Ganado Unified School District #20
(Pre-Algebra/7th Grade)

PACING Guide SY 2018-2019

Resources	AZ College and Career Readiness Standard	Essential Question (HESS Matrix)	Learning Goal	Vocabulary Content/Academic
		First Quarter		
Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http:// www.math.aids.com/ **Assessment Technology Incorporated** Online:http:// www.ati-online.com/	a. Pretest: Adding & subtracting with decimals and fractions. b. Pretest: Multiplying & dividing with decimals and fractions. **8.NS.A.1.** Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number. **8.NS.A.2**. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions	What a real number? What is a rational number? What is an irrational number? What are characteristics to identify rational and irrational numbers? How are fraction, decimal; and percent values related to one another? How are percent values use in real world applications?	Students will write equivalent fraction, decimal, and percent values. Students will find a percent of a natural number using bar models. Students will estimate a percent of a natural number using the percent equation. Students will find calculate sales tax and discounts of products.	1) Real Numbers 2) Natural Numbers 3) Whole Numbers 4) Integers 5) Rational Numbers 6) Irrational Numbers 7) Fractions 8) Equivalent fractions 9) Terminating decimal 10) Repeating decimal 11) Radical 12) Perfect Square 13) Square Roots 14) Cube Roots 15) Cube 16) Roots 17) Exponents 18) Percent 19) Percent of change 20) Percent of increase

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Math Build to the Common Core (Workbook) MC Graw Hill Education By: Carter, Cuevas, Et.Al Kutasoftware **Online:http://** www.kutasoftware.com/	**7.NS.A.2d**. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s oi eventually repeats. **7.RP.A.3** Use proportional relationships to solve multi-step ratio and percent problems (e.g., simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error). **7.RP.A.1**. Compute unit rates associated with ratios involving both simple and complex fractions, including ratios of quantities measured in like or different units.		Students will evaluate finance applications using the simple interest formula.	21) Percent of decrease 22) Principal 23) Interest 24) Interest rate 25) Simple interest
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Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http:// www.math.aids.com/ **Assessment Technology Incorporated Online:http://**	a. Pretest: Adding & Subtracting Integers b. Pretest: Multiplying & Dividing Integers **7.NS.A.1b**. Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real world contexts.	How are zero, positive, and negative numbers aligned? How are both positive and negative numbers are calculated using the four mathematical operations?	Students will add integers with same and different signs. Students will subtract integers by adding the opposite term. Students will model adding and subtracting integers on a number line.	1) Absolute value 2) Additive inverse 3) Integers 4) Positive number 5) negative number 6) Zero 7) Opposites 8) Inverse 9) Rational number 10) Sum 11) Difference 12) Product 13) Quotient

Ganado USD-PACING GUIDE (Pre-Algebra/7'ʰ Grade)

www.ati-online.com/ **Math Build to the Common Core (Workbook) MC Graw Hill Education** By: Carter, Cuevas, Et.Al Kutasoftware **Online:http://** www.kutasoftware.com/	**7.NS.A.3**. Solve real world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE. 3.b.** Solve multi-step mathematical problems and problems in real-world context posed with positive and negative rational numbers in any form. Convert between forms as appropriate and assess the reasonableness of answers. *For example, If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50 per hour.* **7.NS.A.Ic.** Understand subtraction of rational numbers as adding the additive inverse, $p-q = p + (- q)$. Show that the distance between two ntimaI numbers on the number line is the absolute value of their difference, and apply this principle in real wcr1d contexts. **7.NS.A.2a.** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.			

	7.NS.A.2b. 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 **NS.A.2c**. Apply properties of operations as strategies to multiply and divide rational numbers. **7.EE.A.2.** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5% is the same as multiply by 1.05.			
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Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http:// www.math.aids.com/ **Assessment Technology Incorporated**	a. Pretest: Exponents b. Pretest: Order of Operations c. Pretest: Evaluating Algebraic Expressions d. Pretest: Translating verbal Phrases into Expressions **8.EE.A.1.** Know and apply the properties of integer exponents to generate equivalent numerical expressions. **8.EE.A.4.** Perform operations with numbers expressed in scientific notation, including problems where both decimal and *scientific* notation are used. Use scientific notation and choose units of appropriate size for	How are expressions with exponents evaluated? How is an expression with a zero exponent evaluated? How is a power raised by a power? What is a scientific notation? How can a scientific notation be converted to standard notation?	Students will evaluate expressions with positive, negative, and zero exponents. Stu dents will evaluate scientific notations using exponent properties. Students will evaluate numerical expressions using	1) Power 2) Radical 3) Base Number 4] Positive Exponents 5) Negative Exponents 6) Raising a power to a power 7) Numerical expression 8) Order of Operation 9) Algebraic expressions 10) Term 11) Variable 12) Constant term 13) Coefficient term 14) Like terms

Online:http:// www.ati-online.com/ **Math Build to the Common Core (Workbook) MC Graw Hill Education** By: Carter, Cuevas, Et.Al Kutasoftware **Online:http://** www.kutasoftware.com/	measurements of very large or very small quantities **7.NS.A.1d.** Apply properties of operations as strategies to add and subtract rational numbers. **7.NS.A.2c**. Apply properties of operations as strategies to multiply and divide rational numbers. **8.EE.A.3.** Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is greater than other. **7.EE.A.1**. Apply properties of operation as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.2**. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05o — I.05a means* than *"increase by 5°X₂" is the same as "multiply by 1.05."* **7.EE.B.4a**. Solve word problems leading to equations of the form $px + rq=r$ and $p(x+q)=r$, where $p, q,$ and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each	How are numerical and algebraic expressions evaluated with integers? How are word problems presented as an expressions? How many ways can an expression be presented? What does a variable represent? How can word problems be solved using expressions?	the rules of order of operations. Students will evaluate algebraic expressions using the substitution property. Students will write algebraic expression by translating verbal expressions.	15) Distributive property 16) Evaluate 17) Verbal Phrase 18) Sum 19) More than 20) Increased by 21) Difference 22) Less than 23) Subtracted from 24) Decreased by 25) Product 26) Multiplied by 27) Quotient 28) Divided by

	approach. *For example, the perimeter of a rectangle is S4 cm. Its length is 6 cm. What is its width ?*			
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Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http:// www.math.aids. com/ **Assessment Technology Incorporated Online:http://** www.ati-online.com/ **Math Build to the Common Core (Workbook) MC Graw Hill Education** By: Carter, Cuevas, Et.Al	1. **Pretest: Evaluating One-Step Equations and Inequalities using Inverse Operations.** 2. **Pretest: Evaluating Two-Step Equations and Inequalities using Inverse Operations.** 3. **Pretest: Evaluating Multi-step Equations and Inequalities using Inverse Operations.** **7.EE.B.4a.** Solve word problems leading to equations of the form $px+q = r$ and $p(x+q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. **7.NS.A.3.** Solve mathematical problems and problems in real-world context involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions where $a/b \div c/d$ when $a,b,c,$and d are all integers and b,c, and $d \neq 0$. **7.NS.A.1b.** Understand $p + q$ as the number located a distance $\lvert q \rvert$ from p, in the positive or negative direction	How can one-step and two-step equations be solved? Why are inequalities important to use? How can word problems be solved? How can word problems be solved using inequalities?	Students will evaluate one-step equations using inverse operations Students will evaluate two-step equations using inverse operations. Students will evaluate multi-step equations using inverse operations Students will evaluate and graph inequalities on a number line.	1. Integer 2. Decimal 3. Fraction 4. Expression 5. Equation 6. Inverse Property 7. Isolating the variable 8. Number line 9. Inequality 10. "is less than" 11. "is greater than" 12. Is greater than or equal to" 13. "is less tha or equal to" 14. Solution set 15. Algebraic inequality 16. Compound inequality

Kutasoftware **Online:http://** [www.kutasoftwa](http://www.kutasoftware.com/) [re.com/](http://www.kutasoftware.com/)	depending on whether *q* is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world context. **7.EE.B.4b.** Solve word problems leading to inequalities of the form *px+q* > *r* or *px+q* < *r*, where *p, q,* and *r* are rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. **8.EE.A.2.** Use square root and cube root symbols to represent solutions to equation of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number.			

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<td colspan="5" align="center">**Second Quarter**</td>
Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http://www.math.aids.com/ **Assessment Technology Incorporated Online:http://** www.ati-online.com/ **Math Build to the Common Core (Workbook) MC Graw Hill Education** By: Carter, Cuevas, Et.Al	Pretest: Writing & Solving Proportions **7.RP.A.2a.** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. **7.NS.A.3.** Solve real world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.RP.A.1.** Compute unit rates associated with ratios involving both simple and complex fractions, including ratios of quantities measured in like or different units. **7.RP.A.2c.** Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number*	Why are ratios important? How can measure units can from one form to another (e.g. how can inches change into centimeters or miles?)? Why are unit rates important to use in everyday activities? Why is proportion important when comparing objects?	Students will write rates and unit rates to compare two different quantities. Students will solve real-world applications using proportions. Students will use critical attributes to define similarity. Students will use ratios and proportions to create scale drawings.	1) Rate 2) Unit Rate 3) Equivalent Ratios 4) Proportion 5) Cross Product 6) Indirect measurement 7) Corresponding angles 8) Corresponding sides 9) Similar 10) Scale 11) Scale drawing Scale model

| Kutasoftware Online:http://www.kutasoftware.com/ | *of items can be expressed as t = pn.*

7.G.A.1. Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. | | | |

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Kutasoftware **Online:http://** www.kutasoftwa re.com/	**7.NS.A.2c**. Apply properties of operations as strategies to add and subtract rational numbers. **7.RP.A.2d.** 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. **8.EE.B.5**. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.			

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		Third Quarter		
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identifying the sequence of the operations used in each approach. *For example, the perimeter of o rectangle is 54 cm. Its length is 6 cm. Want is its width?*

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Kutasoftware Online:http:// www.kutasoftware.com/	**8.G.C.9.** *Know the formulas for the volume of cones, cylinder and spheres and use them to solve real world and mathematical problems.* Describe the two-dimensional figures that result from slicing three-dimensional figures.	How can we find the volume and surface area of a: a. Cylinder b. Prism c. Triangular prism d. Rectangular prism e. Cone f. Sphere g. Rectangular pyramid h. Triangular pyramid		
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	7.EE.B.4b. Solve word problems leading to inequalities of the form $px+q > r$ or $px+q < r$, where p, q, and r are rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.			

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	Pretest: Draw inference about population **7.SP.A.1.** Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	How can we tell recorded data is useful?	Students will draw inferences about a population with random sampling.	1. Population 2. Sample 3. Random sampling 4. Biased sampling 5. Convenience sampling.
Math Accelerated - A Pre-Algebra Program MC Graw Hill Education By: Carter, Cuevas, Et.Al **Math-Aids** Online:http:// www.math.aids. com/ **Assessment Technology Incorporated** Online:http:// www.ati-online.com/	Pretest: Finding Probability **7.SP.C.5.** Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger number indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. **7.SP.C.6** Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given	Why is probability important ? How is probability used in everyday activities? How can data with probability represented?	Students will find experiments mental and theoretical probabilities with independent and dependent variables. Students will use probability to predict events.	1. Probability 2. Experiment 3. Trial 4. Event 5. Simple event 6. Compound event 7. Experimental probability 8. Sample space 9. Theoretical probability 10. Fair 11. Prediction

Math Build to the Common Core (Workbook) MC Graw Hill Education By: Carter, Cuevas, Et.Al **Kutasoftware Online:http://** www.kutasoftware.com/ **Kahoot.com**	the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.* **7.SP.C.8a.** Understand that, Just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. **7.SP.C.7b.** . Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?* **7.SP.C.8b.** Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. **7.SP.C.7a** Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class,*			

	find the probability that Jane will be selected and the probability that a girl will be selected.			
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