Common Core Georgia Performance Standards
7th Grade - At a Glance

Common Core Georgia Performance Standards: Curriculum Map									
1st Semester					2nd Semester				
Unit 1	**Unit 2A**	**Unit 2B**	**Unit 3A**	**Unit 3B**	**Unit 4**	**Unit 5**	**Unit 6**	**Unit 7A**	**Unit 7B**
5 weeks	**4 weeks**	**2 weeks**	**4 weeks**	**2 weeks**	**3 weeks**	**3 weeks**	**4 weeks**	**2 weeks**	**5 weeks**
Operations with Rational Numbers	**Expressions & Equations**	**Inequalities**	**Ratios and Proportional Relationships**	**Scale Factor**	**Inferences**	**Geometry**	**Probability**	**Show What We Know**	
MCC7.NS.1a **MCC7.NS.1b** **MCC7.NS.1c** **MCC7.NS.1d** **MCC7.NS.2a** **MCC7.NS.2b** **MCC7.NS.2c** **MCC7.NS.2d** **MCC7.NS.3**	**MCC7.EE.1** **MCC7.EE.2** **MCC7.EE.3** **MCC7.EE.4a**	**MCC7.EE.4b**	**MCC7.RP.1** **MCC7.RP.2a** **MCC7.RP.2b** **MCC7.RP.2c** **MCC7.RP.2d** **MCC7.RP.3**	**MCC7.G.1**	**MCC7.SP.1** **MCC7.SP.2** **MCC7.SP.3** **MCC7.SP.4**	**MCC7.G.2** **MCC7.G.3** **MCC7.G.4** **MCC7.G.5** **MCC7.G.6**	**MCC7.SP.5** **MCC7.SP.6** **MCC7.SP.7a** **MCC7.SP.7b** **MCC7.SP.8a** **MCC7.SP.8b** **MCC7.SP.8c**	**ALL**	**Post CRCT**
Transition Standards (12-13 only) **MCC6.NS.5** **MCC6.NS.6 a-c** **MCC6.NS.7 a-c** **MCC6.NS.8** **MCC6.G.3**	**Transition Standards (12-13 only)** **MCC6.EE.3** **MCC6.EE.4** **MCC6.EE.6**	**Transition Standards (12-13 only)** **MCC6.EE.8**							
Power Standards are highlighted above and are linked to the Unwrapped Standard. ***A one week buffer is included in the first semester and may be used at teacher discretion.***									
Incorporated Standards									
	MCC7.NS.1 ***MCC7.NS.2*** ***MCC7.NS.3***		***MCC7.EE.3*** ***MCC7.NS.1*** ***MCC7.NS.2*** ***MCC7.NS.3***		***MCC7.NS.1*** ***MCC7.NS.2*** ***MCC7.NS.3***	***MCC7.G.1***			

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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.

1st Semester

Unit 1: Operations with Rational Numbers

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

MCC7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

MCC7.NS.1a Describe situations in which opposite quantities combine to make 0.

MCC7.NS.1b Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

MCC7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

MCC7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.

MCC7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

MCC7.NS.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

MCC7.NS.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If $p$and q are integers then$-\left(\frac{p}{q}\right) = \frac{-(p)}{q} = \frac{p}{-(q)}$. Interpret quotients of rational numbers by describing real-world contexts.

MCC7.NS.2c Apply properties of operations as strategies to multiply and divide

Transition Standard (Teach 2012-2013 only):

MCC6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, debits/credits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

MCC6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

MCC6.NS.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.

MCC6.NS.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

MCC6.NS.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

MCC6.NS.7 Understand ordering and absolute value of rational numbers.

MCC6.NS.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

MCC6.NS.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts.

MCC6.NS.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

MCC6.NS.7d Distinguish comparisons of absolute value from statements about order.

rational numbers. **MCC7.NS.2d** Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats. **MCC7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.	**MCC6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. **MCC6.G.3** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
Unit 2a: Expressions & Equations	
Use properties of operations to generate equivalent expressions. **MCC7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **MCC7.EE.2** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. **Solve real-life and mathematical problems using numerical and algebraic expressions and equations.** **MCC7.EE.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations as strategies to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	**MCC7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **MCC7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p,q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. **Transition Standard (Teach 2012-2013 only):** **MCC6.EE.3** Apply the properties of operations to generate equivalent expressions. **MCC6.EE.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). **MCC6.EE.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
Unit 2b: Inequalities	
MCC7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$ or $+q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	**Transition Standard (Teach 2012-2013 only):** **MCC6.EE.8** Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Unit 3a: Ratios and Proportional Relationships	
Analyze proportional relationships and use them to solve real-world and mathematical problems. **MCC7.RP.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. **MCC7.RP.2** Recognize and represent proportional relationships between quantities. **MCC7.RP.2a** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	**MCC7.RP.2b** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **MCC7.RP.2c** Represent proportional relationships by equations. **MCC7.RP.2d** Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0,0)$ and $(1, r)$ where r is the unit rate. **MCC7.RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
Unit 3b: Scale Factor	
Draw, construct, and describe geometrical figures and describe the relationships between them. **MCC7.G.1** Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	

<table>
<tr><th colspan="2">2nd Semester</th></tr>
<tr><th colspan="2">Unit 4: Inferences</th></tr>
<tr><td><u>Use random sampling to draw inferences about a population.</u>
MCC7.SP.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
MCC7.SP.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions</td><td><u>Draw informal comparative inferences about two populations.</u>
MCC7.SP.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
MCC7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.</td></tr>
<tr><th colspan="2">Unit 5: Geometry</th></tr>
<tr><td><u>Draw, construct, and describe geometrical figures and describe the relationships between them.</u>
MCC7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
MCC7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.</td><td><u>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</u>
MCC7.G.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
MCC7.G.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
MCC7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</td></tr>
<tr><th colspan="2">Unit 6: Probability</th></tr>
<tr><td>Investigate chance processes and develop, use, and evaluate probability models.
MCC7.SP.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
MCC7.SP.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
MCC7.SP.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.</td><td>MCC7.SP.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events
MCC7.SP.7b Develop a probability model (which may not be uniform) by observing
MCC7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
MCC7.SP.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
MCC7.SP.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.
MCC7.SP.8c Design and use a simulation to generate frequencies for compound events.</td></tr>
<tr><th colspan="2">Unit 7: Show What We Know</th></tr>
<tr><th colspan="2">ALL</th></tr>
</table>

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CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 2: Expressions and Equations
Duration of Unit	

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.

CC.7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations as strategies to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve (multi-step, real-life problems with rational numbers)	**Multi-step, real-life problems**	**3**
Solve (multi-step mathematical problems with rational numbers)	**Multi-step mathematical problems.**	**2**
Apply (properties of operations as strategies)	**Properties of operations**	**2**
Calculate (with numbers in any form)	**Numbers in any form**	**1**
Convert (whole numbers, fractions, and decimals)	**Numbers from one form to another**	**1**
Assess (reasonableness of answers)	**Reasonableness of answers**	**3**
Use (mental computation)	**Mental computation**	**3/2**
Use (estimation strategies)	**Estimation strategies**	**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)
1. Solving real-life problems includes being able to use mathematical strategies and numbers in different forms effectively.	**1a. What is the question the problem is asking?** **1b. What are the clues in the problem to help identify the mathematical operation needed?** **1c. How do we use mathematical strategies to help solve the problem?**
2. Properties of operations provide the tools and strategies to help solve real-life problems.	**2a. When do we use estimation?** **2b. How can estimation help understand if the answer is reasonable?** **2c. How can we use mental math to help estimate?**
3. Estimation is an effective problem solving strategy.	**3a. What are properties of operations?** **3b. How will properties help me solve a problem?** **3c. How do I know what property and strategy to use in the problem?**

Explanations and Examples

Estimation strategies for calculations with fractions and decimals extend from students' work with whole number operations. Estimation strategies include, but are not limited to:

- **front-end estimation with adjusting (using the highest place value and estimating from the front end making adjustments to the estimate by taking into account the remaining amounts),**
- **clustering around an average (when the values are close together an average value is selected and multiplied by the number of values to determine an estimate),**
- **rounding and adjusting (students round down or round up and then adjust their estimate depending on how much the rounding affected the original values),**
- **using friendly or compatible numbers such as factors (students seek to fit numbers together - i.e., rounding to factors and grouping numbers together that have round sums like 100 or 1000), and**
- **using benchmark numbers that are easy to compute (students select close whole numbers for fractions or decimals to determine an estimate).**

Example:

- **The youth group is going on a trip to the state fair. The trip costs $52. Included in that price is $11 for a concert ticket and the cost of 2 passes, one for the rides and one for the game booths. Each of the passes cost the same price. Write an equation representing the cost of the trip and determine the price of one pass.**

$2x + 11 = 52$

$2x = 41$

$x = \$20.5$

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 2: Expressions and Equations
Duration of Unit	

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.

MCC7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations & inequalities to solve problems by reasoning about the quantities.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
use variables	**variables and quantities**	**1**
represent quantities	**real-world problems**	**2**
construct simple equations	**mathematical problems**	**2**
construct simple inequalities	**equations**	**2**
solves problems	**inequalities**	**3**
reason about quantities		**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)
Students can set up equations that represent a real-world math situation in order to solve for an unknown quantity.	**How can I solve a problem without using guess-and-check?**

Explanations and Examples
Examples: • **Amie had $26 dollars to spend on school supplies. After buying 10 pens, she had $14.30 left. How much did each pen cost?** • **The sum of three consecutive even numbers is 48. What is the smallest of these numbers?** • **Solve:** $\frac{5}{4}n + 5 = 20$ • **Florencia has at most $60 to spend on clothes. She wants to buy a pair of jeans for $22 dollars and spend the rest on t-shirts. Each t-shirt costs $8. Write an inequality for the number of t-shirts she can purchase.** • **Steven has $25 dollars. He spent $10.81, including tax, to buy a new DVD. He needs to set aside $10.00 to pay for his lunch next week. If peanuts cost $0.38 per package including tax, what is the maximum number of packages that Steven can buy?** **Write an equation or inequality to model the situation. Explain how you determined whether to write an equation or inequality and the properties of the real number system that you used to find a solution.** • **Solve** $\frac{1}{2}x + 3 > 2$ **and graph your solution on a number line.**
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 3: Ratios and Proportional Relationships
Duration of Unit	

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.

MCC7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

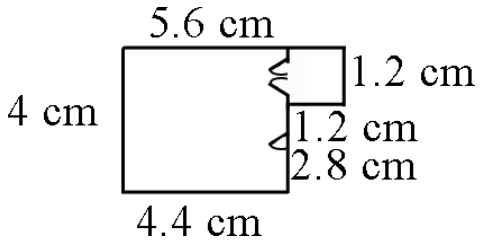
Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve	**Problems with scale drawings**	**2**
Compute	**Length and area from a scale drawing**	**2**
Reproduce	**Scale drawings**	**3**

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)
Solving problems with scale drawings involves being able to compute length and area of scale drawings and being able to reproduce scale drawings.	**What is scale factor and why is it important?** **How will I use scale drawings to help solve problems?** **How do I find length and area of a scale drawing knowing the scale factor?**

Explanations and Examples

Example:

- **Julie showed you the scale drawing of her room. If each 2 cm on the scale drawing equals 5 ft, what are the actual dimensions of Julie's room? Reproduce the drawing at 3 times its current size.**



Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 5: Geometry
Duration of Unit	

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.

MCC7.G.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Use	**Supplementary angles** **Complementary angles** **Vertical angles** **Adjacent angles**	**2**
Write	**Multi-step problem**	**3**
Solve	**Simple equations**	**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)
Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem. **Write and solve simple equations for an unknown angle in a figure.**	**How can we use facts about angles to write an equation for an unknown angle?** **How can we use facts about angles to solve an equation for an unknown angle?**

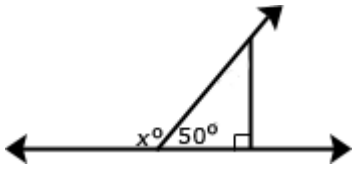
Explanations and Examples

Angle relationships that can be explored include but are not limited to:

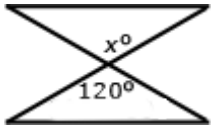
- Same-side (consecutive) interior and same-side (consecutive) exterior angles are supplementary.

Examples:

- Write and solve an equation to find the measure of angle *x.*



- Write and solve an equation to find the measure of angle *x.*



Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

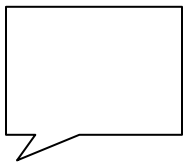
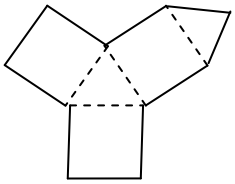
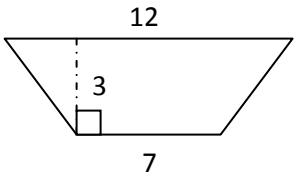
Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 5: Geometry
Duration of Unit	

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.

MCC7.G.6 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three- dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve (real-world problems) **Solve (mathematical problems)**	**Real-world problems** **Math problems involving** **-area** **-volume** **-surface area** **of 2 and 3 dimensional objects composed of** **-triangles** **-quadrilaterals** **-polygons** **-cubes** **-right prisms**	**3 (Application)** **2 (Computation)**

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)
The study of geometry includes understanding how to solve real-world problems involving area, volume, and surface-area of 2 and 3 dimensional objects.	**What are some examples of 2 dimensional objects?** **What are some examples of 3 dimensional objects?** **How do you determine area, volume, and surface area of 2- and 3-dimensional objects?** **What are the formulas for area, volume, and surface area and how do we use them to solve real-world problems?** **What are the clues in real-world and math problems that will help you decide which formula to use?**

Explanations and Examples
Students understanding of volume can be supported by focusing on the area of base times the height to calculate volume. Students understanding of surface area can be supported by focusing on the sum of the area of the faces. Nets can be used to evaluate surface area calculations. **Examples:** • **Choose one of the figures shown below and write a step by step procedure for determining the area. Find another person that chose the same figure as you did. How are your procedures the same and different? Do they yield the same result?**     • **A cereal box is a rectangular prism. What is the volume of the cereal box? What is the surface area of the cereal box? (Hint: Create a net of the cereal box and use the net to calculate the surface area.) Make a poster explaining your work to share with the class.** • **Find the area of a triangle with a base length of three units and a height of four units.** • **Find the area of the trapezoid shown below using the formulas for rectangles and triangles.**   
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

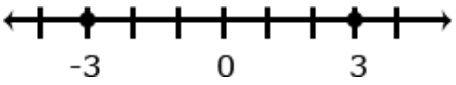
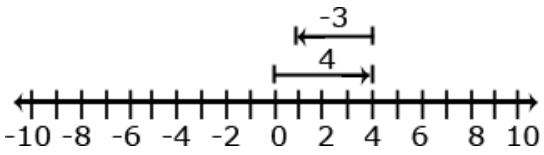
Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 1: Operations with Rational Numbers
Duration of Unit	

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.

MCC7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Apply (previous understandings) **Extend (previous understandings)** **Represent (addition and subtraction on a number line)**	**Understandings (of addition and subtraction to add and subtract rational numbers)** **Addition and subtraction (of rational numbers on a number line)**	**2** **2** **1**

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)
Solving addition and subtraction problems with integers involves using the properties of operations and rules for addition and subtraction of integers.	**What is a rational number?** **What are the rules for adding and subtracting integers?** **How do I use a number line to add and subtract integers?** **How can I use properties of operations to help me solve problems involving addition and subtraction of integers?**

Explanations and Examples
Visual representations may be helpful as students begin this work; they become less necessary as students become more fluent with the operations. **Examples:** • **Use a number line to illustrate:** o ***p - q*** o ***p + (- q)*** o **Is this equation true *p – q = p + (-q)*** • **-3 and 3 are shown to be opposites on the number line because they are equal distance from zero and therefore have the same absolute value and the sum of the number and it's opposite is zero.**      • **You have $4 and you need to pay a friend $3. What will you have after paying your friend?** **4 + (-3) = 1 or (-3) + 4 = 1**   
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 1: Operations with Rational Numbers
Duration of Unit	

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.

MCC7.NS.2 Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Apply (understandings of multiplication and division of fractions) **Extend (previous understandings of multiplication and division of fractions)**	**Understandings (of operations with fractions to multiply and divide rational numbers)**	**2** **2**

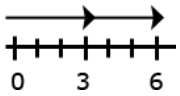
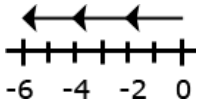
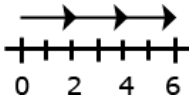
Step 5: Determine BIG Ideas (enduring understandings students will remember long after the unit of study)	**Step 6: Write Essential Questions** (these guide instruction and assessment for all tasks. The big ideas are answers to the essential questions)
Solving problems with rational numbers involves using the properties of operations and rules for multiplication and division of integers.	**What is a rational number and how do I tell if a decimal is a rational number?** **What are the properties of operations involving multiplication and division?** **How can I use properties of numbers to help me solve problems?** **What are the rules for multiplication and division of integers?**

Explanations and Examples

Multiplication and division of integers is an extension of multiplication and division of whole numbers.

Examples:

- **Examine the family of equations. What patterns do you see? Create a model and context for each of the products.**

Equation	Number Line Model	Context
2 x 3 = 6		**Selling two posters at $3.00 per poster**
2 x -3 = -6		**Spending 3 dollars each on 2 posters**
-2 x 3 = -6		**Owing 2 dollars to each of your three friends**
-2 x -3 = 6		**Forgiving 3 debts of $2.00 each**

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 1: Operations with Rational Numbers
Duration of Unit	

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.

MCC7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Solve (real-world and mathematical problems)	**Real-world problems** **Mathematical problems** **(involving the 4 operations with rational numbers)**	**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)
Solving real-world problems involves using all properties of operations and all integer rules.	**What is a rational number?** **How do I use number properties and rules to solve real-world problems?**

Explanations and Examples
Examples: • **Your cell phone bill is automatically deducting $32 from your bank account every month. How much will the deductions total for the year?** **-32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 = 12 (-32)** • **It took a submarine 20 seconds to drop to 100 feet below sea level from the surface. What was the rate of the descent?** $\frac{-100 \text{ feet}}{20 \text{ seconds}} = \frac{-5 \text{ feet}}{1 \text{ second}} = -5 \text{ ft/sec}$
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th grade
Unit of Study	Unit 3: Ratios and Proportional Relationships
Duration of Unit	

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.

MCC7.RP.2 Recognize and represent proportional relationships between quantities.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Recognize	**Proportional relationships**	**2**
Represent	**Quantities**	**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)
Students can represent proportional relationships **Students can find the constant of proportionality**	**How do you determine if two quantities are proportional?** **How do you find the constant of proportionality?** **How can you use an equation to represent proportional relationships?** **How do you graph a proportional relationship?**

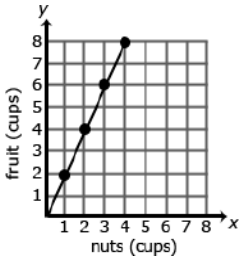
Explanations and Examples

Students may use a content web site and/or interactive white board to create tables and graphs of proportional or non-proportional relationships. Graphing proportional relationships represented in a table helps students recognize that the graph is a line through the origin (0,0) with a constant of proportionality equal to the slope of the line.

Examples:

- A student is making trail mix. Create a graph to determine if the quantities of nuts and fruit are proportional for each serving size listed in the table. If the quantities are proportional, what is the constant of proportionality or unit rate that defines the relationship? Explain how you determined the constant of proportionality and how it relates to both the table and graph.

Serving Size	**1**	**2**	**3**	**4**
Cups of Nuts (x)	1	2	3	4
Cups of Fruit (y)	2	4	6	8



The relationship is proportional. For each of the other serving sizes there are 2 cups of fruit for every 1 cup of nuts (2:1).

The constant of proportionality is shown in the first column of the table and by the slope of the line on the graph.

- The graph below represents the cost of gum packs as a unit rate of $2 dollars for every pack of gum. The unit rate is represented as $2/pack. Represent the relationship using a table and an equation.

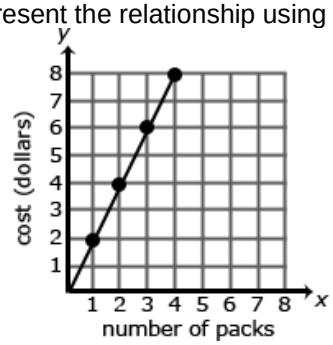


Table:

Number of Packs of Gum (*g*)	Cost in Dollars (*d*)
0	0
1	2
2	4
3	6
4	8

Equation: $2g = d$, where d is the cost in dollars and g is the packs of gum

A common error is to reverse the position of the variables when writing equations. Students may find it useful to use variables specifically related to the quantities rather than using x and y. Constructing verbal models can also be helpful. A student might describe the situation as “the number of packs of gum times the cost for each pack is the total

cost in dollars". They can use this verbal model to construct the equation. Students can check their equation by substituting values and comparing their results to the table. The checking process helps student revise and recheck their model as necessary. The number of packs of gum times the cost for each pack is the total cost $g \times 2 = d$).
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 3: Ratios and Proportional Relationships
Duration of Unit	

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.

MCC7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Use **Solve**	**Proportional relationships** **Multistep ratios/percents**	**2** **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)
Students can set up a proportion to solve ratio/percent problems. **Understand the mathematical foundation for cross-multiplication.**	**What is a proportion?** **How can I use a proportion to solve a percent problem? (i.e. tax, percent discount, interest)**

Explanation and Examples

Students should be able to explain or show their work using a representation (numbers, words, pictures, physical objects, or equations) and verify that their answer is reasonable. Models help students to identify the parts of the problem and how the values are related. For percent increase and decrease, students identify the starting value, determine the difference, and compare the difference in the two values to the starting value.

Examples:

- **Gas prices are projected to increase 124% by April 2015. A gallon of gas currently costs $4.17. What is the projected cost of a gallon of gas for April 2015?**

  A student might say: "The original cost of a gallon of gas is $4.17. An increase of 100% means that the cost will double. I will also need to add another 24% to figure out the final projected cost of a gallon of gas. Since 25% of $4.17 is about $1.04, the projected cost of a gallon of gas should be around $9.40."

  $4.17 + 4.17 + (0.24 • 4.17) = 2.24 x 4.17

100%	100%	24%
$4.17	$4.17	?

- **A sweater is marked down 33%. Its original price was $37.50. What is the price of the sweater before sales tax?**

37.50	
33% of 37.50	67% of 37.50

  The discount is 33% times 37.50. The sale price of the sweater is the original price minus the discount or 67% of the original price of the sweater, or Sale Price = 0.67 x Original Price.

- **A shirt is on sale for 40% off. The sale price is $12. What was the original price? What was the amount of the discount?**

Discount	Sale Price - $12
Original Price (p)	

0.60p = 12

- **At a certain store, 48 television sets were sold in April. The manager at the store wants to encourage the sales team to sell more TVs and is going to give all the sales team members a bonus if the number of TVs sold increases by 30% in May. How many TVs must the sales team sell in May to receive the bonus? Justify your solution.**

- **A salesperson set a goal to earn $2,000 in May. He receives a base salary of $500 as well as a 10% commission for all sales. How much merchandise will he have to sell to meet his goal?**

  After eating at a restaurant, your bill before tax is $52.60 The sales tax rate is 8%. You decide to leave a 20% tip for the waiter based on the pre-tax amount. How much is the tip you leave for the waiter? How much will the total bill be, including tax and tip? Express your solution as a multiple of the bill. The amount paid = 0.20 x $52.50 + 0.08 x $52.50 = 0.28 x $52.50

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 4: Inferences
Duration of Unit	

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.

MCC7.SP1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

- **Distinguish between a population parameter (numerical summary of the population) and a sample statistic (numerical summary of a sample)**

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Understand (use of statistics to gain info about a population)	**Statistics** **Information of a population**	**2**
Examine (sample of the population)	**Sample of the population**	**3**
Examine (generalizations about a population from a sample)	**Generalizations about a population from a sample**	**3**
Understand (representative samples are valid if they are random sample)	**Representative samples** **Random samples**	**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)
Statistics allows you to gain information about a population. **Generalizations about a population can be made based on sampling.**	**What is statistics?** **How do we collect information about a population?** **What is a population?** **What is a random sample?** **How do we make generalizations about a population?**

Explanations and Examples

Example:

- **The school food service wants to increase the number of students who eat hot lunch in the cafeteria. The student council has been asked to conduct a survey of the student body to determine the students' preferences for hot lunch. They have determined two ways to do the survey. The two methods are listed below. Identify the type of sampling used in each survey option. Which survey option should the student council use and why?**

  1. **Write all of the students' names on cards and pull them out in a draw to determine who will complete the survey.**
  2. **Survey the first 20 students that enter the lunch room.**

Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 4: Inferences
Duration of Unit	

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.

MCC7.SP.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. Compare summary statistics (mean, median, mode, range, quartiles, interquartile range, mean absolute deviation) from one sample data distribution to another sample data distribution in describing center and variability of the data distributions for numerical data and make informal comparative statement.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
use	**Measures of center** **Measures of variability for numerical data from random samples**	**2**
draw	**Comparative inferences about two populations**	**3**
compare	**Summary statistics (mean, median, mode) and Sample data distribution (range, quartiles, interquartile range, mean absolute deviation)**	**4**

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)
Summary statistics and measurements from random samples allow us to compare and draw conclusions about two populations.	**What are measures of center and measures of variability?** **How do we compare populations?**

Explanations and Examples
Measures of center include mean, median, and mode. The measures of variability include range, mean absolute deviation, and interquartile range. **Example:** • **The two data sets below depict random samples of the housing prices sold in the King River and Toby Ranch areas of Arizona. Based on the prices below, which measure of center will provide the most accurate estimation of housing prices in Arizona? Explain your reasoning.** o **King River area {1.2 million, 242000, 265500, 140000, 281000, 265000, 211000}** o **Toby Ranch homes {5million, 154000, 250000, 250000, 200000, 160000, 190000}**
Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard

Forsyth County Schools

Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 6: Probability
Duration of Unit	

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.

MCC7.SP.7 **Develop** a probability model and **use it to find** probabilities of events. **Compare** probabilities from a model to observed frequencies; if the agreement is not good, **explain** possible sources of the discrepancy.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Develop	**Probability model**	**3**
Use to find	**Probabilities of events**	**3**
Compare	**Probabilities from a model** **Observed frequencies**	**2**
Explain	**Agreement(not good)** **Discrepancy sources**	**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)
Probability models may be compared with observed frequencies to determine if there are discrepancies	**How can probabilities be used to compare to observations?** **How can you tell if the model and observed frequencies have discrepancies?**

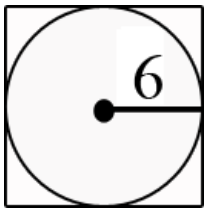
Explanations and Examples

CCGPS Unwrapped Standard Forsyth County Schools

Students need multiple opportunities to perform probability experiments and compare these results to theoretical probabilities. Critical components of the experiment process are making predictions about the outcomes by applying the principles of theoretical probability, comparing the predictions to the outcomes of the experiments, and replicating the experiment to compare results. Experiments can be replicated by the same group or by compiling class data. Experiments can be conducted using various random generation devices including, but not limited to, bag pulls, spinners, number cubes, coin toss, and colored chips. Students can collect data using physical objects or graphing calculator or web-based simulations. Students can also develop models for geometric probability (i.e. a target).

Example:

- **If you choose a point in the square, what is the probability that it is not in the circle?**



Next step, create assessments and engaging learning experiences

CCGPS Unwrapped Standard Forsyth County Schools

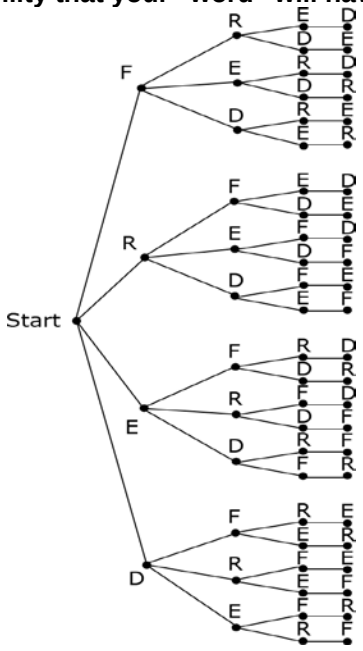
Content Area	Math
Grade/Course	7th Grade
Unit of Study	Unit 6: Probability
Duration of Unit	

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.

MCC7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

Skills (what students must be able to do)	**Concepts** (what students need to know)	**DOK Level / Bloom's**
Find **Use**	**Probabilities of compound events** **Organized lists** **Tables** **Tree Diagrams** **Simulation**	**3 (Analysis)** **2 (Analysis)**

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)
Create an appropriate display to find the probabilities of compound events.	**How can I find the probability of a compound event using an organized display?**

Explanations and Examples
Examples: • **Students conduct a bag pull experiment. A bag contains 5 marbles. There is one red marble, two blue marbles and two purple marbles. Students will draw one marble without replacement and then draw another. What is the sample space for this situation? Explain how you determined the sample space and how you will use it to find the probability of drawing one blue marble followed by another blue marble.** • **Show all possible arrangements of the letters in the word FRED using a tree diagram. If each of the letters is on a tile and drawn at random, what is the probability that you will draw the letters F-R-E-D in that order? What is the probability that your "word" will have an F as the first letter?** 
Next step, create assessments and engaging learning experiences