Grade Seven

Tecumseh School District
Math Curriculum Map

Quarter 1

Standard	Learning Targets	Intro	Continuation	Assess Benchmark	Vocabulary
7.NS.A.2 Apply and extend previous understanding of multiplication and division and of fractions to multiply and divide rational numbers. A. 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.	Recognize that the process for multiplying fractions can be used to multiply rational numbers including integers. Know and describe the rules when multiplying signed numbers. Apply the properties of operations, particularly distributive property, to multiply rational numbers. Interpret the products of rational numbers by describing real-world contexts.				integers properties of operations distributive property multiply rational numbers interpret
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers	Add rational numbers Subtract rational numbers Multiply rational numbers Divide rational numbers Solve real-world mathematical problem by adding, subtracting, multiplying, and dividing rational numbers, including complex fractions Interpret sums of rational numbers by describing real-world contexts				real-world mathematical complex fractions rational numbers
7.NS.A.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. a. Describe situations in which opposite quantities combine to make 0.	Describe situations in which opposite quantities combine to make 0				
7.NS.A.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 line diagram	Apply and extend previous understanding to represent addition and subtraction problems of rational numbers with a horizontal or vertical number line				rational numbers horizontal vertical

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7.NS.A.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 line diagram b. Understand that 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.	Explain and justify why the sum of p + q is located a distance of |q| in the positive or negative direction from p on a number line. Identify subtraction of rational numbers as adding the additive inverse property to subtract rational numbers, p-q=p+(-q). Represent and explain how a number and its opposite have a sum of 0 and are additive inverse. Demonstrate and explain how adding two numbers, p = q, if q is negative, the sum of p and q will be |q| spaces to the left of p on the number line. Demonstrate and explain how adding two numbers, p+q, if q is positive, the sum of p and q will be |q| spaces to the right of p on the number line.				additive inverse property rational numbers additive inverses sum
7.NS.A.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 line diagram. c. 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.	Apply the principle of subtracting rational numbers in real-world context. Apply properties of operations as strategies to add and subtract rational numbers. Represent the distance between two rational numbers on a number line is the absolute value of their difference and apply this principle in real-world context.				absolute value of
7.NS.A.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 line diagram. d. Apply properties of operations as strategies to add and subtract rational numbers.	Identifies properties of addition and subtraction when adding and subtracting rational numbers. Apply properties of operations as strategies to add and subtract rational numbers.				properties of addition subtraction rational numbers properties of operations

Standard	Learning Targets	Intro	Continuation	Assess Benchmark	Vocabulary
7.NS.A.2 Apply and extend previous understanding of multiplication and division and of fractions to multiply and divide rational numbers.					
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. B. 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.	Explain why integers can be divided except when the divisor is 0. Describe why the quotient is always a rational number. Know and describe the rules when dividing signed numbers, integers. Recognize that –(p/q)=-p/q=p/-q. Interpret the quotient of rational numbers by describing real-world contexts.				divisor quotient rational number interpret
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. C. Apply properties of operations as strategies to multiply and divide rational numbers.	Identify how properties of operations can be used to multiply and divide rational numbers (such as distributive property, multiplicative inverse property, multiplicative identity, commutative property for multiplication, associative property for multiplication, etc) Apply properties of operations as strategies to multiply and divide rational numbers.				identify distributive property multiplicative inverse property multiplicative identity commutative property for multiplication associative property for multiplication strategies
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. D. 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.	Convert a rational number to a decimal using long division. Explain that the decimal form of a rational number terminates (stops) in zeroes or repeats.				convert rational number using long division terminates zeroes or repeats

Standard	Learning Targets	Intro	Continuation	Assess Benchmark	Vocabulary
7.EE.B.3 Solve multi-steop 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 to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	Convert between numerical forms as appropriate. 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 to calculate with numbers in any form. Assess the reasonableness of answers using mental computation and estimation strategies.				convert numberical forms multi-step positive and negative rational numbers properties of operations to calculate
7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Combine like terms with rational coefficients. Factor and expand linear expressions with rational coefficients using the distributive property. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.				like terms rational coefficients factor expand linear expressions distributive property
7.EE.B.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.					

Standard	Learning Targets	Intro	Continuation	Assess Benchmark	Vocabulary
7.EE.B.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. a. 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. 7.EE.B.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. b. Solve word problems leading to inequalities of the form px + q > or px + 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.	Fluently solve equations of the form px + q = r and p(x + q) = r with speed and accuracy. Identify the sequence of operations used to solve an algebraic equation of the form px + q = r and p(x + q) = r. Graph the solution set of the inequality of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Use variable and construct equations to represent quantities of the form px + q = r and p(x + q) = r from real-world and mathematical problems. Solve word problems leading to dquations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Compare an algebraic solution to an arithmetic solution by 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? This can be answered algebraically by using only the formula for perimeter (P=21+2w) to isolate w or by finding an arithmetic solution by substituting values into the formula. solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Interpret the solution set of an inequality in the context of the problem.				inequality variables rational numbers

Quarter 2

Standard	Learning Targets	Intro	Teach	Assess	Vocabulary
7.RP.A.1 Compute unit rates associated with ratios of fractions, including rations of lengths, areas and other quantities measured in like or different units.	Compute unit rates associated with rations of fractions in like or different units.				unit rates ratios of fractions
7.RP.A.2 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent rations in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.					
7.RP.A.2 Recognize and represent proportional relationships between quantities. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	Define constant of proportionality as a unit rate. Know that a proportion is a statement of equality between two ratios. Analyze tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships to identify the constant of proportionality. Analyze two ratios to determine if they are proportional to one another with a variety of strategies (e.g. using tables, graphs, pictures, etc.)				constant of proportionality proportional relationships proportional

7.RP.A.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.	Recognize situations in which percentage proportional relationships apply. Apply proportional reasoning to solve multistep ratio and percent problems, e.g., simple interest, tax, markups, markdowns, gratuities, commissions, fees, percent increase and decrease, percent error, etc.				percentage proportional relationships proportional reasoning simple interest tax markups markdowns gratuities commissions fees percent increase percent decrease percent error
7.RP.A.2 Recognize and represent proportional relationships between quantities. d. 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.	Recognize what (0,0) represents on the graph of a proportional relationship. Recognize what (1,r) on a graph represents, where r is the unit rate. Represent proportional relationships by writing equations. Explain what the points on a graph of a proportional relationship means in terms of a specific situation.				
7.RP.A.2 Recognize and represent proportional relationships between quantities. c. Represent proportional relationships by equations.					
7.EE.B.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 to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.					

7.EE.A.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. For example, a + 0.05a = 1.05a means that "increase by 5% is the same as "multiply by 1.05".	Write equivalent expressions with fractions, decimals, percents, and integers. Rewrite an expression in an equivalent form in order to provide insight about how quantities are related in a problem context.				equivalent expressions
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 on a different scale.	Use ratios and proportions to create scale drawing. Identify corresponding sides of scaled geometric figures. Compute lengths and areas from scale drawings using strategies such as proportions. Reproduce a scale drawing that is proportional to a given geometric figure using a different scale.				ratios proportions scale drawing scale factors reproduce

Quarter 3

Standard	Learning Targets	Intro	Continuation	Assess	Vocabulary
7.G.A.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.	Know which conditions create unique triangles, more than one triangle, or no triangle. Analyze given conditions based on the three measures of angles or sides of a triangle to determine when there is a unique triangle, more than one triangle, or no triangle. Construct triangles from three given angle measures to determine when there is a unique triangle, more than one triangle or no triangle using appropriate tools (free hand, rulers, protractors, and technology). Construct triangle from three given side measures to determine when there is a unique triangle, more than one triangle, or no triangle using appropriate tools (freehand, rulers, protractors, and technology).				construct
7.G.B.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.	Know the formulas for area and volume and the procedure for finding surface area and when to use them in real-world and math problems for two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. Solve real-world and math problems involving area, surface area and volume of two-and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.				formulas for area volume surface area two- and three- dimensional objects triangles quadrilaterals polygons cubes right prisms surface area

7.G.B.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.	Identify and recognize types of angles: supplementary, complementary, vertical, adjacent. Determine complements and supplements of a given angle. Determine unknown angle measures by writing and solving algebraic equations based on relationships between angles.				supplementary complementary vertical adjacent complements supplements algebraic equations
7.G.B.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.	Know the parts of a circle including radius, diameter, area, circumference, center, and chord. identify Know the formulas for area and circumference of a circle Given the circumference of a circle, find its area. Given the area of a circle, find its circumference. Justify that π can be derived from the circumference and diameter of a circle. Apply circumference or area formulas to solve mathematical and real-world problems. Justify the formulas for area and circumference of circle and how they relate to π Informally derive the relationship between circumference and area of a circle				π radius diameter area circumference center chord
7.G.A.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.	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.				two-dimensional slicing a three dimensional figure right rectangular prism or pyramid

7.SP.A.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.	Know statistics terms such as population, sample, sample size, random sampling, generalizations, valid, biased and unbiased. Recognize sampling techniques such as convenience, random, systematic, and voluntary. Know that generalizations about a population from a sample are valid only if the sample is representative of that population. Apply statistics to gain information about a population from a sample of the population. Generalize that random sampling tend to produce representative samples and support valid inferences.				population sample sample size random sampling generalizations valid biased unbiased convenience random systematic voluntary statistics valid inferences
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.	Define random sample Identify an appropriate sample size. Analyze and interpret data from a random sample to draw inferences about a population with an unknow characteristic of interest. Generate multiple samples (or simulated samples) of the same size to determine the variation in estimates or predictions by comparing and contrasting the samples.				random sample inferences simulated samples variation
7.SP.B.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 o variability.	Identify measures of central tendency (mean, median, and mod in a data distribution Identify measures of variation including upper quartile, lower quartile, upper extreme-maximum, lower extreme-minimum, range, interquartile range, and mean absolute deviation (i.e., box-and-whisker plots, line plot, dot plots, etc)				identify measures of central tendency mean, median, mode, data distribution, variation, upper quartile, lower quartile, upper extreme-maximum, lower extreme-minimum, range, interquartile range, mean absolue deviation, box-and-whisker plots, line plot, dot plots, numberical data distributions, degree of visual overlap, measure of central tendency, distributions

7.SP.B.4 Use measure of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	Find measures of central tendency (mean, median, and mode) and measures of variability (range, quartile, etc) Analyze and interpret data using measures of central tendency and variability. Draw informal comparative inferences about two populations from random samples.				measures of central tendency mean median mode measures of variability range quartile informal comparative inferences
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 ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	Know that probability is expressed as anumber between 0 and 1. Know that a random event with a probability of ½ is equally likely to happen. Know that as probability moves closer to 1 it is increasingly likely to happen. Know that as probability moves closer to 0 it is decreasingly likely to happen. Draw conclusions to determine that a greater likelihood occurs as the number of favorable outcomes approaches the total number of outcomes.				probability random event equally likely increasingly likely decreasingly likely favorable outcomes outcomes
7.SP.C.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	Determine relative frequency (experimental probability) is the number of times an outcome occurs divided by the total number of times the experiment is completed. Determine the relationship between experimental and theoretical probabilities by using the law of large numbers. Predict the relative frequency (experimental probability) of an event based on the (theoretical) probability				relative frequency experimental probability theoretical probability law of large numbers relative frequency
7.SP.C.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.					

7.SP.C.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. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	Recognize uniform (equally likely) probability. Use models to determine the probability of events. Develop a uniform probability model and use it to determine the probability of each outcome/event. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. Analyze a probability model and justify why it is uniform or explain the discrepancy if it is not.				uniform uniform probability model outcome/event probability model observing frequencies data generated from a chance process analyze discrepancy
7.SP.C.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. b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process					
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.					
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. 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.	Define and describe a compound event Find probabilities of compound events using organized lists, tables, tree diagrams, etc. and analyze the outcomes.				compound event organized lists tables tree diagrams
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. b. 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.	Know that the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Choose the appropriate method such as organized lists, tables, and tree diagrams to represent sample spaces for compound events. Identify the outcomes in the sample space for an everyday event.				

7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. c. Design and use a simulation to generate frequencies for compound events.	Define simulation Design and use a simulation to generate frequencies for compound events.				simulation

Quarter 4

Standard	Learning Targets	Intro	Continuation	Assess	Vocabulary
	(no data given to enter)				

Standard	Learning Targets	Intro	Continuation	Assess	Vocabulary

Standard	Learning Targets	Intro	Continuation	Assess	Vocabulary