Teacher(s):	Subject/Course: Algebra 1
Unit Number and Title: Unit 4, Descriptive Statistics & MCAS Prep	Estimated Dates and Length: 3/24 – 5/9 (6 weeks)
Essential Questions: EQ1: What are the different methods of data representation and what kinds of data do we use to create them? EQ2: What are the advantages and disadvantages of each method of data representation? EQ3: How can we use summary statistics and data representations to describe a distribution or support/refute a claim?	Main Topic(s): • Measures of Central Tendency • Tables, Lists, Line Plots, Box Plots, Circle Graphs, Bar graphs, Histograms, • Scatter plots & Lines of Best Fit • Linear Regression & Residuals • Interpolation & Extrapolation • Correlation Coefficients • 2D & 3D geometry: area, perimeter, volume, surface area • Parallel Lines, Angles, Transversals, Right Triangle Theorems • Geometric Transformations • Slopes, Distance Formula, Midpoints

Standards for Mathematical Practices

1) Make sense of problems and persevere in solving them.
2) Reason abstractedly and quantitatively.
3) Construct viable arguments and critique the reasoning of others.
4) Model with mathematics.
5) Use appropriate tools strategically.
6) Attend to precision.
7) Look for and make use of structure.
8) Look for and express regularity in repeated reasoning.

Standards (number and words) **Highlight** power standards	Objectives (**Highlight** those related to power standards and provide	Standards (number and words) **Highlight** power standards
S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	Students will be able to determine the best data representation to use for a given situation. (1, 7) Students will be able to identify and explain key features of each plot (dot pots, histograms, and box plots) .(1, 3, 4, 5) Students will be able to create dot plots, histograms, and box plots given data. (1, 4, 5, 6) Students will be able to analyze data given in different forms. (1, 2, 7)	Mini Quiz 4.1 Mini Quiz 4.2 Mini Quiz 4.3 Test 4.1 Mini Quiz 4.4 Final Exam
S.ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	Students will be able to interpret measures of center and spread (variability) to compare several data sets. (1, 2, 3) Students will be able to identify shapes of distributions (skewed left or right, bell, uniform, symmetric). (1, 7) Students will be able to recognize appropriateness of mean/standard deviation for symmetric data. (1, 7) Students will be able to recognize	

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	appropriateness of 5 number summary for skewed data. (1, 7)	
S.ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	Students will be able to recognize gaps, clusters, and trends in the data set. (1, 7) Students will be able to recognize outliers and their impact on the center. (1, 7) Students will be able to effectively communicate what the data reveals. (3, 4) Students will know that in order to compare distributions there must be common scales and units. (5, 6)	
S.ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that	Students will be able to recognize types of relationships that lend themselves to linear and exponential models. (6, 7) Students will be able to create and use regression models to represent a contextual situation. (1, 7) Students will be able to create a graphic display of residuals. (4, 5, 6) Students will be able to recognize patterns in residual plots. (7) Students will be able to calculate residuals with a	

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suggests a linear association.	calculator. (1, 5, 6)	
	Students will be able to recognize a linear relationships displayed in a scatter plot. (1, 7) Students will be able to determine an equation for the line of best fit for a set of data points. (1, 2, 6, 7)	
S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Students will be able to interpret the slope and y-intercept of a linear model in the context of the data. (2, 7)	
S.ID.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.	Students will know the range of the values ($-1 \le r \le 1$) and the interpretation of those values for correlation coefficients. (1, 2, 3) Students will be able to compute and analyze the correlation coefficients for the purpose of communicating the goodness of fit of a linear model for a given data set. (1, 2, 3, 4, 5, 6)	

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Vocabulary	Mean, median, mode, frequency, range, stem leaf, minimum, maximum, upper quartile, lower quartile, interquartile range, skewed, symmetric, bell, uniform, five number summary, central angle, scatterplot, correlation, line of fit, standard deviation, correlation coefficient, variability, gaps, clusters, outliers, spread, extreme data points, regression, residuals, parallel lines, transversal, corresponding angles, alternate interior angles, alternate exterior angles, vertical angles, similar, congruent, interpolation, extrapolation, transformation, dilation, reflection, rotation, translation, leg, hypotenuse
Resources, including texts and other materials	http://www.teacherspayteachers.com/ https://commoncorealgebra1.wikispaces.hcpss.org/Unit+4 http://www.illustrativemathematics.org/standards/hs http://coreessentials.wordpress.com/2013/05/26/algebra-1-common-core-resources-draft/ http://www.mathwords.com/ Glencoe Algebra 1 2012 On Core Mathematics Algebra 1 2010 Triumph Learning Common Core Coach Algebra 1 2014 Algebra Fun Sheets MCAS Item Search Maryland Common Core State Curriculum Frameworks http://www.parcconline.org/samples/item-task-prototypes

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	Block 1	Block 2	Block 3	Block 4
Week 27: 3/24-3/28	Measures of Central Tendency: Tables and Lists, and Line Plots aka Dot Plots, and stem and leaf plots ✓ We will be able to analyze a set of data given in a table, a list, a stem and leaf plot, and from a line plot (aka a dot plot) (1, 2, 6). ✓ We will be able to represent given data in a line plot or in a stem and leaf plot (1, 4, 6).	Measures of Central Tendencies: Box Plots and Circle Graphs ✓ We will be able to analyze a set of data given in a box plot or a circle graph (1, 2, 6). ✓ We will be able to represent given data in a box plot or a circle graph (1, 4, 6).	Measures of Central Tendencies: Bar Graphs and Histogram ✓ We will be able to analyze a set of data given in a bar graph or histogram (1, 2, 6). ✓ We will be able to represent given data in a bar graph or histogram(1, 4, 6).	IA3 Prep ✓ We will be able to demonstrate that we have met our unit 3 learning outcomes.
ASSESSMENTS				Mini Quiz 4.1
Week 28: 3/31-4/4 IA3	IA3 Prep ✓ We will be able to demonstrate that we have met our unit 3 learning outcomes.	IA3 ✓ We will be able to demonstrate that we have met our unit 3 learning outcomes.	Scatterplots + Lines of Best Fit ✓ We will be able to recognize types of relationships that lend themselves to linear and exponential models. (6, 7) ✓ We will be able to recognize a linear relationships displayed in a scatter plot. (1, 7) ✓ We will be able to determine an equation for the line of best fit for a set of data points. (1, 2, 6, 7) ✓ Students will be able to interpret the slope and y-intercept of a linear model in the context of the data. (2, 7)	Interpret Slope and Y-Intercept of linear models ✓ We will be able to recognize types of relationships that lend themselves to linear and exponential models. (6, 7) ✓ We will be able to recognize a linear relationships displayed in a scatter plot. (1, 7) ✓ We will be able to determine an equation for the line of best fit for a set of data points. (1, 2, 6, 7) ✓ Students will be able to interpret the slope and y-intercept of a linear model in the context of the data. (2, 7)
ASSESSMENTS		IA3		

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Week 29: 4/7-4/11	Linear Regression and Residuals ✓ We will be able to create and use regression models to represent a contextual situation. (1, 7) ✓ We will be able to create a graphic display of residuals. (4, 5, 6) ✓ We will be able to recognize patterns in residual plots. (7) ✓ We will be able to calculate residuals with a calculator. (1, 5, 6) ✓ We will be able to use a line of best fit to determine other possible data points (1, 2, 4, 7)	Interpolation and Extrapolation ✓ We will be able to create and use regression models to represent a contextual situation. (1, 7) ✓ We will be able to create a graphic display of residuals. (4, 5, 6) ✓ We will be able to recognize patterns in residual plots. (7) ✓ We will be able to calculate residuals with a calculator. (1, 5, 6) ✓ We will be able to use a line of best fit to determine other possible data points (1, 2, 4, 7)	Correlation Coefficients ✓ We will be able to create and use regression models to represent a contextual situation. (1, 7) ✓ We will be able to create a graphic display of residuals. (4, 5, 6) ✓ We will be able to recognize patterns in residual plots. (7) ✓ We will be able to calculate residuals with a calculator. (1, 5, 6) ✓ We will be able to use a line of best fit to determine other possible data points (1, 2, 4, 7)	Review and Reteach TBD
ASSESSMENTS				Mini Quiz 4.2
Week 30: 4/14-4/18	Area and Perimeter: Basics ✓ We will be able to calculate the area and perimeter of 2D figures (1, 6). ✓ We will be able to determine the missing side of a 2D figure when given the perimeter or area of the figure (1, 6, 7). ✓ We will be able to determine the radius of a circle when given the circumference or area of the circle (1, 6).	Area and Perimeter: Composite Figures and Inscribed Figures ✓ We will be able to calculate the area and perimeter of composite figures (1, 6, 7). ✓ We will be able to calculate the area of the shaded regions when one figure is drawn inside of another (1, 6, 7).	Surface Area and Lateral Surface Area ✓ We will be able to calculate the surface area and lateral surface area of rectangular right prisms, cones, cylinders, square right pyramids and spheres (1, 6).	Volume ✓ We will be able to calculate the volume of rectangular prisms, square pyramids, cylinders, cones, and spheres (1. 6). ✓ We will be able to calculate the volume of solids when given the surface area and some dimensions (1, 2, 6, 7). ✓ We will be able to determining missing dimensions when given the volume and some dimensions of solids (1, 2, 6, 7).
ASSESSMENTS				Mini Quiz 4.3

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Week 31: 4/28-5/2	Review and Reteach ✓ TBD	Test 4.1 ✓ We will be able to demonstrate that we have met our unit 4 learning outcomes so far.	Interior/Exterior Angles;Vertical Angles; Comp/Supp Angles; Parallel Lines + Transversals ✓ We will be able to determine the measure of angles by applying our knowledge of complementary and supplementary angles, vertical angles, and parallel lines cut by a transversal (1, 6, 7).	Pythagorean Theorem and 45-45-90 Triangle Theorem and 30-60-90 Triangle Theorem ✓ We will be able to apply triangle theorems in order to solve problems (1, 6, 7).
ASSESSMENTS		Test 4.1		
Week 32: 5/5-5/9	Slopes, Distances, and Midpoints ✓ We will be able to calculate midpoints of segments and the distance between two points on a coordinate plane (1, 6, 7). ✓ We will be able to calculate slope of lines and segments on a coordinate plane (1, 6, 7).	Geometric Transformations ✓ We will be able to draw the results of transformations (translations, reflections, and rotations) on figures in the coordinate plane (1, 4, 6). ✓ We will be able to write rules to describe transformations on figures in the coordinate plane (1, 6, 7).	Congruent and Similar Figures ✓ We will be able to apply what we know about congruent and similar figures to find missing parts (2, 6, 7).	Review and Reteach ✓ TBD
ASSESSMENTS				Mini Quiz 4.4

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