Thomas Edison Charter School 2015-16
Curriculum for Pre-algebra
Mrs.Bhattad

Big Idea: Ratios and proportional relationships						
Content: Mathematics		Course: Pre-algebra			Unit: Digits Unit 2	
Essential questions	Content	Skills	Key terms	Assessment	CCSS	Text
How do we find the unit rate associated with ratios of fractions? How do we find the best buy in real life situation from the given choices? How do we find the scale factor in terms of percents, decimals and fractions? How do we find the missing side in a set of similar shapes? How can we apply similar shapes in real life situations? How do we write an equation using the unit rate? How do we determine whether two quantities are proportional? How do we use proportions to solve multistep ratio and percent problems like calculating taxes, discounts, percent decrease/increase and percent error?	Unit rates and ratios measured in like or different units Proportional relationships between quantities. Constant of proportionality (unit rate) Proportional relationships by equations. Proportional relationships to solve multistep ratio and percent problems	Find the unit rate (constant of proportionality) with measurements given in the same and different units. Find the best buy from the given choices Find the scale factor Determine of the given set of shapes are similar Find the missing side in a given set of similar shapes Write an equation using the unit rate Determine of two quantities are proportional by	Proportion ratio Rate Unit rate contstant of proportionality scale factor Best buy Equation percent percent error	Teacher created assessments Teacher Observations Rubrics Benchmarks Projects Progress check 1 Progress check 2 Homework Classroom observations (whole group) Individual observations	7.RP.A.1 7.RP.A.2 7.RP.A.3	Digits

		testing the equivalent ratios in a table or by graphing(straight line passing through the origin) Explain what a point (x,y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,r) where r is the unit rate				
Big Idea: The Number System						
Content: Mathematics		Course: Pre-algebra			Unit: Digits Unit 1	
Essential questions	Content	Skill	Terms	Assessment	CCSS	Text
What are rational numbers? What are irrational numbers? How do we add and subtract rational numbers using the number line? What is absolute value? How do we multiply and divide rational numbers? How do we subtract rational using addition?	Identify rational and irrational numbers Represent rational numbers on the number line Add and subtract rational numbers using the number line Develop strategies to add and subtract rational numbers Understand the meaning of absolute value and apply in real	Add and subtract positive and negative intergers and represent the same on a horizontal and vertical number line Deccribe situations where opposite quantities combine to make a zero	Rational numbers Irrational numbers Positive numbers Negative numbers Number line Absolute value Additive inverse	Teacher created assessments Teacher Observations Rubrics Benchmarks Projects Progress check 1	7.NS.A.1 7.NS.A.2 7.NS.A.3 8.NS.A.1 8.NS.A.2	Digits

How do we estimate the value of irrational numbers like square roots of non-perfect square numbers using long division?	lihfe situations Multiply and divide rational numbers Estimate the square root of non-perfect square numbers using long division	Understand the meaning of absolute value Understand x-y is the same as adding an additive inverse of y to x Multiply and divide rational numbers Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts Convert a rational number to a decimal using long division; know that	Multipliucative inverse Square root Estimate	Progress check 2 Homework Classroom observations (whole group) Individual observations		

		the decimal form of a rational number terminates in 0s or eventually repeats Solve real-world and mathematical problems involving the four operations with rational numbers Classify the given numbers as rational or irrational Approximately place irrational numbers on the number line like square root of 2 between 1.4 and 1.5				
Big Idea: Expressions and equations						
Content: Mathematics		Course: Pre-algebra			Unit: Digits Unit 2	
Essential questions	Content	Skill	Key terms	Assessment	CCSS	Text
How do we rewrite the equations in different forms? How do we add, subtract, multiply and divide the linear equations? How do we solve real life problems involving taxes and	Understanding the difference between expression and equation Equations with variables to represent quantities Solving equations Converting numbers from one form to another like percents,	Ability to differentiate between expression and equation Solve an equation Convert numbers to from percents, fractions and decimals	Expressions Equations Variable Linear equations Slope	Teacher created assessments Teacher Observations Rubrics Benchmarks	7.EE.A.1 7.EE.A.2 7.EE.B.3 7.EE.B.4 8.EE.A.1 8.EE.A.2 8.EE.A.3 8.EE.A.4 8.EE.B.5	Digits

discounts using equations? How do we apply properties of operations to calculate with numbers in any form by converting between forms (fractions,percents, decimals) as appropriate? How do write equations and inequalities using variables to represent quatities in real world or mathematical situations? How do apply properties of exponents? What is scientific notation? How do we perform operations on numbers in scientific notation? Why is the slope same in a set of similar triangles between any two points on a non vertical side? How do we solve equations with one variable? How do we solve simultaneous linear equations?	decimals and fraction Solving and graphing linear equations Solving and grpahing inequalities Slope and y-intercept Exponents and rules of exponents scientific notation and why it is used	write an equation using variables to represent quatities graph linear equations graph inequalities solve inequalities apply rules of exponents write numbers in scientific notation perform operations on numbers in scientific notation	y-intercept discount tax percents decimals fractions solve evaluate graph inequalities greater than greater than or equal to less than less than or equal to exponents base power scientific notation	Projects Progress check 1 Progress check 2 Homework Classroom observations (whole group) Individual observations	8.EE.B.6 8.EE.C.7 8.EE.C.8	

Big Idea: Geometry						
Content: Mathematics		Course: Pre-algebra			Unit: Digits Unit 4	
Essential questions	Content	Skill	Key terms	Assessment	CCSS	Text
What is scale factor? How do we use scale factor to find the missing side in a set of similar shapes? How to we construct triangles with given measures? What two-dimensional figures will result from slicing three-dimensional figures in a given way? How are the radius, circumference and the area of the circle related? How can we find one given the other measure? How do we use complementary and supplementary facts to find the missing angles by writing an equation? How do we find volume and surface area of three-dimensional figures composed of triangles, quadrilaterals, polygons, cubes and right prisms? How do we roatate, reflect and translate a two dimensional shape around the	Finding the scale factor in a given set of similar shapes Finding the missing side in a set of similar shapes using the scale factor Applying the scale factor in real life situations Visualizing the two dimensional that results from slicing the three dimensional shape in a given way Applying the rules of geometry and use the supplementary and complementary angles to find the missing side and/angle in a given shape Contruct equations using the rules of supplementary and complementary angles and find the unknown angle Finding the surface area and volume of three dimensional shapes Understanding the concepts of rotation, reflection and translation of a two dimensional shape aroundth coordinate grid Writing a sequence of rotations,	Find the scale factor Find the missing side using the scale factor What two dimensional shape do we get by slicing the given three dimensional shape Find the missing angles by applying the rules of geometry Find the surface area of the three dimensional shapes Find the volume of the three dimensional shapes Finding all the angles in a set of parallel lines cut by a transversal Finding the length of hypotenuse in a right triangle with the given leg-lengths Finding the length of the missing side in a right triangle when the other two sides are known	Scale factor Angle Side length Suppplemenrary Complementaru Triangle Quadrilaterals Polygon Surface area Volume Circumefrence Radius Diameter Area Translation Rotation Reflection Pythagorean theorem	Teacher created assessments Teacher Observations Rubrics Benchmarks Projects Progress check 1 Progress check 2 Homework Classroom observations (whole group) Individual observations	7.G.A.1 7.G.A.2 7.G.A.3 7.G.B.4 7.G.B.5 7.G.B.6 8.G.A.1 8.G.A.2 8.G.A.3 8.G.A.4 8.G.A.5 8.G.B.6 8.G.B.7 8.G.C.9	Digits

coordinate grid? How do we find all the angles when a set of parallel lines is cut by a transversal? How do find the hypotenuse of a right triangle given the other two sides? How do we find the third side of a right triangle given the other two side lengths? How do we find the distance between any two points on a coordinate grid?	reflections and translations for original shape to result in the new shape Finding all the angles that are formed when a set of parallel lines are cut by a transversal Finding the third side(hypotenuse/leg) give the other two side lengths Finding the distance between any wo points of a coordinate grid by completingteh right triangle and applying the Pythagorean theorem	Finding the distance between two points on a coordinate grid by coimpleting the right triangle	Right triangle Hypotenuse Leg			

Big Idea: Statistics and probability						
Content: Mathematics		Course: Pre-algebra			Unit: Digits Unit 3	
Essential questions	Content	Skill	Key terms	Assessment	CCSS	Text
How do we draw scatther plots for bivariate data? How do we interpret scatter plots? How do we draw the best fit	Drawing the scatter plot graph using bivariate data Interpreting the scatter plot graph Understanding the trend of the scatter plot graph	Draw the scatter plot graphs using bivariate data Interpret the scatter plot graphs	Bivariate data Scatter plots Best fit line Linear relationship	Teacher created assessments Teacher Observations Rubrics	7.SP.A.1 7.SP.A.2 7.SP.B.3 7.SP.B.4 7.SP.C.5 7.SP.C.6 7.SP.C.7	Digits

line? How do we use an equation to find the unknown value in a linear models? How do we construct two-way tables? How do we interpret two-way tables?	Drawing the best fitting line in the scatter plot graph Using an equation to find the unknown value in linear graphs Contructing two-way tables Intrepreting two-way tables	Understand the scatter plot graphs Draw the best fitting line in a scatter plot graph and understand the trend Construct two-way tables Interpret two-way tables	Slope Y-intercept Two-way tables Frequency	Benchmarks Projects Progress check 1 Progress check 2 Homework Classroom observations (whole group) Individual observations	7.SP.C.8 8.SP.A.1 8.SP.A.4	