Math Timeline for Grade 7

Macon County 2017-18

1st 9 Weeks

Standard	Learning Target	Resources	T	M
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.	I can solve unit rates with ratios measured in like units and/or different units. (s) I can solve unit rates with ratios of lengths, areas and other quantities. (s) I can solve unit rates with ratios as fractions. (s)	Ch1		
7.RP.A.2 Recognize and represent proportional relationships between quantities.	I can determine that a proportion is a statement of equality between two ratios. (s)	Ch1 Ch2		
7.RP.A.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).	I can analyze two ratios to determine if they are proportional to one another with a variety of strategies (e.g. using tables, graphs, pictures, etc.) (r)	Ch1		
7.RP.A.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	I can define constant of proportionality of a unit rate. I can analyze tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships to identify the constant of proportionality. (k,s)	Ch1		
7.RP.A.2c Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of	I can represent proportional relationships by writing equations. (s)	Ch1 Ch2		

items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.				
7.RP.A.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.	I can recognize in a proportional relationship that (1,r) identifies r as that unit rate. (k) I can distinguish whether a graph of a line demonstrates a proportional relationship with special attention to the point (0,0). (r)	Ch1		
7.RP.A.3 Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	I can use proportional relationships to solve multistep ratio and percent problems. (s)	Ch1 Ch2 Ch4		
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)	I can add, subtract, multiply and divide rational numbers. (s)	Ch1 Ch3 Ch4 Ch5		
7.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.	I can apply previous understandings of adding and subtracting rational numbers with representations on a horizontal or vertical number line.	Ch3 Ch4		
7.NS.1a Describe situations in which opposite quantities combine to make 0.	I can describe situations in which opposite quantities combine to make 0.	Ch3		
7.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	I can solve math problems involving positive and negative numbers.	Ch3 Ch4		

opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing realworld contexts.				
7.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.	I can recognize that the distance between two rational numbers on a number line is the same as the absolute value of the difference. I can solve subtraction problems using rational numbers by adding the opposite. (Keep It, Switch It, Change It)	Ch3 Ch4		
7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.	I can apply properties of operations as strategies to add and subtract rational numbers.	Ch3 Ch4		
7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	I can use previous knowledge of multiplication and division to multiply and divide rational numbers.	Ch3 Ch4		
7.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.	I can model and explain how the properties of operations are true when multiplying rational numbers. I can interpret products of rational numbers by describing real-world contents.	Ch3 Ch4		
7.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 $–(p/q) = (–p)/q = p/(–q)$. Interpret quotients of rational numbers by describing real-world contexts.	I can explain why dividing by 0 is undefined. I can use multiplication of rational numbers to develop the procedure of dividing integers. I can use the rules for dividing signed numbers to determine the sign of the quotient.	Ch3 Ch4		

7.NS.A.2c Apply properties of operations as strategies to multiply and divide rational numbers.	I can apply properties of operations as strategies to multiply and divide rational numbers. (s)	Ch3 Ch4		
7.NS.A.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.	I can convert a rational number to a decimal number using long division, knowing it will terminate or repeat.	Ch3 Ch4		
7.EE.A.2 Understand that rewriting an expression in different forms in a contextual problem can provide multiple ways of interpreting the problem and how the quantities in it are related. For example, shoes are on sale at a 25% discount. How is the discounted price P related to the original cost C of the shoes? C - .25C = P. In other words, P is 75% of the original cost for C - .25C can be written as .75C.	I can manipulate expressions to make equivalent to make equivalent expressions while problem solving. (e.g. a + 0.05a = 1.05a; increase by 5% is the same as multiplying by 1.05%). (s)	Ch2 Ch5		
7.EE.3 3 Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers presented in any form (whole numbers, fractions, and decimals). a. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. b. Assess the reasonableness of answers using mental computation and estimation strategies.	I can solve multi-step mathematical problems and real world problems with positive and negative numbers. (s)	Ch2 Ch3 Ch4		

2nd 9 Weeks

Standard	Learning Target	Resources	T	M
7.EE.A1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	I can add, subtract, factor and expand linear expressions with rational coefficients using properties of operations.	Ch5		
7.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.	I can use variables for an unknown quantity in a real-world problem. I can construct an equation or inequality and solve.	Ch6		
7.EE.4a Solve contextual 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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?	I can solve word problems and equations when given rational numbers to represent variables.	Ch6		
7.EE.4b Solve contextual problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality on a number line and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. (Note that inequalities using $>, <, \leq, \geq$ are included in this standard).	I can solve word problems and inequalities when given rational numbers to represent variables. I can graph the solution set of an inequality.	Ch6		

3rd 9 Weeks

Standard	Learning Target	Resources	T	M
7.G.A.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.	I can solve problems involving scale drawings of geometric figures. (s) I can compute the actual length of a geometric figure from a scale drawing. (s)	Ch7		
7.G.A.2 Draw 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.	I can construct geometric shapes using free hand, with a ruler and protractor, and with technology. (p) I can construct triangles from three measures of sides. (p) I can construct triangles from three measures of angles. (p) I can prove whether three measurements of angles or sides will form a triangle. (k)	Ch7		
7.G.B.4 Know and 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.	I can state relationships between supplementary, complementary, vertical, and adjacent angles. (k) I can find unknown angle measurements by using characteristics of supplementary, complementary, vertical, and adjacent angles. (s)(k)	Ch8		
7.G.B.3 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.	I can apply formulas to measure area and circumference of circles. (s) I can solve mathematical and real world problems involving area. (s)	Ch7 Ch8		

7.G.B5 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.	I can solve word problems involving area, volume and surface area of two and three dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.	Ch7 Ch8		

7.SP.C.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 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event	I can recognize that probability of a chance event is a number between 0 and 1, and express probability as the likelihood of the event occurring. (k) I can recognize that larger number indicates greater likelihood, while a probability near 0 indicates an unlikely event. (k) I can recognize that probability may be expressed as a decimal, percent or ratio. (k)	Ch9		
7.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. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.	I can collect data from a probability experiment. (p) I can predict the number of times an event will occur given a specific number of trials. (r)	Ch9		
7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare	I can find the probability of an event using a model. I can compare theoretical and	Ch9		

probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	experimental probability and determine if they are close. If they are not close, I can explain why.			
7.SP.C.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.	I can collect data from a probability experiment and predict the number of times an event will occur given a specific number of trials. I can explain why theoretical probability (what should happen) will not always equal experimental probability (what does happen) I can recognize that as the number of trial increase, the experimental probability approaches the theoretical probability.	Ch9		
7SP.C.7b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?	I can solve probability of the event from the model. (k)(s) I can conduct a probability experiment and develop a theoretical probability model to represent the situation. (p)	Ch9		

4th 9 Weeks

Standard	Learning Target	Resources	T	M
7.SP.A.1 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.	I can recognize that statistics are used to gain information. (k) I can examine a sample of a population to gain information about population. (r) I can recognize characteristics about a population from a sample are valid only if the sample is representative of that population. (k) I can produce representative samples by using random sampling to support valid inferences of the population.(p)	Ch10		
7.SP.A.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. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.	I can use data from a random sample to draw inferences about a population with an unknown characteristic of interest. (s) I can generate multiple samples of the same size to gauge the variation in estimates or predictions. (s)	Ch10		
7.SP.B3 Informally assess the degree of visual overlap of two numerical data distributions with similar	I can informally assess the centers (mean, median or mode) in order to determine if there is a visual overlap.	Ch10		

variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team; on a dot plot or box plot, the separation between the two distributions of heights is noticeable.				
7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a 7th grade science book are generally longer than the words in a chapter of a 4th grade science book.	I can apply measures of central tendency to find mean, median, mode and range to draw conclusions from two populations. (s)	Ch10		
	REVIEW			