SHERWOOD CHARTER SCHOOL

# 2018-2019 Middle School Curriculum Planning Map
## Math
## 6th Grade

This is a working document and subject to change.

| | September | October | November | December | January | February | March | April | May | June |
|---|---|---|---|---|---|---|---|---|---|---|
| Component | Stage 1, Book 1: Decimals & Fractions<br>Stage 1, Book 2: Introductory Algebra | | | Stage 1, Book 2: Introductory Algebra | | | Stage 1, Book 2: Introductory Algebra<br>Stage 1, Book 3: Ratios, Rates, & Statistics | Stage 1, Book 3: Ratios, Rates, & Statistics | | |
| Topic | Block 1: Understanding Decimals<br>Block 2: Multiplying and Dividing Decimals | Block 3: Understanding Fractions<br>Block 4: Adding and Subtracting Fractions<br>Block 5: Multiplying and Dividing Fractions | Block 5: Multiplying and Dividing Fractions<br>Block 6: Area and Volume<br>Block 1: Order of Operations | Block 1: Order of Operations<br>Block 2: Algebraic Expressions | Block 2: Algebraic Expressions<br>Block 3: Solving Equations | Block 3: Solving Equations<br>Block 4: Integers and Functions | Block 4: Integers and Functions<br>Block 1: Ratios and Conversions<br>Block 2: Rates | Block 2: Rates<br>Block 3: Percents and Probability | Block 3: Percent sand Probability<br>Block 4: Statistics | Block 4: Statistics |
| Topic Description | Decimals: Place value, rounding, ordering and comparing, estimating, adding, subtracting. Measuring in centimeters. Multiplying by 2-digit numbers. Multiplying decimals. Dividing by 1- and 2-digit numbers. Dividing decimals by whole numbers and decimals. Greatest common factor. Equivalent and simplifying fractions. Least common multiple. Ordering and comparing fractions. Mixed numbers and improper fractions. Measuring in inches. Estimating sums and differences. Adding and subtracting fractions, mixed numbers, and by renaming. Perimeter with fractions. Multiplying and dividing fractions (with models), estimating products and quotients. Multiplying and dividing fractions and whole numbers and mixed numbers. Area with fractions. Area and perimeter with decimals. Area of composite figures. Nets and surface areas. Volume with fractional dimensions. | | | The four operations. Powers and exponents. Order of operations with powers and with grouping symbols. Number properties. Variables and expressions. Evaluating expressions. Evaluating geometric formulas. Simplifying algebraic expressions. The distributive property. Equations and solutions. Solving equations using mental math. Solving addition and subtraction equations. Solving multiplication and division equations. Mixed one-step equations. Formulas and equation solving. Solving two-step equations. Understanding integers. Comparing integers. The coordinate plane and quadrilaterals. Input-output tables. Writing function rules. Graphing linear functions. Patterns and functions. Inequalities. | | | Ratios. Geometric sequences. Customary conversions. Metric conversions. Perimeter and area. Fractions and decimals. Repeating decimals and rounding. Rates and unit rates. Rate problem solving. Comparing rates. Motion rates. Percents: Introduction, decimals and fractions, of a number, application. Probability: Introduction, experimental, theoretical, geometric. Introduction to statistics. Measure of center. Dot plots. Histograms. Box-and-whicker plots. Analyzing statistics. Mean absolute deviation. | | |
| Standards Alignment | The Number System:<br>Apply and extend previous understanding of multiplication and division to divide fractions by fractions. Compute fluently with multi-digit numbers and find common factors and multiples.<br>Geometry:<br>Solve real-world and mathematical problems involving area, surface area, and volume. | | | The Number System:<br>Apply and extend previous understandings of numbers to the system of rational numbers. Expressions and Equations:<br>Apply and extend previous understandings of arithmetic to algebraic expressions. Reason about and solve one-variable equations and inequalities. Represent and analyze quantitative relationships between dependent and independent variables. | | | Ratios and Proportional Relationships:<br>Understand ratio concepts and use ratio reasoning to solve problems.<br>Statistics and Probability:<br>Develop understanding of statistical variability. Summarize and describe distributions. | | | |
| Core Knowledge Correlation | N/A | | | | | | | | | |
| Essential Questions | How do you add or subtract decimals? | How do you multiply and divide decimals? How do you find the least common multiple? (LCM) | How do you add and subtract fractions? How do you multiply and divide fractions? | How do you find the area of composite figures? How do you find the volume with fractional dimensions? | How do you simplify expressions using the order of operations? How do you simplify algebraic expressions? | How do you solve equations using different methods? How do you graph linear functions? | How do you solve equations using different methods? How do you graph linear functions? | How do you convert customary measurements? | How do you find and use the mean absolute deviation to describe the spread of data? | How do you analyze how the characteristics of a data set affects the measure of center? |
| Anticipatory Set | Block 1: Make a display of newspaper clippings showing examples of decimal use.<br>Block 2: Design an airline mile plan. | Block 3: Create concave and convex figures using seven different line segments.<br>Block 4: Find different distances using triathlon races. | Block 5: Fraction Action, What Fits, 4-H Club, Scrapbooking.<br>Block 6: Triangle Area, Netting a Solid, Measuring Volume. | Block 1: Examine perfect squares up to 400. Make a prediction about the possible last digits of perfect squares.<br>Block 2: Translate those Words, Using Formulas, Earning Interest, Shopping Spree, Equivalent Expressions | Block 3: Record-Setting, Introduction to Equation Mats, Multiplication Equations, Inverse Operations, Equation Mats for Two-Step Equations | Block 4: Who's the Greatest?, Buried Treasure, Function Rules, Function Fun | Block 1: Comparing Students, Number Patterns, The Patio | Block 2: Back and Forth, Calculators and Fractions, Match the Rates, Shopping Sales | Block 3: Percents, Kieran's Room, At the Restaurant, Rolling a 3, Sum of Two Number Cubes, What are my Chances of Winning? | Block 4: A Question of Statistics, Counting Pets, How Tall?, What's the "Meaning?, Mercury's Rising |
| Cross Curriculum Integration/Field Trips | Explore Activities:<br>B1: Base-Ten Blocks, Using a Metric Ruler, Batting Averages, Fit Occupations<br>B2: Smart Shopper, Beaded Necklaces, Magazine Subscriptions | Explore Activities:<br>B3: University Sales, Creating Equivalent Fractions, Fraction Homework, Which is Larger?, Chocolate Chip Cookies, Using a Customary Ruler<br>B4: Pizza Party, Mixing Paint | Explore Activities:<br>B5: Find the number of minutes in a fraction of an hour.<br>B6: Make 2-dimensional net patterns of 3-dimensional shapes. | Explore Activities:<br>B1: Folding Paper, Fact Puzzle, Discovering Properties<br>B2: Determine the population density of different areas of the world. | Explore Activities:<br>B3: Find the values of missing dimensions in complex geometry figures. | Explore Activities:<br>B4: Produce graphs that illustrate non-linear situations such as doubling and tripling. | Explore Activities:<br>B1: Choose a pay raise from two different options at your new job. | Explore Activities:<br>B2: Calculate batting averages. Research batting averages in Major League Baseball. | Explore Activities:<br>B3: Find the amount of tip you should leave at a local restaurant based on the items you order. | Explore Activities:<br>B4: Learn how changing values in a data set affects the mean and median. |

SHERWOOD CHARTER SCHOOL

# 2018-2019 Middle School Curriculum Planning Map
## Math
## 7th Grade

This is a working document and subject to change.

| | September | October | November | December | January | February | March | April | May | June |
|---|---|---|---|---|---|---|---|---|---|---|
| Component | Stage 2, Book 1: Rational Numbers & Equations | | Stage 2, Book 1: Rational Numbers & Equations<br>Stage 2, Book 2: Proportions & Probability | Stage 2, Book 2: Proportions & Probability | | | Stage 2, Book 2: Proportions & Probability<br>Stage 2, Book 3: Shapes & Angles | Stage 2, Book 3: Shapes & Angles | | |
| Topic | Block 1: Positive Rational Numbers<br>Block 2: Integers | Block 2: Integers<br>Block 3: Rational Number Operations<br>Block 4: Solving Equations | Block 4: Solving Equations<br>Block 1: Ratios & Rates | Block 1: Ratios & Rates | Block 2: Proportions & Similarity<br>Block 3: Percents | Block 3: Percents<br>Block 4: Probability & Random Sampling | Block 4: Probability & Random Sampling<br>Block 5: Direct Variation<br>Block 1: Angle Relationships | Block 1: Angle Relationships<br>Block 2: Two-Dimensional Geometry | Block 2: Two-Dimensional Geometry<br>Block 3: Surface Area & Volume | Block 3: Surface Area & Volume |
| Topic Description | Fractions: Simplifying, mixed numbers and improper, adding and subtracting, multiplying and dividing. Operations with mixed numbers. Decimals: Adding and subtracting and multiplying and dividing. Integers: Adding, subtracting, multiplying, and dividing. Powers and exponents. Order of operations. Estimating sums and differences. Rational numbers: adding and subtracting and multiplying and dividing. Estimating products and quotients. Expressions and equations. Equations: One step, two step, and simplifying and solving. The distributive property. Simplifying expressions. Solving equations with variables on both sides. Linear inequalities. | | | Measurement. Fractions and decimals. Ratios. Unit rates. Rate conversions. Rates and ratios with complex fractions. Proportions: Write and solve and problem solving. Figures: Similar and congruent, proportions and special ratios. Scale drawings. Fractions, decimals, and percents. Solving percents using proportions and equations. Percent of change and applications. Probability. Using probability to predict. Probabilities and data displays. Compound probabilities using lists, tree diagrams, and tables. Compound probabilities using multiplication and simulation. Random sampling. Inferences about a population. Measures of center and variability in two data sets. The coordinate plane, making sense of graphs, direction variation of tables, graphs, and equations. Recognizing direct variation. | | | | Angles: Measuring and naming, classifying, complementary and supplementary, vertical and adjacent. Drawing geometric shapes. Area: Triangles and parallelograms, trapezoids, circles, and sectors. Parts of a circle. Circumference and pi. Composite figures. Circle similarity. Three-dimensional figures. Drawing solids. Slicing solids. Surface area of prisms. Volume of prisms. Surface area of regular pyramids. Volume of pyramids. | | |
| Standards Alignment | The Number System:<br>Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers.<br>Expressions and Equations:<br>Use properties of operations to generate equivalent expressions.<br>Solve real-life and mathematical problems using numerical and algebraic expressions and equations. | | | Ratios and Proportional Relationships:<br>Analyze proportional relationships and use them to solve real-world and mathematical problems.<br>Statistics and Probability:<br>Use random sampling to draw inferences about a population.<br>Draw informal comparative inferences about two populations.<br>Investigate chance processes and develop, use and evaluate probability models. | | | Geometry:<br>Draw, construct, and describe geometrical figures and describe the relationships between them.<br>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume | | |
| Core Knowledge Correlation | N/A | | | | | | | | | |
| Essential Questions | How do you add, subtract, multiply, or divide mixed numbers? | How do you find the value of expressions using the order of operations? | How do you compute rates and ratios that include complex fractions? | How do you solve problems involving proportions? | How do you compare samples using measures of center and variability? | How do you write and graph direct variation equations? | How do you find the area of composite figures? | How do you find measures of angles of special triangles? | How do you determine the coordinates of an image after a rotation? | How do you find the volume of cylinders, cones, and spheres? |
| Anticipatory Set | Block 1: Survey people about how they use fractions in their everyday life.<br>Block 2: Research the record high and low temperatures for 10 different states. | Block 3: Follow three stocks for a week. Show daily changes in value and total change over a week-long period of time.<br>Block 4: Design a poster which explains how to solve multi-step equations. | Block 1: Record the amount of time spent on activities. Find the ratio of time spent doing each one. | | Block 2: Draw a floor plan for a single story home.<br>Block 3: Create a matching game using equal percent increases. | Block 4: Survey students. Create a pie chart displaying the results. Predict the choices the entire student population would make. | Block 5: Investigate how the circumference of a circle models direct variation. | Block 1: Use a compass and straightedge to duplicate angles. | Block 2: Find the areas of sectors on a pie chart. | Block 3: Research a landmark or building. Calculate the surface area. |
| Cross Curriculum Integration/Field Trips | Explore Activities:<br>B1: Fraction Tiles, Fraction Careers, Rope Rodeo<br>B2: Integer Chips, Number Jumping, Positive or Negative, Fact Puzzle | Explore Activities:<br>B3: Trip to the Store, What's the difference, In your Head.<br>B4: Introductions to Equation Mats, Equations Mats for Two-Step Equations, Where do I Belong, Equation Manipulation | | Explore Activities:<br>B1: Fractions and Decimals, Which Ratio is Greater, Find the Best Deal, A Change of Pace | Explore Activities:<br>B2: Macaroni and Cheese, Cookies, Similar Triangles, Perimeter and Area.<br>B3: Flooring Sale, Minimum Wage | Explore Activities:<br>B4: Coin Flip, Capture/Recapture, Three Sports, Probability Simulation, Favorite Color, Comparing Tests | Explore Activities:<br>B5: Connect-the-Dots, Train Trip, Graphs of Functions | Explore Activities:<br>B1: Classify and Angle, Complimentary vs. Supplementary, The Vertical Angle Relationship, Knowing Three Measures | Explore Activities:<br>B2: A Formula for Trapezoid Area, A Special Ratio, Circle Area, Which Pi?, Stepping Stone | Explore Activities:<br>B3: Netting a Solid, Cutting Clay, Take your Pick, Cutting Corners, Tent Making, Pyramid vs. Prism |

SHERWOOD CHARTER SCHOOL

# 2018-2019 Middle School Curriculum Planning Map
## Math
## 8th Grade

This is a working document and subject to change.

| | September | October | November | December | January | February | March | April | May | June |
|---|---|---|---|---|---|---|---|---|---|---|
| Component | Stage 3, Book 1: Linear Equations | | | | Stage 3, Book 2: Geometry<br>Stage 3, Book 3: Functions & Data | | | | Stage 3, Book3: Functions & Data<br>This book is aligned to the Algebra I standards. | |
| Topic | Block 1: Expressions and Equations<br>Block 2: Sequence and Slope | Block 2: Sequence and Slope<br>Block 3: Using Linear Equations<br>Block 4: Systems of Equations | Block 4: Systems of Equations<br>Block 5: Two-Variable Data | Block 5: Two-Variable Data | Block 1: Angles & Triangles<br>Block 2: The Pythagorean Theorem | Block 2: The Pythagorean Theorem<br>Block 3: Transformations | Block 4: Exponents and Volume | Block 1: Introduction to Functions<br>Block 2: Exponents and Functions | Block 2: Exponents and Functions<br>Block 3: Quadratic Functions | Block 4: Measure of Center<br>Block 5: Data Displays |
| Topic Description | Order of operations. Evaluating expressions. The distributive property. Solving one, two, and multi-step equations. Solutions to linear equations. Linear inequalities on one variable. Recursive routines. Linear plots. Recursive routine applications. Rate of change. Recursive routines to equations. Input-output tables from equations. Calculating slope from graphs. The slope formula. Graphing using slope-intercept form. Writing linear equations for graphs and from key information. Different forms of linear equations. Graphing inequalities in two variables. Introduction to non-linear functions. Parallel, intersecting or the same line. Solving systems by: graphing, tables, substitution, elimination. Applications of systems of equations. Systems of linear inequalities. Converting repeating decimals to fractions. Scatter plots and correlation. Predicting with line of best fit. Five-number summaries of data. Q-points and lines of best fit. Using data and graphs to persuade. Bivariate data and frequency tables. | | | | Perfect squares. Estimating square roots. The Pythagorean theorem. Converse of the P. Theorem. Applying the P. Theorem. Distance on the coordinate plane. The distance formula. Reflections. Translations. Rotations. Dilations. Transformations and congruence. Composition of transformations. Multiplication prosperities of exponents. Division properties of exponents. Science notation. Applications of scientific notation. Exponents and roots. Volume of cylinders, cones, spheres. | | | | The real number system. Quantities. Seeing structure in expressions. Arithmetic with polynomials and rational expressions. Creating equations. Reasoning with equations and inequalities. Interpreting functions. Building functions. Linear, quadratic, and exponential models. Interpreting functions. | |
| Standards Alignment | Expressions and Equations:<br>Understand the connections between proportional relationships, lines, and linear equations. Analyze and solve linear equations and pairs of simultaneous linear equations.<br>Functions:<br>Define, evaluate, and compare functions. Use functions to model relationships between quantities.<br>Statistics and Probability"<br>Investigate patterns of association in bivariate data. | | | | The Number System:<br>Know that there are numbers that are not rational, and approximate them by rational numbers.<br>Expressions and Equations:<br>Work with radicals and integer exponents.<br>Geometry:<br>Understand congruence and similarity using physical models, transparencies, or geometry software. | | | | Quantities and Equations, Linear and Exponential Relationships, Descriptive Statistics, Expressions and Equations, Quadratics Functions and Modeling | |
| Core Knowledge Correlation | N/A | | | | | | | | | |
| Essential Questions | What is the application of systems of equations in real-life situations? | How do you use data and graphs to show results? | How do you stretch and shrink graphs and write equations to represent the changes in the graph? | How do you apply the Pythagorean Theorem? | How do you determine the coordinates of an image after a rotation? | How do you solve inequalities with one variable? | How do you calculate slopes from graphs? | How do you solve problems involving exponential growth and decay? | How do you find the mean, median, and mode of data sets? | How d do you choose appropriate data displays? |
| Anticipatory Set | Block 1: Convert temperature from one system to another | Block 2: Find the rates of change in real-world situations. Write application problems. | Block 3: Create a class competition where participants graph and write linear equations. | Block 4: Develop systems of equations that make different polygons when graphed.<br>Block 5: Find examples of positive and negative correlations in newspapers or magazines. | Block 1: How do you calculate perfect squares? | Block 2: Simplify square roots using prime factorization | Block 3: Enlarge a small picture and determine the scale factor. | Block 4: Find the circumference, surface area, and volume of various coins. | Block 1-2: Use exponential functions to look into the past to answer questions.<br>Block 3: Create a piece of artwork using multiple parabolas. | Block 4: Use statistical hints to solve and create puzzles involving data sets.<br>Block 5: Match graphs to data sets. Challenge a friend to solve the matching problems. |
| Cross Curriculum Integration/Field Trips | Explore Activity:<br>B1: Match them Up, Addition and Subtraction Equations, Multi-step Equations, What Works? | Explore Activity:<br>B2: Caloric Recursive Routines, Saving and Spending, Modeling with Equations, Linear Qualities, Find that Formula | Explore Activity:<br>B3: Find the Equation, Triangle Lines, One of These Things, Match Me, In the Shade, Non-Linear Curves | Explore Activity:<br>B4: Types of Systems, Larry's Landscaping, A Trip on I-70, What's Easiest, At the Movies<br>B5: Finding a Good Fit, The Wave, Eliminating Bias | Explore Activity:<br>B2: Squares that are Perfect, Calculate it!, A Rule for Right Triangles, Make it Right, 3D PT, Perimeter on the Coordinate Plane | Explore Activity:<br>B3: Create a map of your state and translation rules from your town to other towns | Explore Activity:<br>B4: Expand It, Going Negative, Populations, Cones in a Cylinder | Explore Activity:<br>B1: Dog Years, A Piecewise Function, Shifting Graphs, Mirror Image, Stretch and Shrink | Explore Activity:<br>B2: Growing Allowance, Future Values, Increase of Decrease<br>B3: Where's the Vertex?, Finding Zeros, Double Distribute, Number Riddles, Making it Perfect | Explore Activity:<br>B4: Mr. Booker's Class, Frog Data, Ch-Ch-Ch-Chnanges, Outliers and Data, Comparing Cell Phone Companies<br>B5: Taking the Pulse of the Class, Predicting from Histograms, Visualizing Skew |