Development of Major Content Strands in *Core Connections, Course 3*

Chp	The Number System	Expressions and Equations	Functions	Geometry	Statistics and Probability
1	Students review operations with fractions and decimals in homework.	Students solve basic proportional situations through a variety of methods.	Students look at some tile patterns and use multiple forms to look at the pattern. Students analyze the linear growth in tile patterns and then predict the number of tiles or the figure number for another instance in the pattern.	This thread is spiraled through homework.	Students collect, graph, and analyze data to determine if a roller coaster is safe for all riders.
2	Students review order of operations in homework.	Students explore variables and simplify expressions by combining like terms and representing them on an expression mat. Students compare expressions to determine which is greater. Students then solve equations using algebra tiles and equation mats	This thread is spiraled through homework.	This thread is spiraled through homework.	This thread is spiraled through homework.
3	Students review unit rates and using proportions to solve problems in homework.	Students continue to simplify expressions within the process of solving various equations. Students begin to solve linear equations algebraically (without tiles), evaluate and test the solutions, and examine the meaning of no solution or all solutions.	Students look at a pattern, its table, graph and equation and use a graphing calculator to make predictions about the pattern. Students use rules to create tables and then graphs. Students determine the rule by completing information given as a pattern or a table. Students graph many linear equations by plotting points from a table.	This thread is spiraled through homework.	This thread is spiraled through homework.
4	This thread is spiraled through homework.	This thread is spiraled through homework.	Students explore linear situations through the use of tile patterns, discussing starting values and growth. Students define $y = mx + b$ within the context of patterns. Students complete the linear web of multiple representations meaning they have all the connections needed to go directly from any one representation to any other (equation, table, graph, pattern/situation).	Students review finding the area and perimeter of circles and composite figures in homework.	This thread is spiraled through homework.
5	This thread is spiraled through homework.	Students solve equations with multiplication and equations with multiple variables. They also look at strategies to eliminate fraction or decimal coefficients from equations to make them easier to solve. They solve systems of equations using tables of values, graphs and equations. Students solve contextual problems with linear relationships or systems of linear equations using multiple strategies.	This thread is spiraled through homework.	This thread is spiraled through homework.	Students model a variety of real world situations that require the use of a linear equation or a system of linear equations.

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6	This thread is spiraled through homework.	This thread is spiraled through homework.	This thread is spiraled through homework.	Students explore transformations on a coordinate grid and determine what information is required to describe translations, rotations, reflections and dilations. Students explore dilations and the impact of multiplying the coordinates of the vertices of a shape by a constant. Students explore the impact of multiplying by numbers greater than and less than one as they scale shapes. Students identify the characteristics of similar shapes, and scale shapes to find missing lengths.	This thread is spiraled through homework.
7	This thread is spiraled through homework.	Students determine the slope of a line using a graph and a table of values. Students also determine the slope of a line as a ratio of the vertical change over the horizontal change. Students graph linear functions and identify positive and negative slopes and *x*- and *y*-intercepts. They identify slope as the rate in contextual situations. Students compare slope ratios to determine which is greater or if they are equivalent. They recognize proportional equations as special cases of linear equations.	This thread is spiraled through homework.	This thread is spiraled through homework.	Students construct and interpret circle graphs. Students build from single-variable representations of data to representing data in scatterplots and identifying whether data shows an association. Students create a scatterplot of data presented in a table and identify a trend line. Students interpret the trend to describe a general rate of change for the data. Students model multiple linear situations and learn to find the trend line to fit the data. Then students use their equations to make predictions. They also look at associations between bivariate categorical data.

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8	This thread is spiraled through homework.	Students work with powers of 10, and identify the impact of multiplying a number by a positive or negative power of 10. Students expand and simplify exponent expressions including products, quotients, and products raised to a power, thereby developing rules for simplifying exponents. Students are introduced to scientific notation and use it to represent very large and very small numbers. They use scientific notation to compare the relative size of numbers. Students understand the meaning of raising a number to the power of zero or a negative power.	Students describe patterns of growth in a table, graph and expression. They use those patterns to compare and contrast simple and compound interest, and other linear and exponential relationships. Students define functions and relationships. Students look at a wide variety of functions and describe them fully.	This thread is spiraled through homework.	This thread is spiraled through homework.
9	Students are introduced to irrational numbers and square roots. Students work with perfect squares as they estimate the value of square roots of numbers that are not perfect squares.	This thread is spiraled through homework.	This thread is spiraled through homework.	Students explore the Pythagorean theorem and its converse, and use them to find the lengths of missing sides of right triangles in 2 and 3 dimensions. They determine if three lengths will form a right triangle and if three lengths will form an acute, obtuse or right triangle based on the squares of those lengths. Students learn the triangle angle sum theorem, AA similarity criteria and the relationship between angles created when parallel lines are cut by a transversal.	This thread is spiraled through homework.
10	Students work with cube roots.	This thread is spiraled through homework.	This thread is spiraled through homework.	Students work with three-dimensional shapes. They find the surface area and volume of cylinders, and volume of cones, pyramids and spheres. They use these concepts to solve problems in context.	This thread is spiraled through homework.