Calendar-Based Curriculum Map: Pre-Algebra

8th Grade

	August/September	October	November
Essential Question	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students understand meanings of operations and how they relate to one another? • How will students represent and analyze mathematical situations and structures using algebraic symbols? • How will students specify locations and describe spatial relationships using coordinate geometry and other representational systems?	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students understand meanings of operations and how they relate to one another? • How will students understand patterns, relations, and functions? • How will students represent and analyze mathematical situations and structures using algebraic symbols?	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students understand meanings of operations and they relate to one another? • How will students represent and analyze mathematical situations and structures using algebraic symbols?
Content	• Read, write, and compare numbers • Represent and use rational numbers • Compose and decompose numbers	• Represent and use rational numbers • Compose and decompose numbers • Apply properties of operations	• Read, write, and compare numbers • Represent and use rational numbers • Compose and decompose numbers

	• Apply properties of operations • Represent mathematical situations • Describe and use mathematical manipulation • Use coordinate systems	• Create and analyze patterns • Classify objects and representations • Represent mathematical situations • Describe and use mathematical manipulation	• Apply properties of operations • Represent mathematical situations • Describe and use mathematical manipulation
Skills	• NO1A: compare and order all rational numbers including percents, and find their approximate location on a number line • NO1B: Use fractions, decimals, and percents to solve problems • NO1C: Recognize equivalent representations for the same number and generate them by decomposing and composing numbers, including scientific notation • NO2C: Apply properties of operations to all rational numbers including order of operations and inverse operations	• NO1B: Use fractions, decimals, and percents to solve problems • NO1C: Recognize equivalent representations for the same number and generate them by decomposing and composing numbers, including scientific notation • NO2C: Apply properties of operations to all rational numbers including order of operations and inverse operations • AR1B: Generalize patterns represented graphically or numerically with words or symbolic rules, using explicit notation • AR1C: Compare and contrast various forms of representations of patterns	• NO1A: compare and order all rational numbers including percents, and find their approximate location on a number line • NO1B: Use fractions, decimals, and percents to solve problems • NO1C: Recognize equivalent representations for the same number and generate them by decomposing and composing numbers, including scientific notation • NO2C: Apply properties of operations to all rational numbers including order of operations and inverse operations

	• AR2A: Use symbolic algebra to represent and solve problems that involve linear relationships • AR2B: Use properties to generate equivalent forms for simple algebraic expressions that include all rationals • GSR2A: Use coordinate geometry to analyze properties of right triangles and quadrilaterals (including the use of the Pythagorean Theorem)	• AR2A: Use symbolic algebra to represent and solve problems that involve linear relationships • AR2B: Use properties to generate equivalent forms for simple algebraic expressions that include all rationals	• AR2A: Use symbolic algebra to represent and solve problems that involve linear relationships • AR2B: Use properties to generate equivalent forms for simple algebraic expressions that include all rationals
Assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments
Activities/Resources	• McDougal Littell Pre-Algebra Textbook • Mnemonics • Number lines • Coordinate plane pictures	• McDougal Littell Pre-Algebra Textbook • Hands-on equations • Mnemonics • Calculators • Prime number charts • Fraction mats • Recipes	• McDougal Littell Pre-Algebra Textbook • Mnemonics • Scientific Notation activity • Divisibility tests foldable notes • Calculators • Number lines • Fraction mats • Recipes

Calendar-Based Curriculum Map: Pre-Algebra

8th Grade

	December	January	February
Essential Question	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students use mathematical models to represent and understand quantitative relationships? • How will students apply transformations and use symmetry to analyze mathematical situations? • How will students use visualization, spatial reasoning, and geometric modeling to solve problems?	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students understand meanings of operations and they relate to one another?	• How will students understand patterns, relations, and functions? • How will students analyze change in various contexts? • How will students develop and evaluate inferences and predictions that are based on data?
Content	• Read, write, and compare numbers • Represent and use rational numbers • Use mathematical models • Use transformations on functions	• Represent and use rational numbers • Compose and decompose numbers • Apply properties of operations	• Identify and compare functions • Analyze change • Develop and evaluate inferences

	• Draw and use visual models		
Skills	• NO1A: compare and order all rational numbers including percents, and find their approximate location on a number line • NO1B: Use fractions, decimals, and percents to solve problems • AR3A: Model and solve problems using representations such as graphs, tables, and linear equations • GSR3B: Describe the relationship between the scale factor and the area of image using dilation (stretching/shrinking) • GSR4B: Draw or use visual models to represent and solve problems	• NO1B: Use fractions, decimals, and percents to solve problems • NO1C: Recognize equivalent representations for the same number and generate them by decomposing and composing numbers, including scientific notation • NO2C: Apply properties of operations to all rational numbers including order of operations and inverse operations	• AR1D: Identify functions as linear or nonlinear from tables, graphs, or equations • AR4A: Analyze the nature of changes (including slope and intercepts) in quantities in linear relationships • DP3A: Make conjectures about possible relationships between 2 characteristics of a sample on the basis of scatter plots of the data and approximate lines of fit
Assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments
Activities/Resources	• McDougal Littell Pre-Algebra Textbook • Mnemonics • Protractors	• McDougal Littell Pre-Algebra Textbook • Mnemonics • Calculators	• McDougal Littell Pre-Algebra Textbook • Mnemonics • Calculators

	• Calculators • Maps • Floor Plans • Rulers • Probability activities	• Shopping activity • Base-ten mats • Interest activities	• Pattern and function connection • Investigating slope activity • Function websites

Calendar-Based Curriculum Map: Pre-Algebra

8th Grade

	March	April	May
Essential Question	• How will students understand numbers, ways of representing numbers, relationships among numbers and number systems? • How will students understand meanings of operations and how they relate to one another? • How will students analyze change in various contexts? • How will students analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships? • How will students specify locations and describe spatial relationships using coordinate geometry and other representational systems?	• How will students formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them? • How will students select and use appropriate statistical methods to analyze data?	• How will students apply transformations and use symmetry to analyze mathematical situations?

	• How will students apply appropriate techniques, tools, and formulas to determine measurements?		
Content	• Read, write, and compare numbers • Apply properties of operations • Analyze change • Describe and use geometric relationships • Use coordinate systems • Use angle measurement	• Represent and interpret data • Describe and analyze data • Compare data representations	• Use transformations on objects • Use transformations on functions • Use symmetry
Skills	• NO1A: compare and order all rational numbers including percents, and find their approximate location on a number line • NO2C: Apply properties of operations to all rational numbers including order of operations and inverse operations • AR4A: Analyze the nature of changes (including slope and intercepts) in quantities in linear relationships	• DP1C: Select, create, and use appropriate graphical representation of data (including scatter plots) and box plots (box and whiskers) • DP2A: Find, use, and interpret measures of center, outliers and spread, including range and interquartile range • DP2B: Compare different representations of the same data and evaluate how well each representation shows important aspects of the data	• GSR3A: Reposition shapes under formal transformations such as reflection, rotation, and translation • GSR3B: Describe the relationship between the scale factor and the area of the image using a dilation (stretching/shrinking) • GSR3C: Identify the number of rotational symmetries of regular polygons

	• GSR1A: Describe, classify, and generalize relationships between and among types of a) 2-dimensional objects and b) 3-dimensional objects using their defining properties including Pythagorean Theorem • GSR2A: Use coordinate geometry to analyze properties of right triangles and quadrilaterals (including the use of the Pythagorean Theorem) • M2B: Solve problems of angle measure, including those involving triangles and parallel lines cut by a transversal		
Assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments	• Teacher created materials • Publisher provided materials • Observations • Oral assessments
Activities/Resources	• McDougal Littell Pre-Algebra Textbook • Calculators • Protractors • MAP review and released items	• McDougal Littell Pre-Algebra Textbook • Calculators • Mean, Median, and Mode project • Centers of data notes/worksheet	• McDougal Littell Pre-Algebra Textbook • Calculators • Protractors • Triangle deconstruction activity • Tessellations

		• Centers of data activities: Three Blind Mice Song and Measures of Center Cadence	