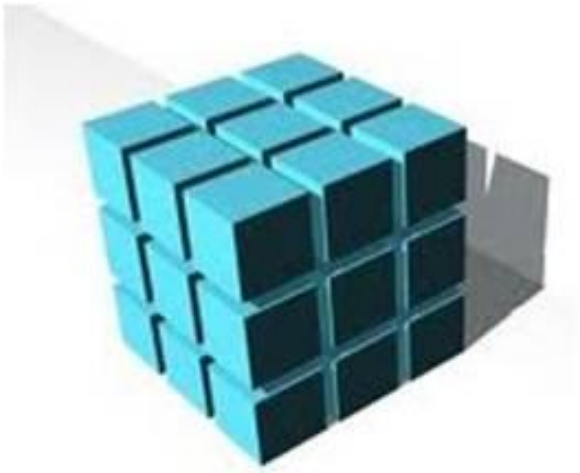
Whole Number Place Value & Operations; Volume; Multiplication and Division of Fractions



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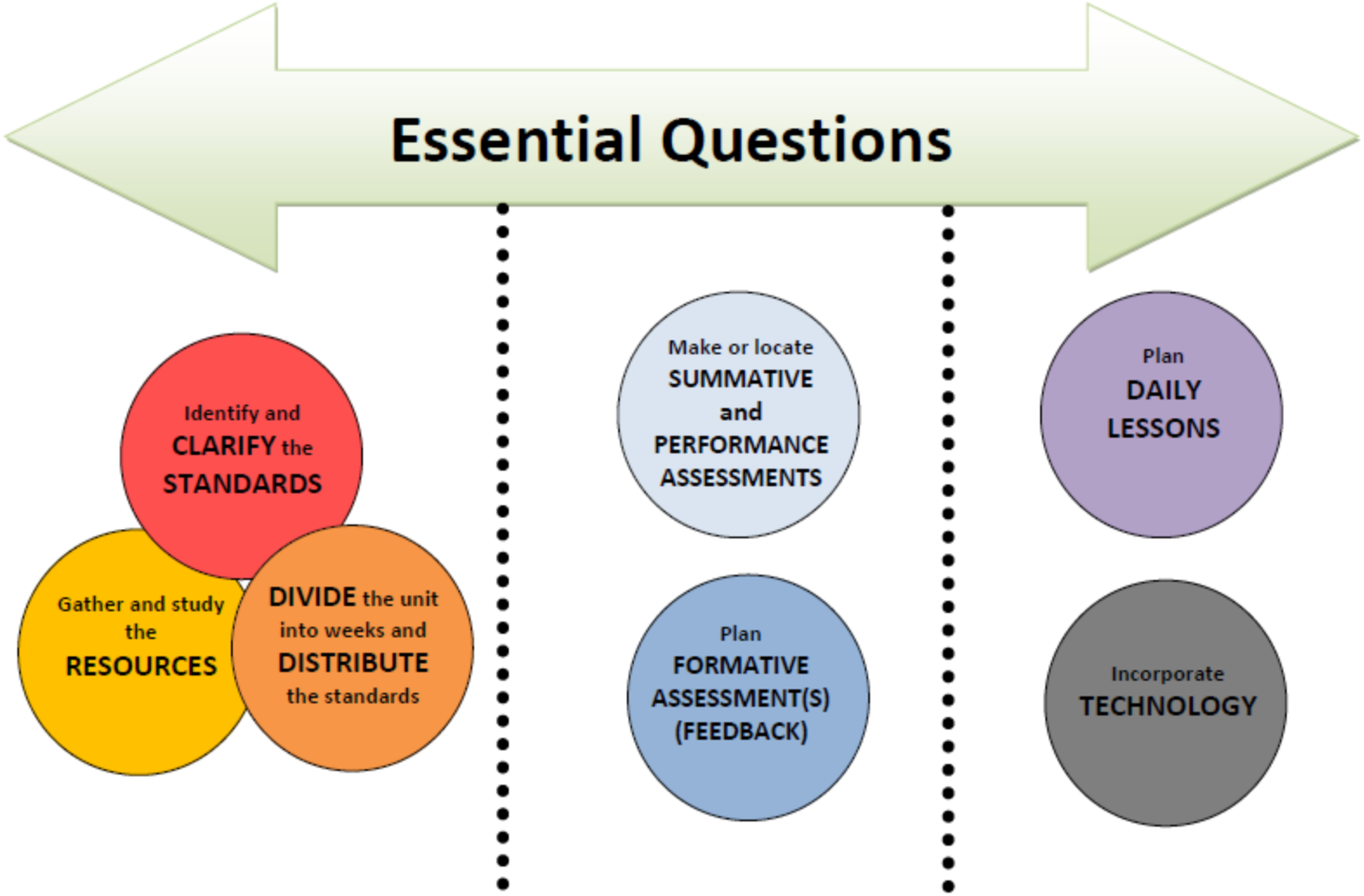
Jessica Beilman (FT), Mindy Ferguson (OW), Jenny Humble (GH), Denise, Crutchfield (GH), Sharon Langston (FT)

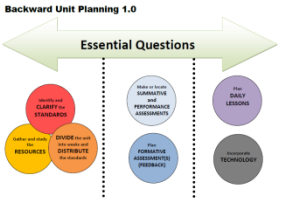
Revisions Team 2016-2017:

Jenny Humble (GH), Rea Smith (RG)

Backward Unit Planning 1.0



Essential Questions



R.P.S. Common Core Math Curriculum — 5th Grade

1st Quarter – Whole Number Place Value & Operations; Volume; Multiplication and Division of Fractions (p. 1 of 3) — **9 Weeks**

Students will build on their work from Fourth grade using various strategies based on place value to multiply and divide multi-digit whole numbers. Students will only be scored on four digits by one digit in first quarter. They will continue to use these different strategies (i.e. area model, base ten model, array, etc.) throughout the year to solidify their understanding until the standard algorithm is applied in the fourth quarter. Students will experience finding volume of rectangular prisms and understand concepts related to volume. Notation for finding volume will develop from these experiences. Students will understand the relationship between fractions and division and use multiplicative relationships to solve problems. They will begin by solving *equal sharing* problems with answers that are mixed numbers and then solve problems with answers that are fractions less than 1. Students will represent their solutions with equations, with an emphasis on linking addition and multiplication and reflecting a multiplicative understanding of fractions. After *equal sharing* problems, students will solve *multiple groups* problems where the number of groups is a whole number and the number in each group is a fraction less than 1 or a mixed number. Emphasis should be on student strategies that use multiplicative relationships to solve these problems. Students will then solve open number sentences that focus on the relationship between fractions and whole numbers, for example: 8 x ⅜ =? ? X ¾ = 15 ? X 1 ¼ = 25

Essential Questions:

- *How are place value patterns repeated in numbers?*
- *How can place value help me multiply and divide?*
- *How do I solve real-world problems involving volume?*
- *How can I use my understanding of multiplication and division to solve real world problems involving multiplication and division of fractions?*
- *How can I use information from the line plot to solve problems involving operations with fractions?*

Number and Operations in Base Ten	
Understand the place value system.	
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.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
Perform operations with multi-digit whole numbers and with decimals to hundredths.	
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
	Minimum expectation: Standard algorithm is not expected to be applied until 4th quarter.
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.
Measurement and Data	
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
	a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
	b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5.MD.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
	a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
	b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
	c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

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How are place value patterns repeated in numbers?

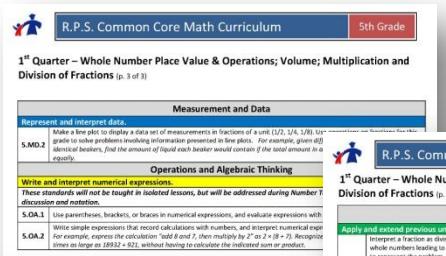
How can place value help me multiply and divide?

How do I solve real-world problems involving volume?

How can I use my understanding of multiplication and division to solve real world problems involving multiplication and division of fractions?

How can I use information from the line plot to solve problems involving operations with fractions?

Clarifying Documents


R.P.S. Common Core Math Curriculum — 5th Grade

1st Quarter – Whole Number Place Value & Operations; Volume; Multiplication and Division of Fractions (p. 3 of 3)

Measurement and Data

Represent and interpret data.

S.MD.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

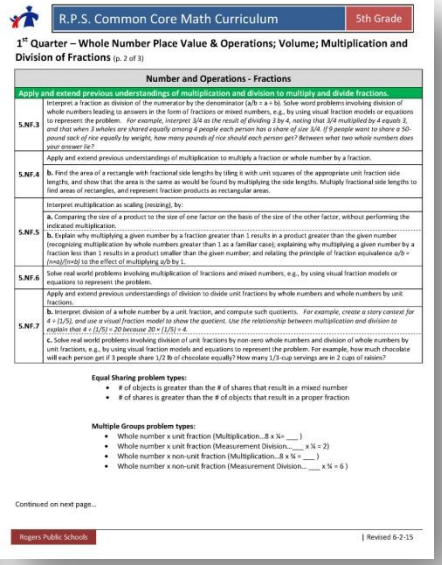
Operations and Algebraic Thinking

Write and interpret numerical expressions.

These standards will not be taught in isolated lessons, but will be addressed during Number Talks, discussion and notation.

S.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

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


R.P.S. Common Core Math Curriculum — 5th Grade

1st Quarter – Whole Number Place Value & Operations; Volume; Multiplication and Division of Fractions (p. 2 of 3)

Number and Operations - Fractions

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

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

S.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

a. 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.

S.NF.5 Interpret multiplication as scaling (resizing), by:

a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

b. Explain 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 $a/b = (n×a)/(n×b)$ to the effect of multiplying a/b by 1.

S.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

S.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*

c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

Equal Sharing problem types:
- # of objects is greater than the # of shares that result in a mixed number
- # of shares is greater than the # of objects that result in a proper fraction

Multiple Groups problem types:
- Whole number x unit fraction (Multiplication...8 x ¼= ____)
- Whole number x unit fraction (Measurement Division..._____ x ¼ = 2)
- Whole number x non-unit fraction (Multiplication...8 x ¾ = ____)
- Whole number x non-unit fraction (Measurement Division..._____ x ¾ = 6)

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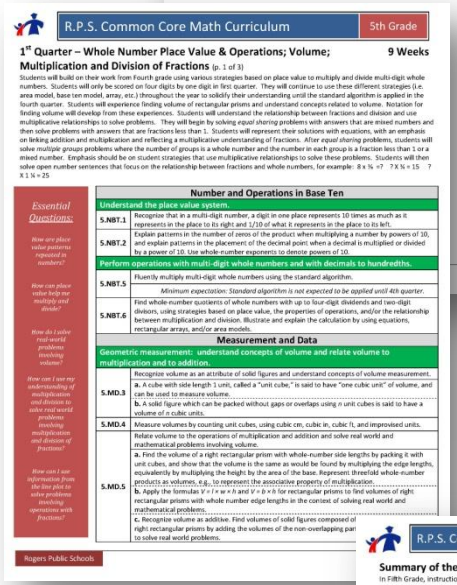
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1st Quarter – Whole Number Place Value & Operations; Volume; Multiplication and Division of Fractions (p. 1 of 3) — 9 Weeks

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Number and Operations in Base Ten

Understand the place value system.

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S.NBT.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

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

S.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.

Minimum expectation: Standard algorithm is not expected to be applied until 4th quarter.

S.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.

Measurement and Data

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

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S.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

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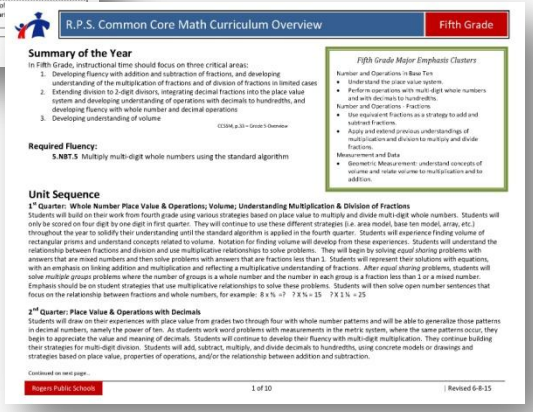
R.P.S. Common Core Math Curriculum Overview — Fifth Grade

Summary of the Year

In Fifth Grade, 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
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
3. Developing understanding of volume

CCSS#6_p.33 – Grade 5 Overview

Fifth Grade Major Emphasis Clusters

Number and Operations in Base Ten
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations - Fractions
- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Measurement and Data
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Required Fluency:
S.NBT.5 Multiply multi-digit whole numbers using the standard algorithm

Unit Sequence

1st Quarter: Whole Number Place Value & Operations; Volume; Understanding Multiplication & Division of Fractions

Students will build on their work from fourth grade using various strategies based on place value to multiply and divide multi-digit whole numbers. Students will only be scored on four digit by one digit in first quarter. They will continue to use these different strategies (i.e. area model, base ten model, array, etc.) throughout the year to solidify their understanding until the standard algorithm is applied in the fourth quarter. Students will experience finding volume of rectangular prisms and understand concepts related to volume. Notation for finding volume will develop from these experiences. Students will understand the relationship between fractions and division and use multiplicative relationships to solve problems. They will begin by solving *equal sharing* problems with answers that are mixed numbers and then solve problems with answers that are fractions less than 1. Students will represent their solutions with equations, with an emphasis on linking addition and multiplication and reflecting a multiplicative understanding of fractions. After *equal sharing* problems, students will solve multiple groups problems where the number of groups is a whole number and the number in each group is a fraction less than 1 or a mixed number. Emphasis should be on student strategies that use multiplicative relationships to solve these problems. Students will then solve open number sentences that focus on the relationship between fractions and whole numbers, for example: 8 x ¾ =? ? X ¾ = 15 ? X 1 ¼ = 25

2nd Quarter: Place Value & Operations with Decimals

Students will draw on their experiences with place value from grades two through four with whole number patterns and will be able to generalize those patterns in decimal numbers, namely the power of ten. As students work word problems with measurements in the metric system, where the same patterns occur, they begin to appreciate the value and meaning of decimals. Students will continue to develop their fluency with multi-digit multiplication. They continue building their strategies for multi-digit division. Students will 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.

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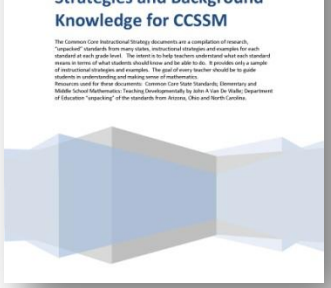
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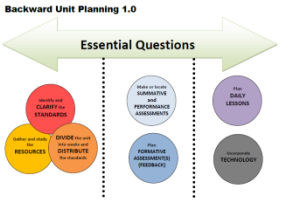
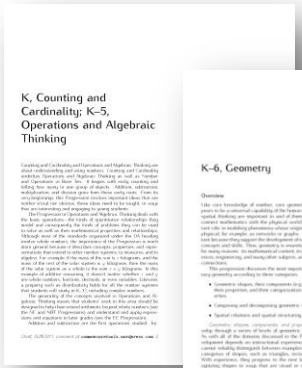
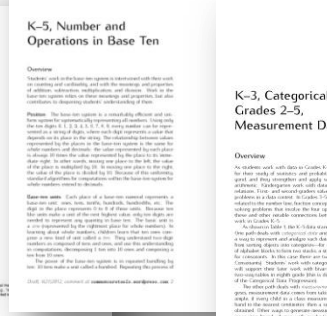
5th Grade Instructional Strategies and Background Knowledge for CCSSM

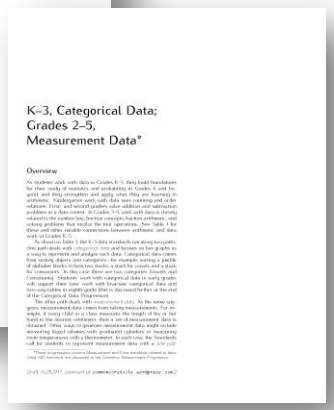
The Common Core Instructional Strategy documents are a compilation of research, "unpacked" standards from many states, instructional strategies and examples for each standard at each grade level. The intent is to help teachers understand what each standard means in terms of what students should know and be able to do. It provides only a sample of instructional strategies and examples. The goal of every teacher should be to guide students in understanding and making sense of mathematics.
Resources used for these documents: Common Core State Standards; Elementary and Middle School Mathematics: Teaching Developmentally, by John A Van De Walle; Department of Education "unpacking" of the standards from Arizona, Ohio and North Carolina.




K, Counting and Cardinality; K–5, Operations and Algebraic Thinking

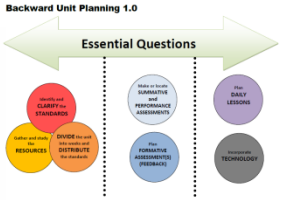

K–6, Geometry


K–5, Number and Operations in Base Ten


K–3, Categorical Data; Grades 2–5, Measurement Data*

Progression Documents

Number and Operations in Base Ten	
Understand the place value system.	
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.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.



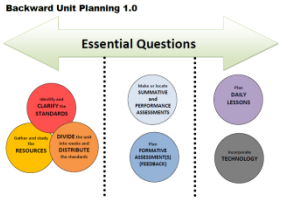
Identify and CLARIFY the STANDARDS

For scoring purposes: whole numbers only …
not decimals this quarter
To build on 4th Grade standards, fraction and decimal connections can be discussed

Perform operations with multi-digit whole numbers and with decimals to hundredths.	
5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.
	Minimum expectation: Standard algorithm is not expected to be applied until 4th quarter.
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.

Focus on strategies based on place value /fluent by 4th quarter
Posing of math problems/ approach during number talks and equal sharing problems

5.NBT.6 in this quarter is 4 digit X 1 digit



Measurement and Data	
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
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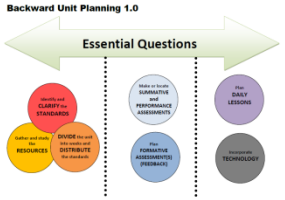
	b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.
	c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Identify and CLARIFY the STANDARDS

3rd and 4th grade develop ideas for area and perimeter. Volume is the focus for 5th grade.

Students should learn volume in a conceptual way that supports their work with whole numbers, area, and notation.

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



Identify and CLARIFY the STANDARDS

Pose equal sharing problems .

Equal Sharing problem types:

# of objects is greater than the # of shares that result in a mixed number

# of shares is greater than the # of objects that result in a proper fraction

5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
	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.

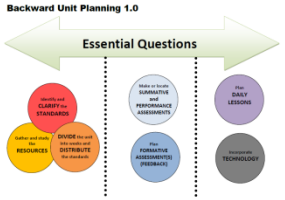
Finding area using fractions

Number and Operations - Fractions

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.5	Interpret multiplication as scaling (resizing), by:
	a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
	b. Explain 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.

Scaling-this is during the entire unit…part of discussions when checking for reasonableness of answers



Identify and CLARIFY the STANDARDS

5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
	b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.*
	c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

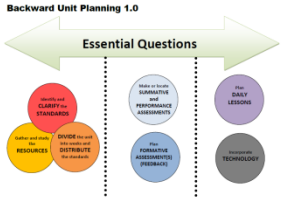
Whole Number x Fraction

Whole Number ÷ Fraction

May involve area

Multiple Groups problem types:

- Whole number x unit fraction (Multiplication…8 x ¼= ___)
- Whole number x unit fraction (Measurement Division…___ x ¼ = 2)
- Whole number x non-unit fraction (Multiplication…8 x ¾ = ___)
- Whole number x non-unit fraction (Measurement Division… ___ x ¾ = 6)



Measurement and Data	
Represent and interpret data.	
5.MD.2	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Denominators are limited to ½, 1/4, 1/8

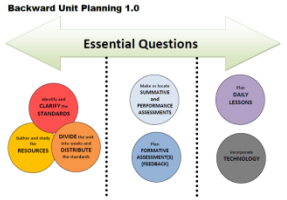
Identify and CLARIFY the STANDARDS

Operations and Algebraic Thinking	
Write and interpret numerical expressions.	
These standards will not be taught in isolated lessons, but will be addressed during Number Talks and Problem Solving discussion and notation.	
5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

This can be brought out during # talks and posing of problems. In this unit you would pose equal sharing and multiple group problems.

Build order of operations through discussions (connecting strategies to notation)

Unit 1 Optional Pacing

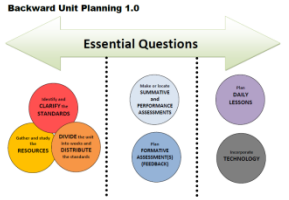


Week	Standards	Structure/Resource
1	5.NBT.1 A digit in one place represents 10 times as much… 5.NBT.2 Explain patterns in number of zeros when multiplying by powers of 10 5.NBT.5 Fluent multiply multi digit numbers pushing strategies 5.NF.4 Area of a rectangle with fractional sides (introduce with whole numbers if necessary) 5.OA.1 Use parentheses, brackets, or braces 5.OA.2 Write simple expressions	Push strategies using base 10 (multiplication) ECM problems (# in each group is a multiple of 10) Number Talks and problem discussion Look online at unit resources and choose those related to the standards being taught each week. Rich Lehrer (Area Unit 1 & Unit 2)
2-3	5.NBT.1 A digit in one place represents 10 times as much… 5.NBT.2 Explain patterns in number of zeros when multiplying by powers of 10 5.NBT.5 Fluent multiply multi digit numbers pushing strategies 5.NBT.6 Find whole number quotients 4 digit by 1 digit 5.NF.4 Area of a rectangle with fractional sides (introduce with whole numbers if necessary) 5.OA.1 Use parentheses, brackets, or brace 5.OA.2 Write simple expressions Depending on student needs, focus week 2 on whole number and introduce week 3 with fractional sides using Rich Lehrer Area Unit 3 and Unit 4.)	Push strategies using Base 10 (measurement division) ECM measurement division problems (number in each group is a multiple of 10) Number Talks and problem discussion Look online at unit resources and choose those related to the standards being taught each week. Rich Lehrer (Area Unit 3 & Unit 4)

DIVIDE the unit into weeks and **DISTRIBUTE** the standards

Unit 1 Optional Pacing

Week	Standards	Structure/Resource
A	5.MD.3 Cubic Units 5.MD.4 Counting Cubic Units 5.MD.5 Connecting packing to the formula 5.NBT.1 A digit in one place represents 10 times as much… 5.NBT.2 Explain patterns in number of zeros when multiplying by powers of 10 5.NBT.5 Fluent multiply multi digit numbers pushing strategies 5.OA.1 Tie to 5.MD.5 Through use of properties of operations 5.OA.2 Tie to 5.MD.5 through use of properties of operations	Look online at unit resources and choose those related to the standards being taught each week. https://grade5commoncoremath.wikispaces.hcpss.org/Grade+5+Home http://www.engageny.org/resource/grade-5-mathematics Rich Lehrer Volume Unit 1, Unit 2, Unit 3, and Unit 4
B	5.NBT.1 A digit in one place represents 10 times as much… 5.NBT.2 Explain patterns in number of zeros when multiplying by powers of 10 5.NBT.5 Fluent multiply multi digit numbers pushing strategies 5.NBT.6 Find whole number quotients 4 digit by 1 digit 5.NF.4 Area of a rectangle with fractional sides 5.OA.1 Use parentheses, brackets, or brace 5.OA.2 Write simple expressions	*Equal sharing problems* Whole number divided by whole number = whole number Whole number divided by whole number = mixed number Whole number divided by whole number = fraction *Multiple group problems* Whole number x fraction *Fluency* 4 digit divided by 1 digit (number talks) *Fractions with area context*

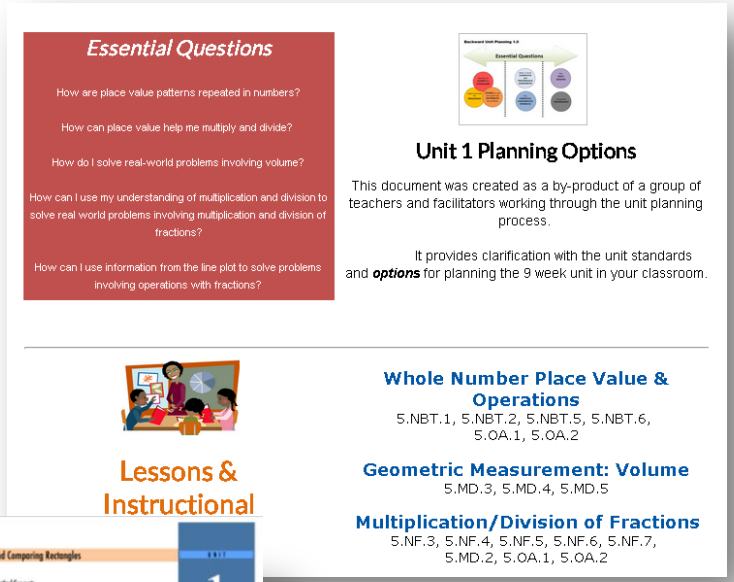


DIVIDE the unit into weeks and DISTRIBUTE the standards

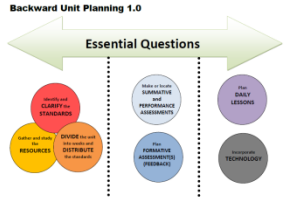
Alternate weeks A & B

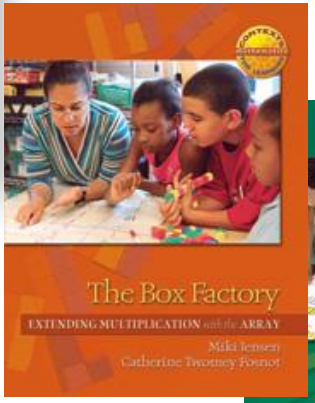
OR

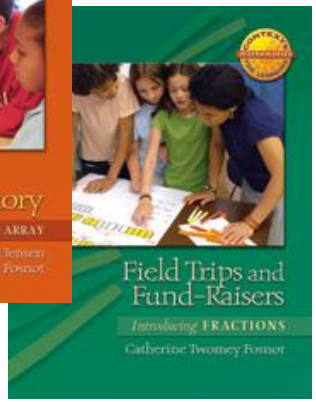
Combine weeks A & B into 2-day/3-day cycle.

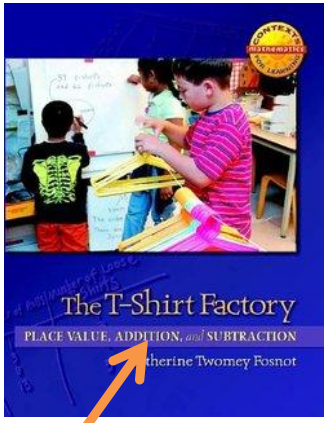


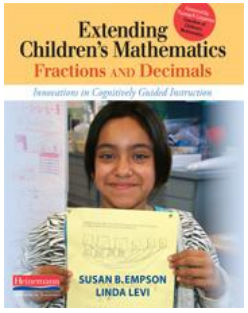
Gather and study the RESOURCES

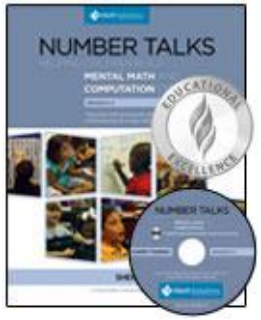


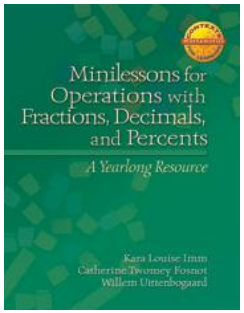


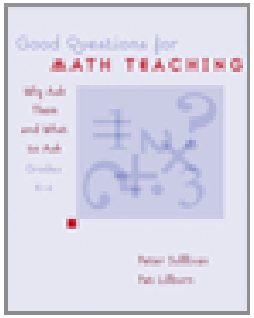


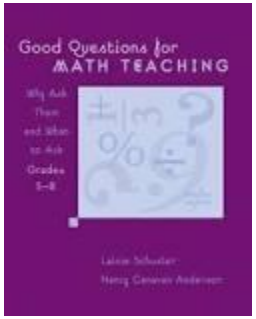






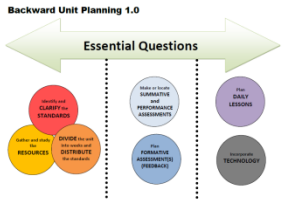






Borrow from 2nd grade for great base ten context – increase number choices

Options for Assessment – available online for Unit 1



Fifth Grade: Whole Number Place Value and Operations; Volume (Unit 1: 3 weeks)

1. The following equations involve different quantities and use different operations, yet produce the same result. Show and explain why this is true.

$413 \times 10^2 = 4130$ $4{,}130{,}000 \div 10^2 = 4130$

2. Solve the equation below

a. $432 \div 7 =$_____

Explain how estimation will help check the reason

a. $432 \div 7 =$_____

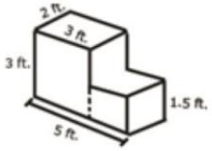
Fifth Grade: Whole Number Place Value and Operations; Volume (Unit 1: 3 weeks)

3.

a. A rectangular container that has a length of 30 cm, a width of 20 cm, and a height of 24 cm. Calculate the volume and label in cubic units.

b. The rectangular container from Part A is filled with water to a depth of 15 cm. When an additional 6.5 liters of water is poured into the container, some water overflows. How ma liters of water overflow the container? Use words, pictures, and numbers to explain your answer. **(Remember 1 cm^3 = 1 mL)**

4. Calculate the volume and label in cubic units. Write and explain your work using equations

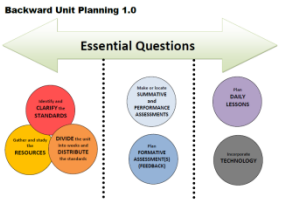


A Progression Toward Mastery

Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
1 5.NBT.1 5.NBT.2	The student is unable to provide a correct response.	The student attempts but is not able to accurately show or explain reasoning fully.	The student correctly shows but does not show full reasoning, or explains reasoning fully. Work may not match explanation	The student correctly: • Shows movement of digits. • Explains movement of units to the left for multiplication and movement of units to the right for division.
2 5.NBT.1 5.NBT.2 5.NBT.6	The student is unable to solve and estimate either the dividend or the divisor to a one-digit fact.	The student solves and estimates the dividend and divisor, but not to a one-digit fact.	The student correctly solves and estimates to a one-digit fact for either Part (a) or Part (b).	The student correctly solves and estimates both Part (a) and Part (b) to a one-digit fact. estimate a. $420 \div 70 = 6$ b. $1200 \div 600 = 2$ Solve a. and b.
3 A & B 5.MD.3 5.MD.5	The student is unable to find the volume of the water that has overflowed and is unable to explain the reasoning used.	The student finds the volume of the water that has overflowed, but is unable to explain the reasoning used.	The student makes a calculation error in finding the volume of the water that has overflowed, but is able to clearly explain the reasoning used.	The student finds the volume of the water that has overflowed to be 1.1 L and uses words, numbers, and pictures to clearly explain the reasoning used.
4 5.MD.4 5.MD.5	The student is unable to find the volume and write the equation	The student can to find the volume but and not write the equation	The student makes a calculation error in finding the volume, but is able to write the equation	The student finds the volume and writes the correct equation

Make or locate SUMMATIVE and PERFORMANCE ASSESSMENTS

Options for Assessment – available online for Unit 1



Name: Date:

Unit 3 – Place Value and Operations with Decimals (5.MD.1)

Write >, <, or = in the circle to compare the measurements.

3 ½ hours	◯	200 minutes
3 quarts	◯	6 cups
5 kilometers	◯	5,000 meters
35 feet	◯	11 yards

Choose two of your solutions above and explain your thinking.

Name: Date:

Unit 3 – Place Value and Operations with Decimals (5.MD.1)

In the long jump, Karen can jump 51 inches, Debbie can jump 4 feet 4 inches, and Margaret can jump 1 yard, 1foot, 1 inch. Who can jump the farthest?

Use what you know about customary measurement to explain how you found your answer.

Name: Date:

Unit 3 – Place Value and Operations with Decimals

Round the following numbers to the nearest hundredth.

	Round to hundredth
5.025	
5.079	
5.103	
5.117	
5.108	

Solve

a. 0.35 x 1.5 =

b. 5.63 + 14.37 =

c. 371 x 2,584 =

d. 625 x 847 =

e. 85.703 + 12.197 =

f. 57.03 + 2.08 =

g. 0.3 + 0.82 =

h. 1.4 – 0.7 =

i. 7.148 – 0.07 =

Name: Date:

Unit 3 – Place Value and Operations with Decimals (5.NBT.1, 5.NBT.3)

1. Express as decimal numerals.

a. three thousandths	
b. thirty-four thousandths	
c. five hundred and seven hundredths	
d. 26/1000	
e. 3 94/100	

2. Express each of the following values in words.

a. 0.006

b. 12.056

c. 205.68

3. Write the number in expanded form using fractions or decimals to express the decimal place value units.

a. 24.73

b. 0.239

4. Write a decimal for each of the following.

a. 7 x 10 + 3 x 1 + 6 x (1/10) + 8 x (1/100)

b. 4 x 100 + 2 x 10 + 7 x 0.1 + 9 x 0.001

Adapted from NYS Common Core Mathematics Curriculum

Make or locate SUMMATIVE and PERFORMANCE ASSESSMENTS

LESSONS AND RESOURCES ARE AVAILABLE ONLINE.

Plan
DAILY LESSONS

Incorporate
TECHNOLOGY

Teacher Created Resources pages!!!

RESOURCES

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