

Jackson County Core Curriculum Collaborative (JC4)

7th Grade Math

Standard	Learning Targets in Student Friendly Language
7.RP.1	I can determine the appropriate unit rates to use in a given situation, including those with fractions.
	I can solve ratio problems whose quantities are lengths of the same unit and different units.
	I can solve ratio problems whose quantities are areas of the same unit and different units.
	I can use repeated reasoning to model or solve unit rates.
	I can compute a unit rate by multiplying or dividing both quantities by the same factor.
	I can solve unit rate problems that have fractional quantities.
7.RP.2	I can recognize, represent, and explain proportions using tables, graphs, equations, diagrams, and verbal descriptions.
7.RP.2.a	I can analyze whether two quantities are in a proportional relationship by testing for equivalent ratios in a table.
	I can analyze whether two quantities are in a proportional relationship by observing whether the graph of the ratios produces a straight line through the origin.
	I can calculate the cross product to determine if the two ratios are in a proportional relationship.
7.RP.2.b	I can identify the constant of proportionality/unit rate using a table or diagram.
	I can calculate the constant of proportionality/unit rate given a verbal description of a proportional relationship.
	I can compute the rate of change/slope from a graph (rise over run) or equation (m in $y=mx$).
7.RP.2.c	I can solve equations created from proportional relationships.
	I can write an equation from a proportional relationship.
7.RP.2.d	I can calculate the unit rate by identifying that on a graph when the x-coordinate is 1, the y-coordinate is the unit rate.
	I can define the rate of proportionality from a graph.
	I can explain that the y-coordinate divided by the x-coordinate for every point other than the origin equals the constant of proportionality.
	I can explain the meaning of a point on a graph $y=mx$ of a real life situation.
7.RP.3	I can solve the following types of multistep and percent problems: simple interest, taxes, markups, gratuities and commissions, fees, percent increase and decrease, and percent error.
	I can calculate the part, whole, and the percent of a number.
	I can calculate tax.
	I can calculate simple interest.
	I can calculate percent error.
	I can calculate percent increase and decrease.
	I can calculate markup and markdown.
	I can calculate gratuity (tip).
	I can calculate fees as a percent or as a flat amount.
	I can calculate commission.
	I can compare and contrast what happens to the answer when calculating tax vs. discount.
	I can use proportional relationships to solve multi-step ratios and percent problems, including simple interest, tax, markups, markdowns, gratuities and commissions, fees, percent increase/decrease, and percent error.
7.NS.1	I can apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
7.NS.1.a	I can describe real-world situations where two quantities add to make a sum of 0.
	I can solve problems where two quantities add to make a sum of 0.

7.NS.1.b	I can define additive inverse as a rational number added to its negative which results in a sum of zero.
	I can use a number line to show addition as a specific distance from a particular number in one direction or the other, depending on the sign of the value being added.
	I can define the sum of two rational numbers as the distance one addend is away from the total by the absolute value of the other addend.
	I can show that a number and its opposite have a sum of zero. ex: $2 + (-2) = 0$
	I can solve real-world problems involving adding rational numbers.
7.NS.1.c	I can compare subtracting rational numbers to adding the additive inverse. Example: $-2 - (-4) = -2 + 4$
	I can calculate the distance between two rational numbers by finding the absolute value of their difference.
	I can prove that the distance between two rational numbers is equal to the absolute value of their difference.
	I can solve real-world problems involving subtracting rational numbers.
7.NS.1.d	I can apply commutative, associative, additive inverse, and distributive properties to add and subtract rational numbers.
7.NS.2	I can apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
7.NS.2.a	I can apply and extend the commutative, associative, and distributive property of multiplication from fractions to rational numbers. (Focus on the distributive property)
	I can multiply positive and negative integers using properties of operations.
	I can multiply positive and negative rational numbers using properties of operations.
	I can prove the rules for multiplying signed numbers by applying the distributive property.
	I can solve real-world problems involving signed numbers.
7.NS.2.b	I can divide integers, provided the divisor is not zero.
	I can explain that a negative symbol can be written in the numerator, denominator, or next to the fraction without changing the value of the fraction.
	I can solve real-world problems involving division of rational numbers.
	I can interpret the quotient of rational numbers by describing real-world contexts.
7.NS.2.c	I can apply properties of operations as strategies to multiply and divide rational numbers.
7.NS.2.d	I can define a rational number as a decimal that terminates or eventually repeats.
7.NS.3	I can use the four operations to solve problems involving rational numbers.
7.NS.3	I can solve real-world problems involving all four operations with rational numbers using the order of operations.
	I can solve real-world problems that involve the addition, subtraction, multiplication, and/or division of rational numbers, including complex fractions.
7.EE.1	I can use the properties of operations to solve linear expressions with rational coefficients.
	I can identify and combine like terms with rational coefficients.
	I can expand (Distributive property) linear expressions with rational coefficients.
	I can factor (GCF) linear expressions with rational coefficients.
	I can identify the GCF of rational coefficients in linear expressions.
	I can add and subtract linear expressions with rational coefficients.
	I can apply properties of operations to all operations with rational coefficients.
7.EE.2	I can rewrite an expression in different forms to help me understand and solve problems.
	I can explain how an equivalent expression relates to the original situation problem.
	I can rewrite expressions to help analyze problems.
	I can simplify expressions.

	I can translate situation problems to algebraic expressions.
7.EE.3	I can use properties of operations to analyze and solve problems with rational numbers in any form (whole numbers, fractions, and decimals).
	I can apply properties of operations to solve multi-step real-world problems with all rational numbers.
	I can convert fluently between forms for common decimals, fractions, and percents.
	I can explain the significance between different forms of equivalent rational numbers.
	I can justify the reasonableness of solutions using mental computation and estimation.
7.EE.4	I can write, solve, and interpret two-step equations and inequalities using known and unknown values and can represent the solution of an inequality graphically and algebraically.
7.EE.4.a	I can compare algebraic solutions to arithmetic solutions.
	I can write and solve two-step linear equations from real-world problems.
	I can explain the steps used in solving the equation.
	I can identify the sequence of operations used to solve a problem.
	I can solve two-step linear equations fluently.
	I can translate verbal situations to two-step linear equations.
7.EE.4.b	I can construct and solve two-step linear inequalities from real-world problems.
	I can explain how the solution set relates to the problem.
	I can explain when and why it is necessary to change an inequality symbol.
	I can explain when/why an open or closed dot is used on a number line.
	I can graph the solution set of two step linear inequalities from real-world problems.
	I can interpret and describe the solution in the context of the problem.
	I can write a linear inequality from a given graph.
7.G.1	I can solve problems with scale drawings of geometric figures.
	I can apply a scale from one drawing to create a second scale for that drawing.
	I can compute the actual length of a figure from a scale drawing.
	I can compute the actual area of a figure from a scale drawing.
	I can solve problems involving scale drawings of geometric figures.
7.G.2	I can draw (freehand, with ruler and protractor, with technology) geometric shapes with given conditions.
	I can construct a geometric shape given side lengths /angle measures.
	I can construct a triangle (freehand, with ruler and protractor, and technology) given three angle or three side measures.
	I can describe when angle measures determine a triangle. (all angles add to 180 degrees)
7.G.2	I can notice when the given conditions determine a unique triangle, more than one triangle, or no triangle.
	I can describe when side measures determine a unique triangle or no triangle. (sum of two sides > third side)
7.G.3	I can describe the two-dimensional figures that result from slicing three-dimensional figures.
	I can define slicing as the cross-section of a 3D figure.
	I can define two-dimensional figures that result from slicing a right rectangular prism.
	I can define two-dimensional figures that result from slicing a right rectangular pyramid.
	I can define two-dimensional figures that result from slicing a triangular pyramid.
	I can define two-dimensional figures that result from slicing a cube.
	I can define two-dimensional figures that result from slicing a cylinder.
	I can define two-dimensional figures that results from slicing a cone.
	I can solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

7.G.4	I know the formulas for the area and circumference of a circle, can explain the relationship between the circumference and area of a circle and can use circle formulas to solve problems.
	I can write the formula for the area of a circle.
	I can write the formula for the circumference of a circle.
	I can solve problems utilizing the area of a circle formula.
	I can solve problems utilizing the circumference of a circle formula.
	I can derive the relationship between the circumference and area of a circle.
	I can identify the parts of a circle including radius, diameter, area, circumference, center, and chord.
7.G.5	I can 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 identify and recognize supplementary, complementary, vertical and adjacent angles.
	I can determine unknown angle measures by writing and solving algebraic equations based on relationships between angles.
	I can solve multi-step word problems using facts about angle pairs.
7.G.6	I can solve real-world and mathematical problems involving 2-dimensional area (triangles, quadrilaterals, polygons) and 3-dimensional volume and surface area (cubes, right prisms).
	I can define area formulas of two-dimensional figures.
	I can define surface area formulas of three-dimensional figures.
	I can define volume formulas of three-dimensional figures.
	I can solve word problems involving area of two-dimensional figures.
	I can solve word problems involving volume of three-dimensional figures.
	I can solve word problems involving surface area of three-dimensional figures.
7.SP.1	I can determine whether generalizations are valid by examining sample size and sampling methods.
	I can evaluate the validity of a statistical sample from a population.
	I can explain how statistics is used to gain information about a population.
	I can explain why random sampling produces a sample representative of a population.
7.SP.2	I can use data from a random sample to draw conclusions and make reasonable arguments about a population.
	I can determine the validity of a sample based on how the data was gathered.
	I can draw inferences about a population with a certain characteristic from data gathered from a random sample.
	I can gather data from multiple random samples of the same size in reference to a certain characteristic.
7.SP.3	I can compare and draw informal inferences about two populations using measures of center (median, mean) and measures of variation (range), visual overlap, and mean absolute deviation.
	I can compute the interquartile range.
	I can compute the mean absolute deviation.
	I can compute the range.
	I can describe how many times larger/smaller the variability of one data set is to another.
	I can describe the variability of two numerical data sets.
	I can read and interpret data from statistical representations (box-and-whisker plot, line/dot plot).
7.SP.4	I can use measures of center and measures of variability to draw informal inferences about two populations.
	I can compare/contrast measures of central tendency to draw conclusions about two random samples.

	I can compare/contrast variability of two data sets to draw conclusions about two random samples.
	I can read and interpret data from statistical representations (box-and-whisker plot, line/dot plot).
7.SP.5	I can explain the likeliness of an event occurring based on probability and explain why the numeric probability of an event must be between 0 and 1.
	I can define probability as a ratio that compares favorable outcomes to all possible outcomes.
	I can define probability as number between 0 and 1.
	I can identify the probability of an unlikely event as a number near 0.
	I can identify the probability of a likely event as a number near 1.
	I can identify the probability of an equally likely event as a number near 1/2.
7.SP.6	I can determine probability for a single event by collecting and analyzing frequency in a chance process and can explain the difference between experimental and theoretical probability.
	I can compare the theoretical probability of an event occurring and the experimental probability.
	I can compute the experimental probability of an event occurring through repeated trials.
	I can predict future probabilities based on data collected.
	I can predict the number of times an event occurs by multiplying the theoretical probability by the number of trials.
	I can use variability to explain why the experimental probability will not always exactly equal the theoretical probability.
7.SP.7	I can compare and contrast probability models and explain discrepancies using those probability models.
7.SP.7.a	I can calculate simple probabilities of events.
	I can create a uniform probability model (a situation in which all outcomes are equally likely).
7.SP.7.b	I can compare the results of a series of trials and draw conclusions.
	I can compare/contrast uniform vs. non-uniform probability models.
	I can design an experiment to investigate the likelihood of an outcome (does not need to be uniform).
7.SP.8	I can design and investigate a simulation that will allow me to collect data to generate frequencies for compound events using sample spaces, organized lists, tables and tree diagrams.
7.SP.8.a	I can calculate compound probabilities.
	I can define compound probabilities.
	I can determine the total number of possible outcomes (sample space or Counting Principle).
7.SP.8.b	I can calculate the probability of a compound event based on a table, list, or tree diagram.
	I can construct a tree diagram, list, or table to illustrate all possible outcomes of a compound event.
7.SP.8.c	I can calculate the probability of a compound event from data generated in a simulation.
	I can design a simulation to generate data for compound events.
Key:	
Yellow Highlight = Critical Area	
Blue Font Color = Long Term Learning Goal	
Black Font Color = Short Term (possibly daily) learning target WITHOUT condition and criteria.	