2014-2015 Course Learning Targets

Unit 1: Beat the Basics

    Topic 1: Signed Numbers and Order of Operations

        Learning Target 1: Be able to perform mathematical operations with positive and negative numbers.

        Learning Target 2: Be able to simplify multistep expressions using order of operations

    Topic 2: Fractions

        Learning Target 1: simplify improper fractions

        Learning Target 2: perform all mathematical operations with fractions

        Learning Target 3: complete problem solving that involves fractions.

    Topic 3: Decimals and Percents

        Learning Target 1: perform mathematical operations with decimals

        Learning Target 2: convert decimals to percents and visa versa

        Learning Target 3: complete problem solving that involves decimals and percents

    Topic 4: Rates

        Learning Target 1:   Solve basic problems using the formula: D = RT

        Learning Target 2: Do basic value and rate conversions using any method.

Unit 2: Solving Equations

    Topic 1 Solving Equations:

        Learning Target 1: Be able to solve any equation of one variable

- *Combining like terms*
- *Variables on both sides of the equals sign*
- *Cross multiplication*
- *Distribution*
- *Equations with fractions*

Learning Target 2: Be able to identify the difference between algebraic expressions and equations

Topic 2:Modeling Equations:

Learning Target 1: Write and solve an equation that models a realistic situation.

Learning Target 2: Interpret a given model.

Topic 3: Properties:

Learning Target 1: Identify and use the properties of real numbers using integers and variables.

Topic 4: Literal Equations

Learning Target 1: Algebraically manipulate formulas to isolate a stated variable

Unit 3: Linear Functions

Topic 1: Graphing Lines and Slope:

Learning Target 1: Graph a line given two points on the line

Learning Target 2: Graph a line given one point and the slope of the line.

Learning Target 3: Graph a line given the equation of the line in slope –intercept form.

Learning Target 4: Graph a line given the equation not in slope intercept form.

Learning Target 5: Find the slope of the line given the graph of the line.

Learning Target 6: Find the slope of the line given two points.

Learning Target 7: Graph lines using y and f(x) forms

Topic 2: Writing the equations of Lines:

Learning Target 1: Write the equation of the line given its graph.

Learning Target 2: Write the equation of the line given one point and the slope of the line.

Learning Target 3: Write the equation of the line given two points on the line.

Learning Target 4: Write the equation of the line given the equation not in slope intercept form.

Learning Target 5: Write the equation of a line given the formula of a parallel or perpendicular line.

Learning Targets 6: Be able to write equation using y = and f(x) notation

Topic 3: Linear Functions and Modeling

Learning Target 1: Create a function table with f(x) and x notation from a graph or equation

Learning Target 2: Understand the connection between f(x) and x and the domain and range of a function

Learning Target 3:   Make inferences and connections given a linear model

Unit 4:   Inequalities

Topic 1: One Variable Inequalities

Learning Target 1: solve and graph one variable inequalities

Learning Target 2: Solve and graph one variable compound inequalities

Learning Target 3: write inequalities given the graph one any one variable inequality

Learning Target 4: decide if a value is part of the solution.

Topic 2: Two Variable Inequalities

Learning Target 1: solve two variable inequalities for slope intercept form and graph the solution

Learning Target 2: write the equation given the solution of a two variable inequality

Learning Target 3: Decide if a point is part of the solution (algebraically or graphically) or answer questions on the domain and range of a function.

Learning Target 4: Complete problems using y or f(x) notation

Topic 3: Modeling with Inequalities

Learning Target 1: write an inequality that models a given situation

Learning Target 2: be able to interpret an inequality model – equation or graph

Unit 5: Linear Systems of Equations and Inequalities

Topic 1: Solving Systems of Equations

Learning Target 1: solve a system of equations using substitution

Learning Target 2: solve a system of equation using elimination

Learning Target 3: decide which method of solving is more appropriate

Learning Target 4: Solve any system using y or f(x) notation and transfer a solution into x and f(x) notation.

Topic 2: Graph Linear Systems

Learning Target 1: Graph a system of equations and identify the solution

Learning Target 2: understand the connection between the points of intersection and the solution of the system.

Learning Target 3: Find the solution of a linear system using a graphing calculator

Learning target 4: graph a system of linear inequalities and identify the solution

Topic 3: Modeling with Systems

Learning Target 1: create a model of linear equations that models a given situation

Learning Target 2: Use a given model to answer questions about a situation

Unit 6: Exponents and Radicals

Topic 1: Exponent Laws

Learning Target 1: Use the 5 exponent laws to simplify multistep exponential expressions

Topic 2: Exponential Growth and Decay

Learning Target 1: Use the growth/decay formula to solve problems.

Learning Target 2: Graph exponential growth and decay function using function notation.

Learning Target 3: Describe the domain and range of an exponential function

Topic 3: Numerical Radicals

Learning Target 1: Approximate the value of a radical.

Learning Target 2: Simplify numeric radicals

Learning Target 3: Accurately add, subtract, multiply and divide numeric radicals

Topic 4: Algebraic Radicals

Learning Target 1: Simplify Algebraic Radicals

Topic 5: Graph radical function and describe the domain and range

Topic 6: Understand the connection between exponents and radicals

Unit 7: Polynomials

Topic 1: Polynomials

Learning Target 1: Name polynomials by the number of terms and degree

Learning Target 2: Add and subtract polynomials

Learning Target 3: Multiply and Divide polynomials

Unit 8: Factoring

Topic 1: Factoring Methods

Learning Target 1: Factor polynomials that have a greatest common factor (gcf)

Learning Target 2: Factor quadratic trinomials (diamond, dots and hat tricks)

Learning Target 3: Factor polynomials with multiple factors (two step factoring)

Learning Target 4: Use factoring to solve problems

Unit 9: Quadratic Functions

Topic 1: Solving Quadratics

Learning Target 1: find the solutions of a quadratic equation algebraically by factoring

Learning Target 2: find the solutions of a quadratic using the quadratic formula

Learning Target 3: find the solutions of a quadratic by completing the square

Topic 2: Graphing Quadratics

Learning Target 1: graph a quadratic in a graphing calculator and transfer it to paper

Learning Target 2: Identify the vertex of a quadratic algebraically

Learning Target 3: Identify the axis of symmetry of a quadratic algebraically

Learning Target 4: Identify the roots/zeros of a quadratic algebraically

Learning Target 5: Understand the relationship between the a value of a quadratic and the shape of the graph

Learning Target 6: Identify the extrema of quadratic functions

Topic 3: Interpreting Quadratic Functions

Learning Target 1: create and use a function table using f(x) notation

Learning Target 2: identify key features of a quadratic function from a verbal/written explanation

Learning Target 3: identify and interpret the domain and range of a quadratic function

Learning Target 4: identify and interpret shift and shape changes of a quadratic function based upon verbal and numerical information

Unit 10: Data Analysis

Topic 1: Histograms:

Learning Target 1: Construct a histogram given a data set

Learning Target 2: Construct a cumulative frequency histogram given a data set

Learning Target 3: Analyze a histogram and answer questions about it.

Topic 2: Scatterplots/Dot Plots:

Learning Target 1: Construct a scatterplot given a data set.

Learning Target 2: Analyze a scatterplot and answer questions about it.

Learning Target 3: Properly use an appropriate scale or a break in scale.

Learning Target 4: Construct a Line of Best fit given a scatter plot and use it to predict data

Learning Target 5: Using a calculator, compute and interpret the correlation coefficient for the Line of Best Fit

Topic 3: Measure of Central Tendency

Learning Target 1: Find the 4 Measure of Central Tendency given a data set.

Learning Target 2: Determine the best MCT given a data set

Learning Target 3: Analyze and answer questions about the MCT of a shifted data set.

Learning Target 4: Determine how outliers influence a data set and its MCT

Topic 4: Box and Whisker Plots/Box Plots:

Learning Target 1: Find the 5 Number summary for a data set

Learning Target 2: Use the 5#S to construct a Box and Whisker Plot for a data set.

Learning Target 3: Analyze and answer question from a Box and Whisker Plot.

Topic 5: Data:

Learning Target 1: Identify and produce data sets that are Univariate or Bivariate and quantitative or qualitative

Learning Target 2: Identify or produce bias survey methods or survey questions

Learning Target 3: Analyze and answer questions from a data table.

Learning Target 4: Distinguish between correlation and causation

Unit 11: Rational Functions

Topic 1: Algebraic Fractions

Learning Target 1: evaluate an algebraic fraction for a given value

Learning Target 2: find the excluded values

Learning Target 3: simplify an algebraic fraction by factoring and canceling

Learning Target 4: Multiply and Divide algebraic fractions

Unit 12: Operations with Functions

Topic 1: Absolute Value Functions

    Learning Target 1: create a function table for an absolute value function

    Learning Target 2: graph an absolute value function

Topic 2: Families of Functions

    Learning Target 1: Know and identify the families of functions by name, graph and equation.

    Learning Target 2: Identify a function from a table of values

    Learning Target 3: identify and interpret the domain and range of a quadratic function

Topic 3: Shifts in Functions

    Learning Target 1: identify and interpret shift and shape changes of a function based upon numerical information

    Learning Target 2: identify and interpret shift and shape changes of a function based upon verbal information

Topic 4: Solving Systems of Functions

    Learning Target 1: algebraically find the solution(s) of a system of two functions

    Learning Target 2: graphically find the solution(s) of a system of two functions using technology

Topic 5: Piecewise Functions

    Learning Target 1: graph a piecewise function

    Learning Target 2: construct a piecewise function from verbal information

    Learning Target 3: interpret a piecewise function within a context