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Math – Pre-Algebra — First Quarter 2024-2025

Week 1… Aug. 5-9… Establish Routines and Procedures and Integers

Mathematical Practices (MP1-MP8)–Begin to set up classroom and problem-solving routines(ongoing).

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.

7.NS.A.1a 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.

7.NS.A.1c Apply properties of operations as strategies to add and subtract rational numbers.

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

Week 2… Aug. 12-16… Integer Operations $(+,-,\times,\div)$

7.NS.A.1, 7.NS.A1c, 7.NS.A.3, cont.

7.NS.A.1b 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.

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

7.NS.A.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.

7.NS.A.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.

7.NS.A.2c Apply properties of operations as strategies to multiply and divide rational numbers.

Week 3… Aug. 19-23… Rational Number Operations $(+,-,\times,\div)$

7.NS.A.1, 7.NS.A1a, 7.NS.A1b, 7.NS.A1c, 7.NS.A.3, cont.

Week 4… Aug. 26-30… Rational Number Operations $(+,-,\times,\div)$

7.NS.A.1c, 7.NS.A.3 cont.

7.NS.A.2d Convert a rational number to decimal using long division; know that the decimal form of a rational number terminates or eventually repeats.

Week 5… Sept. 2-6… The Real Number System

8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually or terminates, and convert a decimal expansion which repeats eventually or terminates into a rational number.

8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers by locating them approximately on a number line diagram. Estimate the value of irrational expressions.

Week 6… Sept. 9-13… Expressions

7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.A.2 Rewrite and connect equivalent expressions in different forms in a contextual problem to provide multiple ways of interpreting the problem and investigating how the quantities in it are related.

Week 7… Sept. 16-20… Expressions

7.EE.A.1, 7.EE.A.2, cont.

Week 8… Sept. 23-27… Expressions

7.EE.A.1, 7.EE.A.2, cont.

Week 9… Sept. 30-Oct. 4… Expressions

7.EE.A.1, 7.EE.A.2 cont.

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Math – Pre-Algebra — Second Quarter 2024-2025

Week 1… Oct. 14-18… Equations

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

7.EE.B.4a Solve real-world and mathematical 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.

Week 2… Oct. 21-25… Equations

7.EE.B.4, 7.EE.B.4a cont.

8.EE.C.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).

Week 3… Oct. 28-Nov. 1… Inequalities

8.EE.C.7a cont.

7.EE.B.4b Solve real-world and mathematical problems leading to inequalities of the form $px + q > r$, $px + q < r$, $px + q \geq r$, and $px + q \leq r$, 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.

Week 4… Nov. 4-8… Inequalities

7.EE.B.4b cont.

Week 5… Nov.11-15 … Ratios and Proportions

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.

7.RP.A.3 Use proportional relationships to solve multi-step ratio and percent problems.

7.RP.A.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Week 6… Nov. 18-22… Ratios and Proportions

7.RP.A.1, 7.RP.A.2b, 7.RP.A.3 cont.

7.RP.A.2 Recognize and represent proportional relationships between quantities.

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).

7.RP.A.2c Use the concept of equality to represent proportional relationships with equations.

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.

Week 7… Nov. 25-29… Ratios and Proportions — Thanksgiving Week

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

Week 8… Dec. 2-6… Slope

8.EE.B.5 Graph proportional relationships, interpreting the **unit rate as the slope** of the graph. Compare two different proportional relationships represented in different ways.

8.EE.B.6 Use similar triangles to explain why the **slope** m is the same between any two distinct points on a non-vertical line in the coordinate plane; ~~know and derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b~~

Week 9… Dec. 9-13… Slope

8.EE.B.5, 8.EE.B.6 cont.

Week 10… Dec. 16-20… Slope

8.EE.B.5, 8.EE.B.6 cont.

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Math – Pre-Algebra — Third Quarter 2024-2025

Week 1… Jan. 7-10… Percents

7.EE.B.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).

7.EE.B.3a Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate.

7.EE.B.3b Assess the reasonableness of answers using mental computation and estimation of strategies.

7.RP.A.3 Use proportional relationships to solve multi-step ratio and percent problems.

Week 2… Jan 13-17... Percents

7.EE.B.3, 7.EE.B.3a, 7.EE.B.3b, 7.RP.A.3 cont.

7.EE.A.2 Rewrite and connect equivalent expressions in different forms in a contextual problem to provide multiple ways of interpreting the problem and investigating how the quantities in it are related.

Week 3… Jan. 20-24… Percents and Geometric Shapes and Angles

7.RP.A.3, 7.EE.A.2 cont.

7.G.B.3 Know the formulas for the area and circumference of a circle and use them to solve problems. Explore the relationships between the radius, the circumference, and the area of a circle, and the number π.

Week 4… Jan. 27-31 ... Geometric Shapes and Angles

7.G.B.3 cont.

7.G.B.5 Solve real-world and mathematical problems involving area of two-dimensional figures composed of triangles, quadrilaterals, and polygons, and volume and surface area of three-dimensional objects composed of cubes and right prisms.

Week 5… Feb. 3-7… Geometric Shapes and Angles

7.G.B.3, 7.G.B.5 cont.

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.

Week 6… Feb. 10-14… Geometric Shapes and Angles

7.G.B.3, 7.G.B.5 cont.

7.G.A.2 Draw triangles with given conditions: three angle measures or three side measures. Notice when the conditions determine a unique triangle, more than one triangle, or no triangle.

Week 7… Feb.17-21… Surface Area and Volume

7.G.B.5 Solve real-world and mathematical problems involving area of two-dimensional figures composed of triangles, quadrilaterals, and polygons, and volume and surface area of three-dimensional objects composed of cubes and right prisms.

Week 8… Feb. 24-28… Surface Area and Volume

7.G.B.5 cont.

Week 9… Mar. 3-7… Surface Area and Volume

7.G.B.5 cont.

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Math – Pre-Algebra — Fourth Quarter 2024-2025

Week 1… Mar 10-14… Probability

7.SP.C.5 Recognize that the probability of a chance event is a number between 0 and 1 and interpret the likelihood of the event occurring.

7.SP.C.6 Calculate theoretical and experimental probability of simple events.

7.SP.C.6a 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.

7.SP.C.6b Calculate the theoretical probability of a simple event.

7.SP.C.6c Compare theoretical probabilities to experimental probabilities; explain any possible sources of discrepancy.

7.SP.C.7 Develop a probability model and use it to find experimental or theoretical probabilities of events.

7.SP.C.7a Use a uniform probability model, with equal probability assigned to all outcomes, to determine probabilities of events.

7.SP.C.7b Develop a probability model, including non-uniform models, by observing frequencies in data generated from a chance process. Use the model to estimate the probabilities of events.

Week 2… Mar. 24-28… Statistics and Statistical Measures

7.SP.A.1 Explore how 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.

7.SP.A.2 Collect and 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.

7.SP.B.3 Informally compare the measures of center (mean, median, mode) of two numerical data distributions with similar variabilities.

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.

Week 3… Mar. 31-Apr. 4… Statistics and Statistical Measures

7.SP.D.8 Summarize a numerical data set in relation to its context.

7.SP.D.8a Give quantitative measures of center (median and/or mean) and variability (range and/or interquartile range), as well as describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

7.SP.D.8b Relate and understand the choice of measures of center (median and/or mean) and variability (range and/or interquartile range) to the shape of the data distribution and the context in which the data were gathered.

Week 4… Apr. 7-11… Strengthen and Target Lowest Performing Standards

Week 5… Apr. 14-18… Strengthen and Target Lowest Performing Standards

(TCAP Window Open)

Week 6… Apr. 21-25… Strengthen and Target Lowest Performing Standards

(TCAP Window Open)

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Week 7… Apr. 28-May 2… Linear Equations

8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.A.3 Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the **rate of change** and **initial value** of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.
8.EE.B.6 Use similar triangles to explain why the **slope** m is the same between any two distinct points on a non-vertical line in the coordinate plane; know and derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

Week 8… May 5-9… Exponent Rules and Scientific Notation

8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.
8.EE.A.4 Using technology, solve real-world problems with numbers expressed in decimal and scientific notation. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities *(e.g., use millimeters per year for seafloor spreading*).

Week 9… May 12-16… Pythagorean Theorem

8.G.B.3 Explain a model of the Pythagorean Theorem and its Converse.
8.G.B.4 Know and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G.B.5 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Week 10… May 19-23… Pythagorean Theorem cont.

8.G.B.3, 8.G.B.4, 8.G.B.5 cont.