

5th Grade Mathematics

Place Value and Decimal Fractions

Unit 1 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' understanding of the patterns in the base ten system are extended from Grade 4's work with place value of multi-digit whole numbers and decimals to hundredths to the thousandths place. In Grade 5, students deepen their knowledge through a more generalized understanding of the relationships between and among adjacent places on the place value chart, e.g., 1 tenth times any digit on the place value chart moves it one place value to the right. Toward the module's end students apply these new understandings as they reason about and perform decimal operations through the hundredths place.

II. Pacing Guide

| Activity | New Jersey State Learning Standards (NJSL) | Estimated Time (Blocks) |
|--|---|-------------------------|
| Topic A: Multiplicative Patterns on the Place Value Chart (Lessons 1 -4) | 5.NBT.1; 5.NBT.2; 5.MD.1 | 4 |
| Topic B- Decimal Fractions and Place Value Patterns (Lessons 5-6) | 5.NBT.3 | 2 |
| Topic C- Place Value and Rounding Decimal Fractions (Lessons 7-8) | 5.NBT.4 | 2 |
| Mid- Module Assessment (Topics A-C) <i>Optional</i> | 5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4 | ½ |
| Unit/Module 1 Return/ Remediation or Further Application | 5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4 | 1 |
| Topic D- Adding and Subtracting Decimals (Lessons 9-10) | 5.NBT.2; 5.NBT.3; 5.NBT.7 | 2 |
| Topic E- Multiplying Decimals (Lessons 11-12) | 5.NBT.2; 5.NBT.3; 5.NBT.7 | 2 |
| Topic F- Dividing Decimals (Lessons 13-16) | 5.NBT.3; 5.NBT.7 | 4 |
| Unit/Module 1 Return/ Remediation or Further Application | 5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4; 5.NBT.7 | 1 |
| End-of-Module Assessment (Topics A-F) <i>Optional</i> | 5.NBT.1; 5.NBT.2; 5.NBT.3; 5.NBT.4; 5.NBT.7 | ½ |
| Performance Task 1 | 5.NBT.1 | ½ |
| Total Time | | 20 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*).

SEPTEMBER

| 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 | | | | | |

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 | | |

IV. PARCC Assessment Evidence Statements

Type I

Type II

Type III

| NJSLS | Evidence Statement | Clarification | Math Practices | Calculator ? |
|----------------|---|--|------------------------------|--------------|
| <u>5.NBT.1</u> | 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.7 | No |
| <u>5.NBT.2</u> | 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 |
| <u>5.NBT.3</u> | 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., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. 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.5 | No |
| <u>5.NBT.4</u> | Use place value understanding to round decimals to any place. | i) Tasks have “thin context” or no context. | MP.1 MP.2 MP.6 MP.7 | No |
| <u>5.NBT.7</u> | 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 Subtract two decimals to hundredths, using concrete models | 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 | MP.6 MP.7 | No |

| | | | | |
|--|---|---|--|--|
| | <p>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.</p> <p>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.</p> <p>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.</p> | <p>present the addends as numbers, and the answer sought is a number, not a picture. iv) Each addend is 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.)</p> <p>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, and 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</p> | | |
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|----------------|--|---|------------------------------|----|
| | | 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.) | | |
| <u>5.MD.1</u> | Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m). | i) Tasks may involve, \leq or \geq . | MP.5 MP.6 | No |
| <u>5.C.3</u> | 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 |
| <u>5.C.1-2</u> | 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 $4 + 3 \times 2$ rather than $4 + (3 \times 2)$. | MP.3 MP.6 MP.7 MP.8 | No |
| <u>5.C.2-2</u> | 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 |
| <u>5.C.4-4</u> | Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), | - | MP.3 MP.5 MP.6 | No |

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|--------------|---|--|------|----|
| | connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NBT.7 | | | |
| <u>5.D.1</u> | 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. | <ul style="list-style-type: none"> 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 |

V. Differentiated Instruction

Pacing

If pacing is a challenge, consider the following modifications and omissions. Consolidate Lessons 9 and 10 because these lessons devote a day each to adding and subtracting with decimals. If students are fluent with addition and subtraction with whole numbers and their understanding of decimal place value is strong (from Grade 4 Module 6 and Grade 5 Module 1 Topic B), practicing both addition and subtraction with decimals can be done in one lesson. Begin assessing students' skill with addition and subtraction with whole numbers during the fluency activity of Lesson 5, and spend a series of days doing so.

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 |
|------------------------|--|
| <i>Exponent</i> | How many times a number is used in a multiplication sentence. |
| <i>Millimeter</i> | Metric unit of length equal to one-thousandth of a meter. |
| <i>Thousandths</i> | Related to place value |
| $>, <, =$ | Greater than, less than, equal to |
| <i>Base Ten Units</i> | Place value units |
| <i>Centimeter</i> | A unit of measure equal to one-hundredth of a meter (cm). |
| <i>Digit</i> | Any of the numbers 0 to 9. |
| <i>Hundredths</i> | As related to place value |
| <i>Number Sentence</i> | Also addition, subtraction, multiplication, or division sentence. An equation or inequality for which both expressions are numerical and can be evaluated to a single number. |
| <i>Place Value</i> | The numerical value that a digit has by virtue of its position in a number. |
| <i>Standard Form</i> | A number written in the format: 135 |
| <i>Tenths</i> | As related to place value |
| <i>Unit Form</i> | e.g., 3.21 = 3 ones 2 tenths 1 hundredth |
| <i>Word Form</i> | One hundred thirty-five |
| <i>Expression</i> | A number, or any combination of sums, differences, products, or divisions of numbers that evaluates to a number (e.g., $3 + 4$, 8×3 , $15 \div 3$ as distinct from an equation or number sentence) |
| <i>Equation</i> | A statement that two expressions are equal (e.g., $3 \times \underline{\quad} = 12$, $5 \times b = 20$, $3 + 2 = 5$). |

VII. Assessment Framework

| Unit 1 Assessment Framework | | | | |
|---|--|-----------------------|---------------|-----------------|
| Assessment | NJSLS | Estimated Time | Format | Graded ? |
| Mid-Module Assessment (After Topic C - Optional) <i>Eureka Math</i> | 5.NBT.1 , 5.NBT.2, 5.NBT.3, 5.NBT.4, 5.MD.1 | ½ Block | Individual | Yes |
| End-of-Module Assessment (After Topic F - Optional) <i>Eureka Math</i> | 5.NBT.1 , 5.NBT.2 5.NBT.3 , 5.NBT.4 5.NBT.7 , 5.MD.1 | ½ Block | Individual | Yes |

| Unit 1 Performance Assessment Framework | | | | |
|--|--------------|-----------------------|--|-------------------------|
| Assessment | NJSLS | Estimated Time | Format | Graded ? |
| Unit 1 Performance Task 1 (Early October) <i>Kipton's Scale</i> | 5.NBT.1 | ½ Block | Individual w/ Interview Opportunity | Yes; Rubric |
| Unit 1 Performance Task Option 1 (Optional) <i>Value of a Digit</i> | 5.NBT.1 | Teacher Discretion | Teacher Discretion | Yes, if administered |

Name _____ Block _____ Date _____

Kipton's Scale (NJSLS 5.NBT.1)

a. Kipton has a digital scale. He puts a marshmallow on the scale and it reads 7.2 grams. How much would you expect 10 marshmallows to weigh? Why?

b. Kipton takes the marshmallows off the scale. He then puts on 10 jellybeans and then scale reads 12.0 grams. How much would you expect 1 jellybean to weigh? Why?

c. Kipton then takes off the jellybeans and puts on 10 brand-new pink erasers. The scale reads 312.4 grams. How much would you expect 1,000 pink erasers to weigh? Why?

Unit 1 Performance Task 1 PLD Rubric

SOLUTION:

- a. 72 grams
- b. 1.2 grams
- c. 31,240 grams

| Level 5: Distinguished Command | Level 4: Strong Command | Level 3: Moderate Command | Level 2: Partial Command | Level 1: No Command |
|--|---|---|---|--|
| <p>All parts correct</p> <p>Clearly constructs and communicates a complete response based on explanations/reasoning using :</p> <ul style="list-style-type: none"> • “ten times” or 1/10 relationships • place value • moving right or left across the places <p>Response includes an efficient and logical progression of steps, complete justification of a conclusion with minor computational error.</p> | <p>All parts correct but explanation contains minor errors</p> <p>Clearly constructs and communicates a complete response based on explanations/reasoning using:</p> <ul style="list-style-type: none"> • “ten times” or 1/10 relationships • place value • moving right or left across the places <p>Response includes a logical progression of steps, complete justification of a conclusion with minor conceptual error.</p> | <p>One part incorrect</p> <p>Constructs and communicates a complete response based on explanations/reasoning using:</p> <ul style="list-style-type: none"> • “ten times” or 1/10 relationships • place value • moving right or left across the places <p>Response includes a logical but incomplete progression of steps, minor calculation errors.</p> | <p>Two parts incorrect</p> <p>Constructs and communicates an incomplete response based on explanations/reasoning using:</p> <ul style="list-style-type: none"> • “ten times” or 1/10 relationships • place value • moving right or left across the places <p>Response includes an incomplete or illogical progression of steps, major calculation errors.</p> | <p>No parts correct</p> <p>The student shows no work or justification.</p> |

5th Grade: Unit 1 Performance Task Option 1

Name _____ Block _____ Date _____

Value of a digit (5.NBT.1)

Part 1. Wallace and Logan were arguing about the size of 2 numbers. Wallace thought eight-tenths was ten times larger than eight-hundredths. Logan thought eight-hundredths was ten times larger than eight-tenths. Who is correct?

Part 2. Imagine you are the boys' teacher. Draw a picture to help explain this concept to Wallace and Logan. Make sure you refer to place value in your explanation.

Part 3. Choose another pair of numbers that you could give to Wallace and Logan to assess whether they understand this concept. Which one is larger? How much larger?

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>>