Georgia Department of Education
Common Core Georgia Performance Standards
Elementary School Mathematics
Fifth Grade 2012-2013

Common Core Georgia Performance Standards Curriculum Map							
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8
Order of Operations and Whole Numbers	Decimals	Multiplying and Dividing with Decimals	Adding, Subtracting, Multiplying, and Dividing Fractions	Geometry and the Coordinate Plane	2D Figures	Volume and Measurement	Show What We Know
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Standards for Mathematical Practice	
1 Make sense of problems and persevere in solving them. 2 Reason abstractly and quantitatively. 3 Construct viable arguments and critique the reasoning of others. 4 Model with mathematics	5 Use appropriate tools strategically. 6 Attend to precision. 7 Look for and make use of structure. 8 Look for and express regularity in repeated reasoning.

Unit 1: Order of Operations and Whole Numbers	
MCC5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. **MCC5.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. **MCC5.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. **MCC5.NBT.5** Fluently multiply multi-digit whole numbers using the standard algorithm. **MCC5.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.

<table>
<tr><th colspan="2">Unit 2: Decimals</th></tr>
<tr><td>MCC5.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.
MCC5.NBT.3 Read, write, and compare decimals to thousandths.
a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.</td><td>MCC5.NBT.4 Use place value understanding to round decimals to any place.
MCC5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</td></tr>
<tr><th colspan="2">Unit 3: Multiplying and Dividing with Decimals</th></tr>
<tr><td>MCC5.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.</td><td>MCC5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</td></tr>
<tr><th colspan="2">Unit 4: Adding, Subtracting, Multiplying, and Dividing Fractions</th></tr>
<tr><td>MCC5.NF.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)
MCC5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result 2/5 + ½ = 3/7, by observing that 3/7 < ½.
MCC5.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 ¾ as the result of dividing 3 by 4, noting that ¾ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size ¾. 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</td><td>b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a 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.
MCC5.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.
MCC5.NF.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.
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</td></tr>
</table>

answer lie? **MCC5.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. **a.** Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) =8/15. (In general, (a/b) × (c/d) = ac/bd.) **b.** Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. **MCC5.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.	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? **MCC5.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.
Unit 5: Geometry and the Coordinate Plane	
MCC5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). **MCC5.G.2** Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	**MCC5.OA.3** Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.
Unit 6: 2D Figures	
MCC5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	**MCC5.G.4** Classify two-dimensional figures in a hierarchy based on properties.

Unit 7:Volume and Measurement	
MCC5.MD.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. **MCC5.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. **MCC5.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. **MCC5.MD.4** Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	**MCC5.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.

NOTE: Mathematical standards are interwoven and should be addressed throughout the year in as many different units and tasks as possible in order to stress the natural connections that exist among mathematical topics.

Grades K-2 Key: CC = Counting and Cardinality, G= Geometry, MD=Measurement and Data, NBT= Number and Operations in Base Ten, OA = Operations and Algebraic Thinking.

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5th grade/ Math
Unit of Study	Coordinate Graphing
Duration of Unit	Unit 5 (2 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.G.2- Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Represent Graph Interpret	Real world and mathematical problems Coordinate pairs in first quadrant of coordinate plane	**DOK 3**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Coordinate graphing is used to design and interpret maps The order of a coordinate pair determines an absolute location	How can coordinate graphing help us in daily applications? Why does the order of a coordinate pair (x,y) matter? When am I going to use coordinate graphing?

Explanations and Examples
Examples: • Sara has saved $20. She earns $8 for each hour she works. o If Sara saves all of her money, how much will she have after working 3 hours? 5 hours? 10 hours? o Create a graph that shows the relationship between the hours Sara worked and the amount of money she has saved. o What other information do you know from analyzing the graph? • Use the graph below to determine how much money Jack makes after working exactly 9 hours.   
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	MATH
Grade/Course	5
Unit of Study	MEASUREMENT & DATA (MD)
Duration of Unit	Unit 7 (6 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.MD.1- Convert among different sized standard measurement units within a given measurement system (e.g. convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real world problems.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Convert Use Conversions Solve	Measurement Units Problems System	**DOK 2 – (comparing units)** **DOK 3 – (reasoning – why a unit of measurement is used)**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Convert measurements within the same measurement system **Use measurement to solve real-world problems**	**How can we use measurement conversions to solve real-world problems?** **How can you choose a reasonable unit of measure for a specific situation?**

Explanations and Examples

CCGPS Unwrapped Standard Forsyth County Schools

In fifth grade, students build on their prior knowledge of related measurement units to determine equivalent measurements. Prior to making actual conversions, they examine the units to be converted, determine if the converted amount will be more or less units than the original unit, and explain their reasoning. They use several strategies to convert measurements. When converting metric measurement, students apply their understanding of place value and decimals.
Next step, create assessments and engaging learning experiences

Ex. KHD**U**DCM

Visual representation of "Gallon Guy"

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math – Measurement and Data
Grade/Course	5th Grade
Unit of Study	Volume
Duration of Unit	Unit 7 (6 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.MD.5 Relate volume to the operations of multiplication and addition and solve real world mathematical problems involving volume.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Relate Solve	Volume (Multiplication and Addition)	**DOK 3**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
There are several strategies to use to find volume including algorithms (v = l x w x h or V = b x h) and unit cubes.	How can we determine the amount of space an object takes up? What are some ways to measure volume?

Explanations and Examples

Students need multiple opportunities to measure volume by filling rectangular prisms with cubes and looking at the relationship between the total volume and the area of the base. They derive the volume formula (volume equals the area of the base times the height) and explore how this idea would apply to other prisms. Students use the associative property of multiplication and decomposition of numbers using factors to investigate rectangular prisms

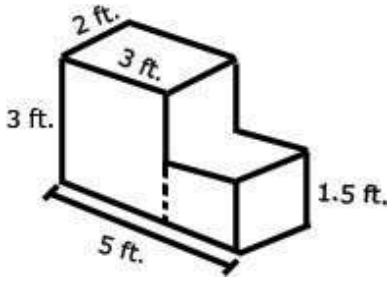
with a given number of cubic units.

Examples:

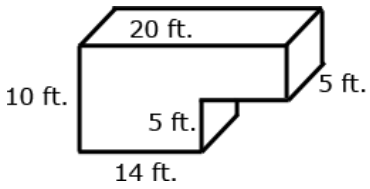
- When given 24 cubes, students make as many rectangular prisms as possible with a volume of 24 cubic units. Students build the prisms and record possible dimensions.

Length	Width	Height
1	2	12
2	2	6
4	2	3
8	3	1

- Students determine the volume of concrete needed to build the steps in the diagram below.



- A homeowner is building a swimming pool and needs to calculate the volume of water needed to fill the pool. The design of the pool is shown in the illustration below.



Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5th Grade
Unit of Study	Number and Operations in Base Ten and Fractions
Duration of Unit	Unit 2 (4 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NBT.3 Read, write, and compare decimals to thousandths.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Read Write Compare Use Record	Decimals Thousandths Base-Ten Numerals Number Names Expanded Form Digits Symbols	**DOK 2**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Knowing place values (tenths, hundredths, thousandths) allows understanding and comparison of decimals. **For example: .2 > .199**	**How does place value help you read, write, and compare decimals to the thousandths place?**

Explanations and Examples

Students build on the understanding they developed in fourth grade to read, write, and compare decimals to thousandths. They connect their prior experiences with using decimal notation for fractions and addition of fractions with denominators of 10 and 100. They use concrete models and number lines to extend this understanding to decimals to the thousandths. Models may include base ten blocks, place value charts, grids, pictures, drawings, manipulatives, technology-based, etc. They read decimals using fractional language and write decimals in fractional form, as well as in expanded notation as show in the standard 3a. This investigation leads them to understanding equivalence of decimals (0.8 = 0.80 = 0.800).

*These are all possible ways to demonstrate/model equivalent forms of decimals.

Example:

Some equivalent forms of 0.72 are:

72/100	70/100 + 2/100
7/10 + 2/100	0.720
7 x (1/10) + 2 x (1/100)	7 x (1/10) + 2 x (1/100) + 0 x (1/1000)
0.70 + 0.02	720/1000

Students need to understand the size of decimal numbers and relate them to common benchmarks such as 0, 0.5 (0.50 and 0.500), and 1. Comparing tenths to tenths, hundredths to hundredths, and thousandths to thousandths is simplified if students use their understanding of fractions to compare decimals.

Example:

Comparing 0.25 and 0.17, a student might think, “25 hundredths is more than 17 hundredths”. They may also think that it is 8 hundredths more. They may write this comparison as $0.25 > 0.17$ and recognize that $0.17 < 0.25$ is another way to express this comparison.

Comparing 0.207 to 0.26, a student might think, “Both numbers have 2 tenths, so I need to compare the hundredths. The second number has 6 hundredths and the first number has no hundredths so the second number must be larger. Another student might think while writing fractions, “I know that 0.207 is 207 thousandths (and may write 207/1000). 0.26 is 26 hundredths (and may write 26/100) but I can also think of it as 260 thousandths (260/1000). So, 260 thousandths is more than 207 thousandths.

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5th Grade
Unit of Study	Number and Operations in Base Ten
Duration of Unit	Unit 2 (4 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NBT.4 Use place value understanding to round decimals to any place (thousandths to millions).

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Rounding/estimating **Identifying Place Value**	**Place Value Understanding (thousandths to millions)** **Rounding Concepts**	**DOK 2**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Rounding can help us estimate and determine a reasonable answer. **Rounding and estimating make our lives easier.** **Ex. Shopping – About how much does something cost? Do I have enough money?**	**How can rounding be used as a strategy in problem-solving?** **Why is rounding important in real life?** **When would you use rounding/estimating in real life?**

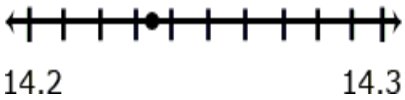
Explanations and Examples

When rounding a decimal to a given place, students may identify the two possible answers, and use their understanding of place value to compare the given number to the possible answers.

Example:

Round 14.235 to the nearest tenth.

- Students recognize that the possible answer must be in tenths thus, it is either 14.2 or 14.3. They then identify that 14.235 is closer to 14.2 (14.20) than to 14.3 (14.30).



Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5
Unit of Study	Operations in Base Ten (NBT)
Duration of Unit	Unit 2 (4 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NBT.7 Add, subtract, multiply, and divide decimals to hundredths using concrete models or drawings and strategies based on place value, properties of operations, and/or relations between addition & subtraction; relate strategy to a written method and explain the reasoning used.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Add Subtract Multiply Divide Relate Explain	Decimals Hundredths Models Drawings Strategies Place value Properties Operations Addition Subtraction Strategy Method	**DOK 3 (reasoning and explaining)**

CCGPS Unwrapped Standard Forsyth County Schools

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Computation of decimals **Using models for decimal understanding**	**How can we use models & other methods to help us find decimal answers?**

Explanations and Examples

This standard requires students to extend the models and strategies they developed for whole numbers in grades 1-4 to decimal values. Before students are asked to give exact answers, they should estimate answers based on their understanding of operations and the value of the numbers.

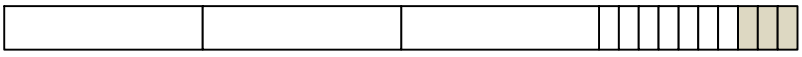
Examples:

- 3.6 + 1.7
  - A student might estimate the sum to be larger than 5 because 3.6 is more than 3 ½ and 1.7 is more than 1 ½.
- 5.4 – 0.8
  - A student might estimate the answer to be a little more than 4.4 because a number less than 1 is being subtracted.
- 6 x 2.4
  - A student might estimate an answer between 12 and 18 since 6 x 2 is 12 and 6 x 3 is 18. Another student might give an estimate of a little less than 15 because s/he figures the answer to be very close, but smaller than 6 x 2 ½ and think of 2 ½ groups of 6 as 12 (2 groups of 6) + 3 (½ of a group of 6).

Students should be able to express that when they add decimals they add tenths to tenths and hundredths to hundredths. So, when they are adding in a vertical format (numbers beneath each other), it is important that they write numbers with the same place value beneath each other. This understanding can be reinforced by connecting addition of decimals to their understanding of addition of fractions. Adding fractions with denominators of 10 and 100 is a standard in fourth grade.

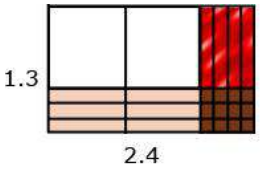
Example: 4 - 0.3

- 3 tenths subtracted from 4 wholes. The wholes must be divided into tenths.



The answer is 3 and 7/10 or 3.7.

Example: An area model can be useful for illustrating products.



2.4
x 1.3
.12
.60
.40
+ 2.00
3.12

Students should be able to describe the partial products displayed by the area model. For example,

"3/10 times 4/10 is 12/100.

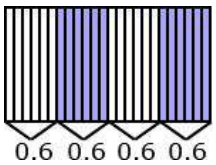
3/10 times 2 is 6/10 or 60/100.

1 group of 4/10 is 4/10 or 40/100.

1 group of 2 is 2."

Example of division: finding the number in each group or share

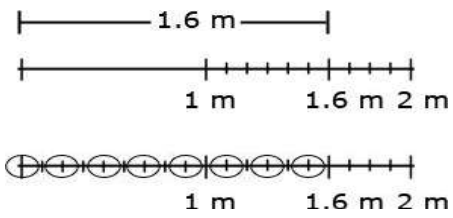
- Students should be encouraged to apply a fair sharing model separating decimal values into equal parts such as *2.4 ÷ 4 = 0.6*



Example of division: find the number of groups

- Joe has 1.6 meters of rope. He has to cut pieces of rope that are 0.2 meters long. How many can he cut?

- To divide to find the number of groups, a student might
  - draw a segment to represent 1.6 meters. In doing so, s/he would count in tenths to identify the 6 tenths, and be able identify the number of 2 tenths within the 6 tenths. The student can then extend the idea of counting by tenths to divide the one meter into tenths and determine that there are 5 more groups of 2 tenths.



○ count groups of 2 tenths without the use of models or diagrams. Knowing that 1 can be thought of as 10/10, a student might think of 1.6 as 16 tenths. Counting 2 tenths, 4 tenths, 6 tenths, . . .16 tenths, a student can count 8 groups of 2 tenths. ○ Use their understanding of multiplication and think, "8 groups of 2 is 16, so 8 groups of 2/10 is 16/10 or 1 6/10."
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	5
Unit of Study	Math: Fractions (Number and Operations)
Duration of Unit	Unit 4 (9 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including unlike denominators (e.g. by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect results 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve Estimate Assess Recognizing Observing	Problems Addition Subtraction Fractions Whole Denominators Models Equations Fractions Answers	**DOK 3**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)

CCGPS Unwrapped Standard

Forsyth County Schools

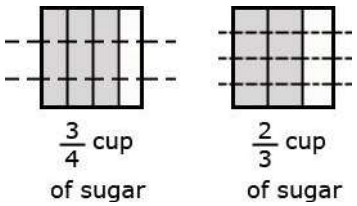
Add/subtract fractions **Solve word problems** **Use models, equations, and estimation to check answers**	**How can we apply computation of fractions to multi-step, real-world problems?** **What are some of the different ways to check to make sure our answers are reasonable?** **Why would I need to add/subtract fractions?**

Explanations and Examples

*These are all possible ways to demonstrate/model fraction operations.

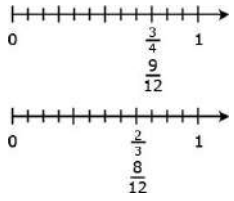
Examples:
Jerry was making two different types of cookies. One recipe needed ¾ cup of sugar and the other needed 2/3 cup of sugar. How much sugar did he need to make both recipes?

- Mental estimation:
  - A student may say that Jerry needs more than 1 cup of sugar but less than 2 cups. An explanation may compare both fractions to ½ and state that both are larger than ½ so the total must be more than 1. In addition, both fractions are slightly less than 1 so the sum cannot be more than 2.
- Area model

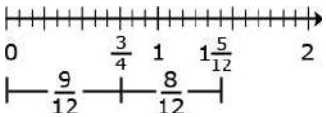


$\frac{3}{4}=\frac{9}{12}$ $\frac{2}{3}=\frac{8}{12}$ $\frac{3}{4}+\frac{2}{3}=\frac{17}{12}=\frac{12}{12}+\frac{5}{12}=1\frac{5}{12}$

- Linear model



Solution:

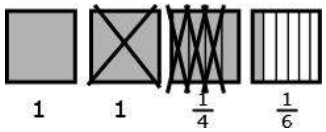


Example: Using a bar diagram

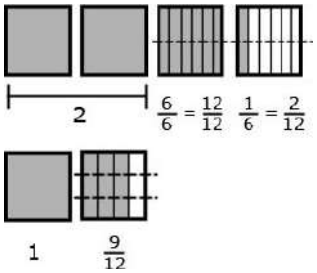
- Sonia had 2 1/3 candy bars. She promised her brother that she would give him ½ of a candy bar. How much will she have left after she gives her brother the amount she promised?
- If Mary ran 3 miles every week for 4 weeks, she would reach her goal for the month. The first day of the first week she ran 1 ¾ miles. How many miles does she still need to run the first week?
  - Using addition to find the answer:1 ¾ + n = 3
  - A student might add 1 ¼ to 1 ¾ to get to 3 miles. Then he or she would add 1/6 more. Thus 1 ¼ miles + 1/6 of a mile is what Mary needs to run during that week.

Example: Using an area model to subtract

- This model shows 1 ¾ subtracted from 3 1/6 leaving 1 + ¼ + 1/6 which a student can then change to 1 + 3/12 + 2/12 = 1 5/12.



- 3 1/6 and 1 ¾ can be expressed with a denominator of 12. Once this is done a student can complete the problem, 2 14/12 – 1 9/12 = 1 5/12.
- This diagram models a way to show how 3 1/6 and 1 ¾ can be expressed with a denominator of 12. Once this is accomplished, a student can complete the problem, 2 14/12 – 1 9/12 = 1 5/12.



Estimation skills include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations using various estimation strategies. Estimation strategies for calculations with fractions extend from students' work with whole number operations and can be supported through the use of physical models.

Example:

- Elli drank 2/5 quart of milk and Javier drank 1/10 of a quart less than Ellie. How much milk did they drink all together?

Solution:

- $\frac{3}{5} - \frac{1}{10} = \frac{6}{10} - \frac{1}{10} = \frac{5}{10}$ This is how much milk Javier drank
- $\frac{1}{2} + \frac{5}{10} = \frac{6}{10} + \frac{5}{10} = \frac{11}{10}$ Together they drank $1\frac{1}{10}$ quarts of milk

This solution is reasonable because Ellie drank more than ½ quart and Javier drank ½ quart so together they drank slightly more than one quart.

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5th grade Math
Unit of Study	Number and Operations in Base Ten and Fractions
Duration of Unit	Unit 4 (9 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NF.6- Solve real world problems involving multiplication of fractions and mixed numbers by using visual fractions models or equations to represent the problem.

Concepts (what students need to know)	**Skills** (what students must be able to do)	**DOK Level / Bloom's**
Real world problems Fractions Mixed numbers Fractions Models Equations	Solve Multiply Use Represent	**DOK 1 (equations)** **DOK 2 (models)** **DOK 3 (reasoning)**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Concrete Models and equations Facilitate solving real world problems	How do we multiply fractions to solve real world problems? Why would we multiply fractions in real life? (ex. recipe conversions)?

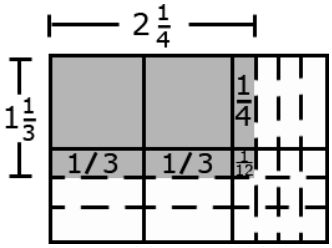
Explanations and Examples

Examples:

- Evan bought 6 roses for his mother. – of them were red. How many red roses were there?
  - Using a visual, a student divides the 6 roses into 3 groups and counts how many are in 2 of the 3 groups.

  - A student can use an equation to solve.
    – — red roses

- Mary and Joe determined that the dimensions of their school flag needed to be – ft. by 2 – ft. What will be the area of the school flag?
  - A student can draw an array to find this product and can also use his or her understanding of decomposing numbers to explain the multiplication. Thinking ahead a student may decide to multiply by – instead of 2 –.



The explanation may include the following:

- First, I am going to multiply 2 – by 1 and then by –.
- When I multiply 2 – by 1, it equals 2 –.
- Now I have to multiply 2 – by –.
- – times 2 is –.
- – times – is —.

So the answer is 2 – + – + — or — + — + — = 2 — = 3

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5
Unit of Study	Number and Operations in Base Ten and Fractions
Duration of Unit	Unit 4 (9 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.NF.7c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve Divide	Problems Fractions Division Numbers	**DOK 1 (equations)** **DOK 2 (modeling)** **DOK 3 (reasoning)**

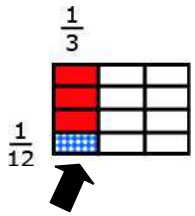
Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Understanding concrete models and equations **Facilitate solving real-world problems**	**How do we divide fractions to solve real-world problems?** **Why do we divide fractions in real life?**

Explanations and Examples

In fifth grade, students experience division problems with whole number divisors and unit fraction dividends (fractions with a numerator of 1) or with unit fraction divisors and whole number dividends. Students extend their understanding of the meaning of fractions, how many unit fractions are in a whole, and their understanding of multiplication and division as involving equal groups or shares and the number of objects in each group/share. In sixth grade, they will use this foundational understanding to divide into and by more complex fractions and develop abstract methods of dividing by fractions.

Division Example: Knowing the number of groups/shares and finding how many/much in each group/share

- Four students sitting at a table were given 1/3 of a pan of brownies to share. How much of a pan will each student get if they share the pan of brownies equally?
    - The diagram shows the 1/3 pan divided into 4 equal shares with each share equaling 1/12 of the pan.

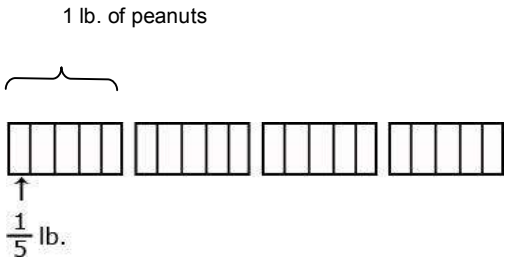


Examples:

Knowing how many in each group/share and finding how many groups/shares

- Angelo has 4 lbs of peanuts. He wants to give each of his friends 1/5 lb. How many friends can receive 1/5 lb of peanuts?

A diagram for 4 ÷ 1/5 is shown below. Students explain that since there are five fifths in one whole, there must be 20 fifths in 4 lbs.



- How much rice will each person get if 3 people share 1/2 lb of rice equally?

$$\frac{1}{2} \div 3 = \frac{3}{6} \div 3 = \frac{1}{6}$$

    - A student may think or draw ½ and cut it into 3 equal groups then determine that each of those part is 1/6.

      A student may think of ½ as equivalent to 3/6. 3/6 divided by 3 is 1/6.

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	5th
Unit of Study	Operations and Algebraic Expressions
Duration of Unit	Unit 1 (4 Weeks Total)

Insert a CCGPS standard below (include code). **CIRCLE** the **SKILLS** that students need to be able to do and **UNDERLINE** the **CONCEPTS** that students need to know.

MCC5.OA.2 Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Write **Interpret** **Express** **Recognize**	**Simple Expressions** **Numerical Expressions** **Calculations**	**DOK 2**

Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Writing simple expressions helps you interpret data in a word problem.	**How can using simple expressions help you find data in a given problem?** **How can you represent a real world situation using a numerical expression?**

Explanation and Examples
***The following examples indicate student understanding of DOK 2.** Students use their understanding of operations and grouping symbols to write expressions and interpret the meaning of a numerical expression. Examples: • Students write an expression for calculations given in words such as "divide 144 by 12, and then subtract 7/8." They write (144 ÷ 12) – 7/8. • Students recognize that 0.5 x (300 ÷ 15) is ½ of (300 ÷ 15) without calculating the quotient.
Next step, create assessments and engaging learning experiences