5th Grade Mathematics

Multi-Digit Whole Number and Decimal Fraction Operations

Unit 2 Pacing Calendar - Eureka

ORANGE PUBLIC SCHOOLS

OFFICE OF CURRICULUM AND INSTRUCTION

OFFICE OF MATHEMATICS

From the New Jersey Student Learning Standards:

In **Grade 5**, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1- unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

Yearlong Pacing Guide
Grade 5

Grade	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
5	Unit 1 5.NBT	Unit 2 5.NBT		Unit 3 5.NF	Unit 4 5.NF		Unit 5 5.MD		Unit 6 5.OA & 5.G	
6	Unit 1 6.G	Unit 2 6.RP	Unit 3 6.RP	Unit 4 6.NS	Unit 5 6.NS		Unit 6 6.EE	Unit 7 6.NS	Unit 8 6.SP	
7	Unit 1 7.G	Unit 2 7.RP	Unit 3 7.G	Unit 4 7.RP	Unit 5 7.NS	Unit 6 7.EE		Unit 7 7.G	Unit 8 7.SP	
8	Unit 1 8.G	Unit 2 8.G	Unit 3 8.EE	Unit 4 8.EE	Unit 5 8.F		Unit 6 8.SP	Unit 7 8.EE	Unit 8 8.G	

Unit 1	**Number & Ops in Base Ten:** Place Value & Decimal Fractions	Unit 2	**Number & Ops in Base Ten:** Multi-Digit Whole Numbers & Decimal Fraction Operations	Unit 3	**Number & Ops-Fractions:** Addition & Subtraction of Fractions
Unit 4	**Number & Ops-Fractions:** Multiplication & Division of Fractions	Unit 5	**Measurement & Data:** Addition & Multiplication with Volume & Area	Unit 6	**Algebraic Thinking / Geometry:** Problem Solving w/ Coordinate Plane

2019-2020 Grade 5 (Eureka)					
Quarter 1		**Quarter 2**	**Quarter 3**		**Quarter 4**
Unit 1/ Mod 1	Unit 2 / Mod 2	Unit 3 / Mod 3	Unit 4 / Mod 4	Unit 5 / Mod 5	Unit 6 / Mod 6
5.NBT.3a(M) 5.NBT.3b(M) 5.NBT.4(M)	5.NBT.1(M) 5.NBT.2(M) 5.NBT.5(M) 5.NBT.6(M) 5.NBT.7(M)	5.NF.1(M) 5.NF.2(M)	5.NF.3(M) 5.NF.4a(M) 5.NF.5a(M) 5.NF.5b(M) 5.NF.6(M) 5.NF.7a(M) 5.NF.7b(M) 5.NF.7c(M)	5.NF.4b(M) 5.MD.3a(M) 5.MD.3b(M) 5.MD.4(M) 5.MD.5a(M) 5.MD.5b(M) 5.MD.5c(M)	5.OA.3(A) 5.G.1(A) 5.G.2(A)
20 Days	35 Days	22 Days	38 Days	25 Days	40 Days
Oct. 7	Dec. 4	Jan. 15	March 20	May 4	Jun. 19

Major Work Supporting Content Additional Content

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I. Unit Overview

In Module 1, students explored the relationships of adjacent units on the place value chart to generalize whole number algorithms to decimal fraction operations. In Module 2, students apply the patterns of the base ten system to mental strategies and the multiplication and division algorithms.

Topics A through D provide a sequential study of multiplication. To link to prior learning and set the foundation for understanding the standard multiplication algorithm, students begin at the concrete–pictorial level in Topic A. They use place value disks to model multi-digit multiplication of place value units. They then round factors in Lesson 2 and discuss the reasonableness of their products. Throughout Topic A, students evaluate and write simple expressions to record their calculations using the associative property and parentheses to record the relevant order of calculations. In Topic B, place value understanding moves toward understanding the distributive property via area models, which are used to generate and record the partial products of the standard algorithm. Topic C moves students from whole numbers to multiplication with decimals, again using place value as a guide to reason and make estimations about products. In Topic D, students explore multiplication as a method for expressing equivalent measures. Topics E through H provide a similar sequence for division. Topic E begins concretely with place value disks as an introduction to division with multi-digit whole numbers

II. Pacing Guide

Activity	New Jersey State Learning Standards (NJSLS)	Estimated Time (Blocks)
Topic A- Mental Strategies for Multi-Digit Whole Number Multiplication (Lessons 1 -2)	5.NBT.1; 5.NBT.2	2
Topic B- The Standard Algorithm for Multi-Digit Whole Number Multiplication (Lessons 3-9)	5.OA.1; 5.OA.2; 5NBT.5	7
Topic C- Decimal Multi-Digit Multiplication (Lessons 10-12)	5.NBT.7	3
Topic D- Measurement Word Problems with Whole Number & Decimal Multiplication (Lessons 13-15)	5.NBT.3; 5.NBT.7; 5.MD.1	3
Mid- Module Assessment (Topics A-D) *Optional*	5.NBT.1; 5.NBT.2; 5.NBT.5; 5.NBT.6; 5.NBT.7; 5.OA.1; 5.OA.2	½
Unit/Module 2 Return/ Remediation or Further Application	5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4	2
Topic E- Mental Strategies for Multi-Digit Whole Number Division (Lessons 16-18)	5.NBT.1; 5.NBT.2; 5.NBT.6	3
Topic F- Partial Quotients and Multi-Digit Whole Number Division (Lessons 19-23)	5.NBT.6	5
Topic G- Partial Quotients and Multi-Digit Decimal Division (Lessons 24-27)	5.NBT.2; 5.NBT.7	4
Topic H- Measurement Word Problems with Multi-Digit Division (Lessons 28-29)	5.NBT.6; 5.NBT.7	2
Unit/Module 2 Return/ Remediation or Further Application	5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4; 5.NBT.7	2 ½
End-of-Module Assessment (Topics A-H) *Optional*	5.NBT.1; 5.NBT.2; 5.NBT.5; 5.NBT.6; 5.NBT.7; 5.OA.1; 5.OA.2; 5.MD.1	½
Performance Task 1	5.NBT.2	½
Total Time		**35 Blocks**

Major Work Supporting Content Additional Content

III. Pacing Calendar

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 1)*.

OCTOBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 1)*.

NOVEMBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

IV. PARCC Assessment Evidence Statements

Type I Type II Type III

NJSLS	Evidence Statement	Clarification	Math Practices	Calculator ?
5.NBT.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.	i) Tasks have "thin context" 2 or no context. ii) Tasks involve the decimal point in a substantial way (e.g., by involving a comparison of a tenths digit to a thousandths digit or a tenths digit to a tens digit).	MP.2 MP.7	No
5.NBT.2	Use whole-number exponents to denote powers of 10.	i) For the explain aspect of 5.NBT.2, see 5.C.3	MP.7	No
5.NBT.3a	Read, write and compare decimals to the thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + 9 x (1/100) + 2 x (1/1000).	i) Tasks have "thin context" or no context. ii) Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.	MP.7	No
5.NBT.3a	Read, write and compare decimals to the thousandths. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	i) Tasks have "thin context" or no context. ii) Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.	MP.7	No
5.NBT.4	Use place value understanding to round decimals to any place.	i) Tasks have "thin context" or no context.	MP.2	No

5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	i) Tasks assess accuracy. The given factors are such as to require an efficient/ standard algorithm (e.g., 26 × 4871). ii) Factors in the task do not suggest any obvious ad hoc or mental strategy (as would be present for example in a case such as 7250 ×40). iii) Tasks do not have a context. iv) For purposes of assessment, the possibilities are 1-digit x 2-digit, 1-digit x 3- digit, 2-digit x 3-digit, or 2-digit x 4-digit v) Tasks are not timed.	-	No
5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	i) For the illustrate/ explain aspect of 5.NBT.6, see 5.C.1-1, 5.C.2-1, and 5.C.4-3 ii) Tasks involve 3- or 4-digit dividends and one- or two-digit divisors.	MP.1 MP.5	No
5.NBT.7-1	Add two 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	i) Tasks do not have a context. ii) Only the sum is required. For the explain aspect of 5.NBT.7-1, see 5.C.1-2, 5.C.2-2, and 5.C.4-4 explanations are not assessed here. iii) Prompts may include visual models, but prompts must also present the addends as numbers, and the answer sought is a number, not a picture. iv) Each addend is	MP.5	No

		greater than or equal to 0.01 and less than or equal to 99.99. v) 20% of cases involve a whole number—either the sum is a whole number, or else one of the addends is a whole number presented without a decimal point. (The addends cannot both be whole numbers.)		
5.NBT.7-2	Subtract two 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.	i) Tasks do not have a context. ii) Only the difference is required. For the explain aspect of 5.NBT.7-2, see 5.C.1-2, 5.C.2-2, 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the subtrahend and minuend as numbers, and the answer sought is a number, not a picture. iv) The subtrahend and minuend are each greater than or equal to 0.01 and less than or equal to 99.99. Positive differences only. (Every included subtraction problem is an unknown-addend problem included in 5.NBT.7-1.) v) 20% of cases involve a whole number—either the difference is a whole number, or the subtrahend is a whole number presented without a decimal point, or the minuend is a whole number presented without a decimal point. (The subtrahend and minuend cannot both be whole numbers.)	MP.5 MP.7	No

5.NBT.7-3	Multiply tenths with tenths or tenths with 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.	i) Tasks do not have a context. ii) Only the product is required. For the explain aspect of 5.NBT.7-3, see 5.C.1-2, 5.C.2-2, and 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the factors as numbers, and the answer sought is a number, not a picture. iv) Each factor is greater than or equal to 0.01 and less than or equal to 99.99.The product must not have any non-zero digits beyond the thousandths place. (For example, 1.67 x 0.34 = 0.5678 is excluded because the product has an 8 beyond the thousandths place; cf. 5.NBT.3, and see p. 17 of the Number and Operations in Base Ten Progression document.) v) Problems are 2-digit x 2-digit or 1-digit by 3- or 4-digit. (For example, 7.8 x 5.3 or 0.3 x 18.24.) vi) 20% of cases involve a whole number—either the product is a whole number, or else one factor is a whole number presented without a decimal point. (Both factors cannot both be whole numbers.	MP.5 MP.7	No

5.NBT.7-4	Divide in problems involving tenths and/or 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.	i) Tasks do not have a context. ii) Only the quotient is required. For the explain aspect of 5.NBT.7-4, see 5.C.1-2, 5.C.2-2, 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the dividend and divisor as numbers, and the answer sought is a number, not a picture. iv) Divisors are of the form XY, X0, X, X.Y, 0.XY, 0.X, or 0.0X (cf. 5.NBT.6), where X and Y represent non-zero digits. Dividends are of the form XY, X0, X, XYZ.W, XY0.Z, X00.Y, XY.Z, X0.Y, X.YZ, X.Y, X.0Y, 0.XY, or 0.0X, where X, Y, Z, and W represent non-zero digits. v) Quotients are either whole numbers or else decimals terminating at the tenths or hundredths place. (Every included division problem is an unknown-factor problem included in 5.NBT.7-3.) vi) 20% of cases involve a whole number—either the quotient is a whole number, or the dividend is a whole number presented without a decimal point, or the divisor is a whole number presented without a decimal point. (If the quotient is a whole number, then neither the divisor nor the dividend can be a whole number.)	MP.5 MP.7	No

5.MD.1-1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m).	-	MP.5 MP.6	No
5.MD.1-2	Solve multi-step, real world problems requiring conversion among different-sized standard measurement units within a given measurement system.	i) Multi-step problems must have at least 3 steps.	MP.1 MP.6	No
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	i) Expressions have depth no greater than two, e.g., $3\times[5 + (8 \div 2)]$ is acceptable but $3\times[5 + (8 \div \{4-2\})]$ is not.	MP.7	No
5.OA.2-1	Write simple expressions that record calculations with numbers. For example, express the calculation “add 8 and 7, then multiply by 2” as 2 x (8 +7).	-	MP.7	No
5.OA.2-2	Interpret numerical expressions without evaluating them. For example, recognize that 3 x (18932 + 921) is three times as large as 18932 + 921 without having to calculate the indicated sum or product.	-	MP.7	No
5.C.3	Reason about the place value system itself. Content Scope: Knowledge and skills articulated in 5.NBT.A	ii) Tasks do not involve reasoning about place value in service of some other goal (e.g., to multiply multi-digit numbers). Rather, tasks involve reasoning directly about the place value system, in ways consistent with the indicated content scope	MP.3 MP.6 MP.7	No

5.C.1-2	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 5.NBT.7	i) Tasks do not have a context. ii) Students need not use technical terms such as commutative, associative, distributive, or property. iii) Unneeded parentheses should not be used. For example, use 4 + 3 x 2 rather than 4 + (3 x 2).	MP.3 MP.6 MP.7 MP.8	No
5.C.2-1	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NBT.6	-	MP.3 MP.5 MP.6 MP.7	No
5.C.2-2	Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NBT.7	-	MP.3 MP.6 MP.7	No
5.C.3	Reason about the place value system itself. Content Scope: Knowledge and skills articulated in 5.NBT.A	i) Tasks do not involve reasoning about place value in service of some other goal (e.g., to multiply multi-digit numbers). Rather, tasks involve reasoning directly about the place value system, in ways consistent with the indicated content scope.	MP.3 MP.6 MP.7	No
5.C.4-3	Base arithmetic explanations/ reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NBT.6	-	MP.3 MP.5 MP.6	No

5.C.4-4	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NBT.7	-	MP.3 MP.5 MP.6	No
5.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding. ii) Multi-step problems must have at least 3 steps. iii)For purposes of assessment, the possibilities for multiplication are 1- digit x 2-digit, 1-digit x 3-digit, 2-digit x 3-digit, 2-digit x 4-digit, or 3-digit x 3-digit.	MP.4	No
5.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in 4.OA, 4.NBT, 4.NF, 4.MD	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to Grade 5. ii) Multi-step problems must have at least 3 steps.	MP.4	No

V. Differentiated Instruction

Pacing

If pacing is a challenge, consider the following modifications and omissions. Depending on students' strengths, consider consolidating Lessons 5 and 6. In Lesson 5, omit Problem 1 of the Concept Development, and move directly into renaming with the algorithm after Problem 2. Use the Problem Set from Lesson 6 for independent student practice. Consider consolidating Lessons 7 and 8 as well. Ask students to estimate the product beginning with the Concept Development of Lesson 7, and then use the Problem Set from Lesson 8 for student practice. Similarly, Lessons 11 and 12 can also be consolidated. Use estimation from the outset, and have students practice with the Problem Set from Lesson 12.

It is not recommended to omit any lessons from Topic D as it is a foundation for work later in the year. Students convert measurement units from small to large and from large to small using multiplication. This significantly expedites their understanding of and fluency with conversion and fraction multiplication as the year continues. In Lesson 14, students multiply whole numbers by unit fractions, which they learned to do in Grade 4 Module 5. If necessary, consider moving the fluency activity, "Multiply Unit Fractions," from Lesson 14 to Topic C to provide a few extra days of practice prior to beginning Lesson 14.

Scaffolds

The Common Core State Standards for Mathematics require that "all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post school lives." The writers of A Story of Units agree and feel strongly that accommodations cannot be just an extra set of resources for particular students. Instead, scaffolding must be folded into the curriculum in such a way that it is part of its very DNA. Said another way, faithful adherence to the modules IS the primary scaffolding tool. See *III. The Common Core Approach to Differentiating Instruction (Pg. 14)* for additional information.

Use the links below for support with specific groups of learners.

Scaffolds for English Language Learners (Pg. 16-17)

Scaffolds for Students with Disabilities (Pg. 17-18)

Scaffolds for Students Performing Below Grade Level (Pg. 19)

Scaffolds for Students Performing Above Grade Level (Pg. 20)

Scaffolding Instruction for English Language Learners: A Resource Guide for Mathematics

VI. VOCABULARY

Term	Definition
Conversion Factor	The factor in a multiplication sentence that renames one measurement unit as another equivalent unit, e.g., 14 x (1in)- 14 x (112ft); 1 in and 112 ft are the conversion factors.
Decimal Fraction	A proper fraction whose denominator is a power of 10.
Multiplier	A quantity by which a given number—a multiplicand—is to be multiplied.
Parentheses	The symbols used to relate order of operations ().
Decimal	A fraction whose denominator is a power of ten and whose numerator is expressed by figures placed to the right of a decimal point
Digit	Any of the numbers 0 to 9.
Divisor	The number by which another number is divided
Equation	A statement that two expressions are equal (e.g., 3 × ___ = 12, 5 × b =20, 3 + 2 = 5).
Equivalence	A state of being equal or equivalent.
Equivalent Measures	e.g., 12 inches = 1 foot; 16 ounces = 1 pound
Estimate	An approximation of the value of a quantity or number.
Exponent	The number of times a number is to be used as a factor in a multiplication expression.
Multiple	A number that can be divided by another number without a remainder like 15, 20, or any multiple of 5.
Pattern	A systematically consistent and recurring trait within a sequence.
Product	The result of multiplying numbers together.
Quotient	The answer of dividing one quantity by another.
Remainder	The number left over when one integer is divided by another.
Renaming	Decomposing or composing a number or units within a number
Rounding	Approximating the value of a given number
Unit Form	Place value counting, e.g., 34 stated as 3 tens 4 ones

VII. Assessment Framework

Unit 2 Assessment Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Mid-Module Assessment (After Topic D - Optional) *Eureka Math*	5.NBT.1 , 5.NBT.2, 5.NBT.3, 5.NBT.5, 5.NBT.7, 5.OA.1, 5.OA.2; 5.MD.1	½ Block	Individual	Yes
End-of-Module Assessment (After Topic H - Optional) *Eureka Math*	5.NBT.1 , 5.NBT.2 5.NBT.3, 5.NBT.4, 5.NBT.5, 5.NBT.6 5.NBT.7, 5.OA.1, 5.OA.2, 5.MD.1	½ Block	Individual	Yes

Unit 2 Performance Assessment Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Unit 2 Performance Task 1 (Late December) *Veronica's Statement*	5.NBT.1	½ Block	Individual w/ Interview Opportunity	Yes; Rubric
Unit 2 Performance Task Option 1 (Optional) *John's Canvas*	5.NBT.7	Teacher Discretion	Teacher Discretion	Yes, if administered

Name _____ Block _____ Date _____

Veronica's Statement (NJSLS 5.NBT.1)

In class Veronica told her teacher that when you multiply a number by 10, you just always add 0 to the end of the number. Think about her statement (conjecture), then answer the following questions.

- When does Veronica's statement (conjecture) work?
- When doesn't Veronica's statement (conjecture) work?
- Is the opposite true? When you divide a number by 10, can you just remove a 0 from the end of the number? When does that work? When doesn't that work?
- Rewrite Veronica's statement (conjecture) so that it is true for ALL numbers.
- Write a statement (conjecture) about what happens when you divide a number by 10.
- Rewrite your statement (conjecture) again so that it applies to other powers of 10.
- Explain how these statements (conjectures) are related to place value. (HINT: Think about the decimal point!)

5th Grade Veronica's Statement Name: _____ Date: _____

NJSLS: 5.NBT.1 Type:_____ Teacher: _____

Unit 2 Performance Task 1 PLD Rubric

SOLUTION:

- Student explains that Veronica's conjecture is only true for whole numbers and will not work for decimals.
- Student explains that the opposite (dividing by 10 and removing a 0) will only work for whole numbers that end in 0.
- Student generates a conjecture about multiplying by 10 that is true for all numbers.
- Student adjusts their conjecture so that it applies to other powers of 10.
- Student's explanation includes a description of how the decimal point moves when you multiply or divide by a power of 10.

Level 5: Distinguished Command	**Level 4: Strong Command**	**Level 3: Moderate Command**	**Level 2: Partial Command**	**Level 1: No Command**
All parts correct • Student explains that Veronica's conjecture is only true for whole numbers and will not work for decimals. • Student explains that the opposite (dividing by 10 and removing a 0) will only work for whole numbers that end in 0. • Student generates a conjecture about multiplying by 10 that is true for all numbers. • Student adjusts their conjecture so that it applies to other powers of 10. Student's explanation includes a description of how the decimal point moves when you multiply or divide by a power of 10.	All parts correct but explanation contains minor errors • Student explains that Veronica's conjecture is only true for whole numbers and will not work for decimals. • Student explains that the opposite (dividing by 10 and removing a 0) will only work for whole numbers that end in 0. • Student generates a conjecture about multiplying by 10 that is true for all numbers. • Student adjusts their conjecture so that it applies to other powers of 10. Student's explanation includes a description of how the decimal point moves when you multiply or divide by a power of 10.	2 parts incorrect • Student explains that Veronica's conjecture is not always correct and gives some examples of when it will and won't work. • Student rewrites Veronica's conjecture but it may not be true of all numbers. • Student has difficulty generating conjectures for dividing by 10 and for working with other powers of 10. Student exhibits some sound and some faulty reasoning. Student makes some connection to place value, but explanation does not refer to the movement of the decimal point.	Limited Performance • Student is unable to explain why Veronica's conjecture is incorrect. • Student is unable to generate a conjecture that is correct for all numbers, or adjust the conjecture so that it applies to division and other powers of 10. Student is unable to explain how the task relates to place value.	No parts correct The student shows no work or justification.

Name _____ Block _____ Date _____

John's Canvas (NJSLS 5.NBT.7)

John is purchasing a piece of canvas on which to paint a self-portrait. The canvas is 4.4 feet wide and 2.05 feet long. In order to determine how much paint he needs for his background color, John wants to know the area of his canvas.

1) What is the area of the canvas?

2) In order to frame the canvas, John needs to know the perimeter of the canvas. What is its perimeter?

3) John decides the canvas is too big, so he cuts it in half. What are the new area and perimeter of his canvas?

IX. 21st Century Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

For additional details see **21st Century Career Ready Practices** .

References

"Eureka Math" *Great Minds.* 2018 < https://greatminds.org/account/products>