.  Write the decimal 0.418 as a fraction, in words, and in expanded form. Compare using $<$, $>$, or $=$. 4.069 ____ 4.690 5.110 ____ 5.11 73.129 ____ 73.219 12.895 ____ 12.95 What is 9.893 rounded to the nearest tenth? What about to the nearest hundredth? Draw a number line if it is helpful.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: compare, decimal, expanded form, hundredth, place value, tenth, thousandth Perform basic processes such as: - Express decimal values as fractions or mixed numbers. - Express a decimal value in terms of a given decimal place. - Write decimal values in expanded form.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can **add and subtract decimals to hundredths**.

Prioritized Standard: 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. (DOK 1,2,3)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Explain why the standard algorithm for the addition and subtraction of whole numbers can be extended to the addition and subtraction of decimal values. - Analyze and explain another student's strategy. - Use knowledge of place value and addition/subtraction to solve open-middle problems.	Kiran finds the value of $35.16 - 18.79$ with these calculations. $18.79 + 0.21 = 19$ $19 + 16.16 = 35.16$ $16.16 + 0.21 = 16.37$ Explain why Kiran's Strategy works. Lin is trying to use the digits 1, 3, 4, 2, 5, and 6 to make 2 two-digit decimals whose sum is equal to 1. - Explain why Lin can not make 1 by adding together 2 two-digit decimal numbers made with these digits. - What is the closest Lin can get to 1? Explain how you know.
3.0 Meets Grade Level Standard	The student will: - Add and subtract decimal values to hundredths using concrete models, drawings, strategies based on place value and the relationship between addition and subtraction. - Relate strategies used to a written method and explain. - Solve problems in a real-world context with decimals to hundredths involving all problem situations and types.	Solve. $6.11 + 56.392 \quad 5.32 - 2.7$ $0.064 + 0.22 \quad 740.35 - 32.046$ Each week, Miley makes \$440.50, Niko makes \$650.35, Taylor makes \$771.25, and Sue makes \$1,099.20. - How much more does Nike earn than Miley in one week? - If Taylor and Miley both work for 2 weeks, how much more will Taylor earn? - How much money will Sue earn in a month? About how long will Miley have to work to earn the same amount?
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: place value, sum, difference, tenths, hundredths, thousandths Perform basic processes such as: - Use models and decimal notation to represent quantities with denominators of 10 and 100. - Express decimal values as fractions or mixed numbers. - Explain that decimal values must also be arranged so that the same places are aligned with each other. - Explain that "extra" zeros can be added to the end of a decimal value without changing its value.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can multiply and divide decimals to hundredths.

Prioritized Standard: 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. (DOK 1,2,3)

Level of Proficiency	Progression of Learning	Sample Performance Tasks										
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Solve real-world problems involving multiplication and division of decimals.	Noah places a handful of coins that weigh 30.19 grams into a coin sorting machine. Use the weight of each type of coin shown in the table to determine the number of each type of coin Noah might have placed in the coin sorting machine. <table><tr><th>Coin</th><th>Grams</th></tr><tr><td>penny</td><td>2.5</td></tr><tr><td>nickel</td><td>5.0</td></tr><tr><td>dime</td><td>2.26</td></tr><tr><td>quarter</td><td>5.67</td></tr></table>	Coin	Grams	penny	2.5	nickel	5.0	dime	2.26	quarter	5.67
Coin	Grams											
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dime	2.26											
quarter	5.67											
3.0 Meets Grade Level Standard	The student will: Multiply and divide decimals, using concrete models, strategies based on place value, and properties of operations.	Estimate, then solve. 7 x 0.26 1.5 x 14.6 0.94 x 4.01 5 ÷ 0.25 3.6 ÷ 0.3 1.38 ÷ 0.06 Shade 5 x 0.07 on the diagram. What is the value of 5 x 0.07? Explain or show your reasoning.										
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: decimal place value, dividend, divisor, hundredths, multiply, product, quotient, tenths Perform basic processes such as: - Explain that multiplying a number by a fraction or decimal value is the same as taking a number of portions of that number. - Estimate products and quotients of decimals to determine reasonability. - Explain that the multiplication of decimal values can be accomplished by arranging the factors according to the standard algorithm for whole-number multiplication, ignoring the decimal points and multiplying the factors as if they were whole numbers, counting the total number of digits in both factors that sit to the right of their decimal points, and then placing the decimal point in the product to the left of that same number of digits. - Explain that multiplying or dividing both the dividend and divisor of a problem by the same number will produce a new dividend and divisor that have the same quotient as the original dividend and divisor.											
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.											
0.0	Even with help, no understanding or skill demonstrated.											

Learning Requirement: I can solve problems involving addition and subtraction of fractions.

Prioritized Standards:

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, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)* (DOK 1)

5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. For example, 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, my friend and I each have some lemons. We need 1 cup of lemon juice to make lemonade. If I squeeze $\frac{1}{2}$ cup of lemon juice and my friend squeezes $\frac{2}{5}$ a cup of lemon juice how much lemon juice do we have? Is it enough? (DOK 1,2,3)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: Use knowledge of fractions and addition/subtraction to solve open-middle problems.	Put the numbers 2, 3, 4, and 5 in the four boxes so that the expression is as close to 1 as possible. +
3.0 Meets Grade Level Standard	The student will: - Calculate sums and differences of fractions and mixed numbers with unlike denominators using models, drawings, fraction equivalence, and benchmark fractions. - Solve word problems involving addition and subtraction of fractions with unlike denominators (referring to the same whole) using models, equations, and line plots, and estimate mentally to assess the reasonableness of the answer.	Find two different common denominators for $\frac{1}{5}$ and $\frac{1}{15}$. Use each common denominator to find the value of $\frac{1}{5} + \frac{1}{15}$. Draw a picture that shows your solution. After a whole day of selling slices of pie all a baker has left is $\frac{1}{4}$ of one pie, $\frac{5}{12}$ of a second pie, and $\frac{2}{9}$ of a third. A customer comes in and orders half a pie. Does the baker still have enough pie to fill the order? If he does, determine how much pie he will have left afterwards.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: fraction, numerator, denominator, addition, subtraction, estimation, reasonableness, part of a whole, visual model, sum, difference, equivalence, data, line plot Perform basic processes such as: - Add and subtract fractions with like denominators. - Convert mixed numbers to improper fractions. - Explain that addition and subtraction of fractions with unlike denominators can be accomplished by converting them to equivalent fractions with a common denominator. - Generate equivalent fractions. - Analyze and interpret line plots to solve problems using operations on fractions.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

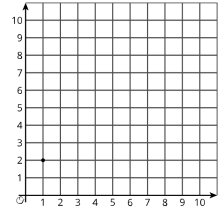
Learning Requirement: I can solve problems involving measurement.**Prioritized Standard:** 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems. For example, (convert 5 cm to 0.05 m). (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks										
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: • Create conversion ratios for converting measurements between unit types that are more than one step removed from each other. • Solve word problems that are more complex and/or open-ended.	You have a piggy bank with 1 kg of coins inside. Which coins would you like to be in the piggy bank? Explain or show your reasoning. <table><tr><th>coin</th><th>approximate weight (grams)</th></tr><tr><td>penny</td><td>2.5</td></tr><tr><td>nickel</td><td>5</td></tr><tr><td>dime</td><td>2.3</td></tr><tr><td>quarter</td><td>5.7</td></tr></table>	coin	approximate weight (grams)	penny	2.5	nickel	5	dime	2.3	quarter	5.7
coin	approximate weight (grams)											
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3.0 Meets Grade Level Standard	The student will: • Use measurement conversions to solve multi-step, real world problems.	Noah is making soup for a family reunion of 30 people. Each pot he makes contains 6 liters of soup. He uses bowls that hold 400 mL to serve the soup to his family. Select all the true statements. a. 30×400 mL equals the total number of milliliters for 30 bowls of soup. b. 30 bowls of soup hold 12,000 mL, which is the same as 12 L. c. Noah can multiply the number of bowls of soup by 1,000 to find the number of liters. d. If each family member has 2 bowls of soup, Noah needs to make 24 liters of soup. e. Noah would need to make 2 pots of soup for each family member to have 2 bowls of soup.										
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: centi-, deci-, kilo-, metric, milli-, convert Perform basic processes such as: • List US customary length measurement scale factors (12 inches = 1 foot, 3 feet = 1 yard, 5,280 feet = 1 mile). • List US customary weight measurement scale factors (16 ounces = 1 pound, 2,000 pounds = 1 ton). • List US customary capacity measurement scale factors (3 teaspoons = 1 tablespoon, 2 tablespoons = 1 fluid ounce, 8 fluid ounces = 1 cup, 2 cups = 1 pint, 2 pints = 1 quart, and 4 quarts = 1 gallon). • Explain that a measurement in a given unit type can be converted to a second, smaller unit type by multiplying the number of units in the measurement by the quantity of units of the smaller unit type that fit into one unit of the measurement's unit type.											

	Explain that a measurement in a given unit type can be converted to a second, larger unit type by multiplying the number of units in the measurement type by the portion of one unit of the larger unit type that is taken up by a single unit of the measurement's unit type.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.

Learning Requirement: I can **represent and solve problems by graphing points on the coordinate plane.**

Prioritized Standard: 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. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Design a situation that could be solved using a coordinate grid. - Investigate the effects of performing simple mathematical operations on x- and y-coordinates.	Use the coordinate plane to design a treasure map for an explorer to use to find your buried treasure. The graphed point represents the starting point of the treasure hunt. Draw a red X to mark the spot of the buried treasure.  What are three clues you can give to tell how the explorer can move to the treasure.
3.0 Meets Grade Level Standard	The student will: Represent real world mathematical problems by graphing points in the first quadrant of a coordinate plane.	Michael has \$30. During the summer, he charges \$10 to mow neighbors' yards to earn more money. If he saves his money, how much money will he have after mowing 4 yards, 8 yards, and 12 yards? Create a graph to show the relationship between the number of yards he mowed and the amount of money he saved.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: coordinate plane, coordinates, ordered pair, origin, point, x-axis, x-coordinate, y-axis, y-coordinate Perform basic processes such as: - Explain that a Cartesian coordinate plane is a graph that takes the shape of a two-dimensional grid defined by a horizontal number line known as the x-axis and a vertical number line known as the y-axis that meet at 0. - Explain that the values on the x- and y-axes with which a given point aligns are known as the point's x- and y-coordinates and are typically notated as an ordered pair in which the x-coordinate is listed first and the y-coordinate is listed second. - Identify the x- and y-coordinates of a given point on a coordinate plane. - Explain that a point can be plotted on a coordinate plane by beginning at the origin and first counting along the x-axis until reaching the value that corresponds to the point's x-coordinate, then counting	

	upward until reaching the location that aligns with the value on the y-axis that corresponds to the point's y-coordinate. - Describe the movements necessary to move between points on a coordinate plane. - Explain that the x- and y-coordinates of a point on a coordinate plane can be used to represent data from a mathematical or real-world context. - Interpret points on a coordinate plane in terms of their mathematical or real-world context.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.

Learning Requirement: I can **classify two-dimensional figures based on their properties.**

Prioritized Standard: 5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Use knowledge of shapes and their properties to solve problems and/or identify possible shapes to meet given criteria. - Investigate the properties of the categories of two-dimensional figures.	Jada cut a quadrilateral in half, from one vertex to the opposite vertex, and she got two isosceles triangles. What kind of quadrilateral could Jada have cut in half? Explain or show your reasoning. Explain or show why opposite angles of a parallelogram will always be congruent.
3.0 Meets Grade Level Standard	The student will: Classify two-dimensional figures based on their properties.	Select all the true statements. - All squares are rhombuses. - All rectangles are parallelograms. - All parallelograms are squares. - All squares are parallelograms. - All rectangles are squares. For each false statement, draw a counterexample.
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary: acute, angle, closed, concave, convex, figure, irregular, obtuse, open, parallel, perpendicular, polygon, regular, right Perform basic processes such as: - Explain that two-dimensional figures can be classified based on their properties. - Identify parallel and perpendicular lines. - Identify acute, right, and obtuse angles. - Explain that the classification of two-dimensional figures is hierarchical, and that the properties belonging to a particular category also belong to all subcategories of that category. - List subcategories of quadrilaterals and their properties.	
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.	
0.0	Even with help, no understanding or skill demonstrated.	

Learning Requirement: I can **generate and analyze patterns**.

Prioritized Standard: 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; explain informally why this is so. 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. (DOK 1,2)

Level of Proficiency	Progression of Learning	Sample Performance Tasks
4.0 Exceeds Grade Level Standard	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught. The student will: - Create two or more rules that would generate a given number in the patterns. Explain why both rules generate the given number. - Predict ways in which a graph of the relationship between two numerical patterns might change if the relationship were altered in a given way.	Create two different rules that will produce the number 35 in the patterns they generate. Rule 1: Start at _____. Add _____. Rule 2: Start at _____. Add _____. Will your rules ever produce the same number again? If so, what number will they share next? Explain.
3.0 Meets Grade Level Standard	The student will: - Analyze the relationships between numerical patterns. - Use a coordinate plane to analyze the relationships between numerical patterns.	Cora and Cecilia each use chalk to make their own number patterns on the sidewalk. They make each of their patterns 10 boxes long and line their patterns up so they are next to each other. Cora puts a 0 in her first box and decides that she will add 3 every time to get the next number. Cecilia puts 0 in her first box and decides that she will add 9 every time to get the next number. a. Complete each girl's sidewalk pattern. b. How many times greater is Cecilia's number in the 5th box than Cora's number in the 5th box? What about the numbers in the 8th box? The 10th box? c. What patterns do you notice in your answer for part b? Why do you think that pattern exists? d. If Cora and Cecilia kept their sidewalk patterns going, what number would be in Cora's box when Cecilia's corresponding box shows 153?
2.0 Approaching Grade Level Standard	The student will recognize or recall specific vocabulary:: table of values, sequence, coordinate plane, ordered pair Perform basic processes such as:	

	• Generate a sequence of numbers when given a starting number and a simple rule. • Identify possible relationships between two values. • Identify the rule that generated a given sequence of numbers. • Identify relationships between numerical patterns. • Plot points on a coordinate plane. • Determine the horizontal or vertical distance between two points on a coordinate plane. • Create ordered pairs from two sequences of numbers.
1.0 Beginning	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.
0.0	Even with help, no understanding or skill demonstrated.