

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Math Skills 2AB</i>	Course Code	
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Transcript Title:	Math Skills 2AB		Grades Levels:	10-12	Board Adoption Date:		
Content Area:	Math		GPA Scale:	4.0	Date Course Submitted:	4/2016	
Credential Req:	Math	Graduation Subject Areas:		Elective			
UC/CSU "A-G" Area Approvals:		No		School Site that wrote and submitted the course:		Estancia High School	
Recommend Skills):							
Next course(s):	Math II and Math III						

COURSE DESCRIPTION *(catalog summary):*

Math Skills 2AB is designed as a continued intervention for high school students performing below the math proficiency needed to succeed in Math I and Math II. The course is intended to be taken concurrently with Math II. Students who need to remediate credits for Math I could be enrolled in Math Skills 2AB. Students will continue to build upon the skills introduced in Math Skills 1AB. The intervention identifies students' math readiness through a built-in diagnostic, prescribing a learning path for each student that connects interactive visual models to abstract concepts and language components for each math topic. Individualized student reports provide teachers with diagnostic results and real-time content mastery for each student.

GOALS *(expected performance outcomes for students):*

This course is designed to meet the individual needs of students who are experiencing significant difficulties with math skills. Students are taught specific rules and strategies to improve their math and are provided with many opportunities for guided and independent practice of skills.

CALIFORNIA CONTENT STANDARDS *(how the course aligns with California and/or national curriculum standards):*

<i>6.RP.1</i>	<i>6.RP.3d</i>	<i>6.NS.6b</i>	<i>6.EE.2</i>	<i>6.EE.5</i>	<i>6.SP.2</i>	<i>7.RP.2b</i>	<i>7.NS.1b</i>	<i>7.NS.2c</i>	<i>7.SP.5</i>
<i>6.RP.2</i>	<i>6.NS.3</i>	<i>6.NS.6c</i>	<i>6.EE.2a</i>	<i>6.EE.6</i>	<i>6.SP.3</i>	<i>7.RP.2c</i>	<i>7.NS.1c</i>	<i>7.NS.3</i>	<i>7.SP.7</i>
<i>6.RP.3</i>	<i>6.NS.4</i>	<i>6.NS.7</i>	<i>6.EE.2b</i>	<i>6.EE.7</i>	<i>6.SP.5</i>	<i>7.RP.2d</i>	<i>7.NS.1d</i>	<i>7.EE.4</i>	<i>7.SP.7a</i>
<i>6.RP.3a</i>	<i>6.NS.5</i>	<i>6.NS.7a</i>	<i>6.EE.2c</i>	<i>6.EE.9</i>	<i>6.SP.5c</i>	<i>7.RP.3</i>	<i>7.NS.2</i>	<i>7.EE.4a</i>	<i>7.SP.7b</i>
<i>6.RP.3b</i>	<i>6.NS.6</i>	<i>6.NS.8</i>	<i>6.EE.3</i>	<i>6.G.3</i>	<i>7.RP.2</i>	<i>7.NS.1</i>	<i>7.NS.2a</i>	<i>7.EE.4b</i>	<i>8.EE.1</i>
<i>6.RP.3c</i>	<i>6.NS.6a</i>	<i>6.EE.1</i>	<i>6.EE.4</i>	<i>6.SP.1</i>	<i>7.RP.2a</i>	<i>7.NS.1a</i>	<i>7.NS.2b</i>	<i>7.SP.4</i>	<i>8.EE.3</i>

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8.EE.4	A-REI.10	4.NBT.1	5.NBT.3b	3.NF.3	4.NF.3d	5.NF.4	3.MD.5a	4.MD.7	3.G.1
8.EE.5	F-IF.1	4.NBT.2	5.NBT.4	3.NF.3a	4.NF.4	5.NF.4a	3.MD.5b	5.MD.3	3.G.2
8.EE.7	F-IF.4	4.NBT.3	5.NBT.5	3.NF.3b	4.NF.4a	5.NF.4b	3.MD.6	5.MD.3a	4.G.1
8.EE.7a	F-IF.7	4.NBT.4	5.NBT.6	3.NF.3c	4.NF.4b	5.NF.6	3.MD.7	5.MD.3b	4.G.2
8.EE.7b	F-IF.7a	4.NBT.5	5.NBT.7	3.NF.3d	4.NF.4c	5.NF.7b	3.MD.7b	5.MD.4	5.G.3
A-SSE.3	3.OA.2	4.NBT.6	3.NF.1	4.NF.1	4.NF.6	5.NF.7c	3.MD.8	5.MD.5	5.G.4
A-SSE.3a	3.OA.7	5.NBT.1	3.NF.2	4.NF.2	4.NF.7	3.MD.2	4.MD.3	5.MD.	
A-REI.2	3.NBT.1	5.NBT.3	3.NF.2a	4.NF.3	5.NF.1	3.MD.3	4.MD.5	5.MD.5b	
A-REI.3	3.NBT.2	5.NBT.3a	3.NF.2b	4.NF.3c	5.NF.2	3.MD.5	4.MD.5a	5.MD.5c	

EVALUATION *(how the effectiveness of the course will be monitored and assessed):*

Formative Assessments (ongoing & mid-lesson):

At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.

Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.

Summative Assessments (unit final evaluation):

A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.

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Unit 1	Length of Unit ... 3 Weeks			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Number System Concepts</i> <i>Base Ten Concepts</i> <i>Expanded Form and Place Names</i> <i>Ordering and Comparing Whole Numbers</i> <i>Whole Number Addition</i> <i>Whole Number Subtraction</i> <i>Multiplication Algorithm</i> <i>Division Algorithm</i>	Addition and Subtraction with Negative Numbers Rational Concepts; Negative Numbers; Coordinates and Distances; Addition and Subtraction with Negative Numbers; Multiplication and Division with Negative Numbers; Multiplying and Dividing Rational Numbers; Percents Negative Numbers; Addition and Subtraction with Negative Numbers; Multiplication	4.NBT.1, 4.NBT.2 3.NBT.2, 4.NBT.4 5.NBT.1, 5.NBT.5 3.OA.2, 3.OA.7, 4.NBT.6, 5.NBT.6	Module 1: Petals Place Value Game Name Game Description Petals Multiple Choice Represent ones, tens, hundreds and thousands using words, numerals and visual models. Pulling Petals Gain an understanding of place value by transforming the pile of petals into thousands (boxes with 1,000 petals each), hundreds (bouquets with 100 petals each), tens (flowers with 10 petals each), and ones (single petals). Bee Petals Represent numbers using a place value based flower petal model. In some levels, students determine the order of magnitude, given a number and a pile of petals (e.g. given the number 4, identify the size of the pile as 4 ones, 4 tens, or 4 hundreds, or 4 thousands). Petals Bubble Select Find the total number of petals by counting the boxes (thousands), bouquets (hundreds), flowers (tens) and single petals (ones) and then filling in the hundreds, tens and ones places with the correct numerals. How Many Petals Write a numeral to represent the quantity of petals. Module 2: Place Value	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>

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	and Division with Negative Numbers; Multiplying and Dividing Rational Numbers; Adding and Subtracting Rational Numbers		Regrouping Game Name Game Description Petals Place Value Given a four-digit whole number, identify the number of thousands, hundreds, tens, and ones. Petals Regrouping Given a model of boxes of flowers (thousands), bouquets (hundreds), flowers (tens), and ones (individual petals), regroup in order to represent the total number of petals as a numeral in standard place value notation. Petals Regrouping Random Find the total number of petals by counting the boxes (thousands), bouquets (hundreds), flowers (tens), and ones (individual petals) and regrouping using mental arithmetic. Game Name Game Description Place Value Builder Identify the digit values of given whole numbers using place value based models. This game covers expanded notation and place value concepts up to the millions place while enforcing the skills of reading and writing whole numbers. Expanded Form Provide a number when given its representation in expanded notation. This game also covers place value concepts to the millions place while enforcing the skills of reading and writing whole numbers. Commas Correctly place commas on large whole numbers and identify the place values of the points where the commas are placed. Place Value Clouds	
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			Identify the place value of a given digit of a whole number up to the Game Name Game Description Comparison Signs Order sets of objects and whole numbers using the symbols for less than, greater than, and equal to. Large Number Comparison Order whole numbers (up to four digits) using the symbols for less than, greater than, and equal to. Order Fill Build a path so JiJi can cross, by ordering a given collection of six-digit whole numbers. Numberline Trap Use estimation and an understanding of place value to plot whole numbers (up to four digits) on a number line. Least Most Identify the least or greatest element in a set of whole numbers (up to four digits). Large Number Comparison Order whole numbers (up to seven digits) using the symbols for less than, greater than, and equal to. Order Fill Build a path so JiJi can cross, by ordering a given collection of six-digit whole numbers. Game Name Game Description Visual Addition Using the petals model, add two three-digit whole numbers with regrouping in the ones or tens place. Petals Addition with Numbers Increase symbolism in the petals model to add	
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			two three-digit whole numbers with regrouping in the ones or tens place. Petals Addition Method Symbolically add two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support. Symbolic Addition Symbolically add two three-digit whole numbers with regrouping in the ones or tens place. Three-Digit Addition Algorithm Add two- and three-digit whole numbers using the standard algorithm. Addition Algorithm Add four-digit whole numbers using the standard algorithm. Game Name Game Description Whole Number Subtraction Using the petals model, subtract two three-digit whole numbers with regrouping in the ones or tens place. Petals Subtraction with Numbers Increase symbolism in the petals model to subtract two three-digit whole numbers with regrouping in the ones or tens place. Petals Subtraction Method Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Use the petals model as support. Symbolic Subtraction Symbolically subtract two three-digit whole numbers with regrouping in the ones or tens place. Subtraction Algorithm Subtract four-digit whole numbers using the	
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			standard algorithm. Addition and Subtraction Algorithm Add and subtract whole numbers (up to five digits) using the standard algorithm. Game Name Game Description Grid Expressions Multiply whole numbers using an area model. Area Multiplication Multiply two-digit whole numbers using visual models. Multiplication Algorithm Multiply multi-digit whole numbers by one-digit whole numbers using the standard algorithm. Area Multiplication 2 Multiply two-digit whole numbers using visual models. Module 1: Single Digit Divisors Game Name Game Description Visual Division This game introduces division as the separation of a set of objects into equally sized subsets. Long Division Snake Divide small two-digit numbers by one-digit numbers, with the numbers represented as quantities. Exploratory Division Explore division without remainder on the number line using a place value model. Number Line Sliders Explore division with remainder on the number line using a place value model. Number Line Division	
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			Introduction to the full algorithm with single digit divisor and two digit dividends. Module 1: Single Digit Divisors Game Name Game Description Visual Division This game introduces division as the separation of a set of objects into equally sized subsets. Long Division Snake Divide small two-digit numbers by one-digit numbers, with the numbers represented as quantities. Exploratory Division Explore division without remainder on the number line using a place value model. Number Line Sliders Explore division with remainder on the number line using a place value model. Number Line Division Introduction to the full algorithm with single digit divisor and two digit dividends. Module 2: Division Algorithm Game Name Game Description Range Trap Estimate how many times a divisor goes into a dividend, using a number line model. Vertical Range Trap Estimate division of two-digit numbers by one- and two-digit divisors. Double Digit Divisors Explore the division algorithm with double-digit divisors. Number Line Division Algorithm	
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			Carry out the division algorithm using two-digit divisors and large dividends. Module 3: Division Number Sense Game Name Game Description Division Snake Sliders Introduce the idea of partitioning the dividend using strategies of place value and number sense. Exploratory Number Sense Select the digits of the quotient in a long division problem.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Number System Concepts</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Number System Concepts</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons</i>			

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	<i>students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>
	Summative Assessments <i>(unit final evaluation):</i> <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>

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Unit 2	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Fractions</i> <i>Visual Fraction Concepts</i> <i>Fractions on a Number Line</i> <i>Comparing and Equivalent Fractions</i> <i>Fraction Addition and Subtraction</i> <i>Fraction Multiplication</i> <i>Unlike Denominator Concepts and Strategies</i> <i>Unlike Denominator Addition and Subtraction</i> <i>Fraction Division</i>	Visual Fraction Concepts; Fractions on the Number Line; Comparing and Equivalent Fractions; Fraction Addition and Subtraction Comparing and Equivalent Fractions Fraction Multiplication; Fraction Decimal Equivalence Fractions on the Number Line; Unlike Denominator Concepts and Strategies Fraction Addition and Subtraction; Unlike Denominator	3.NF.1, 3.NF.3, 3.G.2, 4.NF.1, 4.NF.3, 4.NF.3c 3.NF.1, 3.NF.2, 3.NF.2a, 3.NF.2b, 3.NF.3, 3.NF.3c, 4.NF.1, 4.NF.3, 4.NF.3d, 5.NF.1, 5.NF.2 3.NF.1, 3.NF.2, 3.NF.2a, 3.NF.2b, 3.NF.3, 3.NF.3a, 3.NF.3b, 3.NF.3d, 3.G.2, 4.NF.1, 4.NF.2, 4.NF.3c, 4.NF.7 3.NF.1, 4.NF.3c, 4.NF.3d, 4.NF.4, 4.NF.4b, 5.NF.2 3.NF.3, 3.NF.3c, 3.G.2, 4.NF.1, 4.NF.4, 4.NF.4a, 4.NF.4b, 4.NF.4c, 5.NF.4, 5.NF.4a, 5.NF.4b, 5.NF.6 4.NF.3, 4.NF.3c, 5.NF.1 4.NF.6, 5.NF.1 4.NF.4, 4.NF.4a, 4.NF.4b, 4.NF.4c, 4.NF.7, 5.NF.7,	Game Name Game Description Match Fraction Represent a given fraction using a visual model by first dividing a whole into equal parts and then shading the correct number of parts. Crank Pies Build a model to represent a given fraction, including fractions greater than or equal to 1. Alien Bridge Write the fraction that is represented by a given visual model. Match Fraction Mixed Numbers Build a model to represent a given fraction or mixed number, by using blocks and dividing them into equal parts. Crank Pies Mixed Numbers Represent given fractions, improper fractions, and mixed numbers as circular diagrams displaying equal parts of a whole. This game also teaches the idea of equivalent fractions. Alien Bridge Mixed Numbers Write the mixed number that is represented by a given visual model. Game Name Game Description JiJi Cycle Basket Estimate on a number line the location of a fraction represented by a diagram. Scale Fraction Given a fraction or mixed number represented visually as equal parts of rectangular blocks, select the denominator to make tick marks on the number line, then plot the point by	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>

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	Concepts and Strategies Fraction Addition and Subtraction Fraction Multiplication; Fraction Division	5.NF.7b, 5.NF.7c 3.NF.3, 4.NBT.3, 4.NF.6	selecting the number of number line segments needed. JiJi Cycle Select the fraction corresponding to the marked point on the number line. The fractions are represented visually as equal parts of a disc. Estimate Fractions on Number Line Estimate the location of fractions on a number line. JiJi Cycle Select Wheel LI Given a location on a number line, select the number of unit fractions with a given denominator needed to reach it. Fraction Trap Estimate on a number line the location of a given fraction, including whole numbers represented as fractions. Module 1: Equivalent Fractions Game Name Game Description Fricks Build an understanding of fraction equivalence by selecting blocks partitioned into differing number of parts and shading the same total amount of area on each of them. Common Denominator with Wholes Given two blocks that are partitioned into different numbers of equal parts, select another block that is partitioned into a number of parts that is a multiple of both these numbers. Common Denominator with Fractions Find a common denominator for two fractions using the model of partitioning blocks into equal parts. Simplify Fraction Learn how to simplify fractions by canceling	
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			common factors from the numerator and denominator. Equivalent Fractions Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole. Fractions on Number Line Estimate on a number line the location of fourths, halves, 6ths, 8ths, 9ths and 12ths. Module 2: Comparing Fractions Game Name Game Description Fraction Trap Estimate on a number line the location of a given fraction, including whole numbers represented as fractions, and fractions with numerator 0. Fraction More or Less Compare unit fractions and other pairs of fractions that have either the same numerator of the same denominator. Module 1: Fraction Addition and Subtraction Game Name Game Description Fraction Robot Add proper and improper fractions with like denominators using rectangular diagrams displaying equal parts of a whole. JiJi Cycle Select Basket Relate a collection of fractions represented with circular diagrams to a single point on the number line. Crank Pies Addition and Subtraction Add fractions and mixed numbers with like and unlike denominators using circular diagrams	
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			displaying equal parts of whole. Alien Bridge Addition Learn the meaning of fraction addition using visual models. Scale Fraction Addition and Subtraction Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Module 2: Fraction Addition and Subtraction LI Game Name Game Description Fraction Robot Addition and Subtraction LI Subtract proper and improper fractions with like and unlike denominators. Crank Pies Addition and Subtraction LI Add fractions and mixed numbers with like and unlike denominators. Alien Bridge Common Denominators LI Add mixed numbers with the same denominator. In some levels, students fill in the missing addend when given one addend and the sum. Scale Fraction Addition and Subtraction LI Add and subtract fractions and mixed numbers with like and unlike denominators on the number line. Alien Bridge Mixed Numbers Add mixed numbers with the same	
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			denominator. In some levels, students fill in the missing addend when given one addend and the sum. Game Name Game Description Alien Bridge Learn to multiply fractions by a whole number using a visual model. Alien Bridge LI Learn to multiply fractions by a whole number using a visual model. This game integrates the symbolic notation for recording the multiplication equation displayed in the visual model. Unit Multiples Multiply fractions and whole numbers using an area model. Unit Multiplication on the Number Line Multiply fractions and estimate the locations of the products on a number line. Fraction Area Multiply fractions using an area model. Game Name Game Description Number Line Equivalence Locate fractions on a number line, with the number line ticks given using the same denominator or a different denominator as the fraction to be located. Fraction Grid Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100. Equivalent Fractions Identify equivalent fractions using rectangular diagrams displaying equal parts of a whole. Pie Monster	
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			Implicitly add two fractions together. Module 1: Uncommon Denominators Visual Game Name Game Description JiJi Cycle Select Basket Estimate the location of a fraction represented with a diagram on the number line. Common Denominator Match the partitioning of two rectangular blocks. Fraction Robot Addition Add proper and improper fractions with like and unlike denominators using rectangular diagrams displaying equal parts of a whole. Scale Fraction Visual Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Alien Bridge Learn the meaning of fraction addition using visual models. Module 2: Uncommon Denominators LI Game Name Game Description Common Denominator LI Match the partitioning of two rectangular blocks. Alien Bridge LI Learn the meaning of fraction addition using visual models. Fraction Grid Write one- and two-place decimals as fractions	
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			with denominators of 2, 4, 10, or 100. Scale Fraction Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Crank Pies Addition and Subtraction Add fractions and mixed numbers with like and unlike denominators. Module 1: Whole Number and Unit Fraction Division Game Name Game Description Select Peanuts Given the rate of peanuts per elephant and the whole or fractional number of elephants to feed, select the total number of peanuts. Select Elephants Select the whole or fractional number of elephants needed to eat the given quantity of peanuts. Select Peanuts per Elephant Given the number of peanuts and the whole or fractional number of elephants, select the rate of peanuts per elephant. Select Peanut or Elephant Multiplier Multiply and divide whole numbers by whole numbers and by fractions using the elephants and peanuts model. Model Peanuts Equation Given a numeric division prompt of a whole number divided by a whole number or by a unit fraction, use the model to generate the corresponding scenario. Build Peanuts Equation Fill in the blanks to write a division expression that represents the situation.	
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			Module 2: Whole Number and Unit Fraction Division LI Game Name Game Description Peanuts – Whole Numbers and Unit Fractions Divide whole numbers by whole numbers and by unit fractions. Area Divide Divide whole numbers by whole numbers and by unit fractions. The answers are demonstrated using an area model. Linear Transform Multiply and divide whole numbers by unit fractions. In the last level, identify the operation that will transform the first number into the second. Module 3: Fraction Division Game Name Game Description Visual Fraction Division Divide fractions by unit fractions using the elephants and peanuts model, now with fractional peanuts as well as whole peanuts. Model Division Given an expression showing a whole number divided by a fraction or a fraction divided by a unit fraction, select elephants and peanuts to model the expression. Convert to Multiplication Rewrite a fraction division expression as a multiplication expression. Fraction Division LI	
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			Divide whole numbers and fractions by fractions.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Fractions</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Fractions</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>			
	Summative Assessments (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>			

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Unit 3	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Decimals</i> <i>Fraction Decimal Equivalence</i> <i>Decimal Place Value</i> <i>Rounding</i> <i>Decimal Addition and Subtraction</i> <i>Decimal Multiplication</i> <i>Decimal Division</i>	Decimal Place Value Rounding Decimal Addition and Subtraction Fraction Decimal Equivalence Equivalent Decimals Decimal Multiplication and Division	3.NF.3, 4.NBT.3, 4.NF.6 4.NBT.1, 4.NBT.2, 4.NF.6, 4.NF.7, 4.G.1, 4.G.2, 5.NBT.1, 5.NBT.3, 5.NBT.3a, 5.NBT.3b 3.NBT.1, 4.NBT.2, 4.NBT.3, 4.NF.7, 5.NBT.3, 5.NBT.3a, 5.NBT.4 4.NF.7, 5.NBT.3, 5.NBT.3a, 5.NBT.7 5.NBT.7	Game Name Game Description Fraction Decimal Grid Write one- and two-place decimals as fractions with denominators of 2, 4, 10, or 100. Complementary Fraction Select the number of unit fractions with the given denominator that will add up to the given decimal. Estimate Decimals and Fractions on Number Line Estimate on a number line the location of fourths and halves in fraction and decimal form. Fraction Decimal Grid 2 Add one- and two-place decimals and decimal fractions. Fraction Decimal Trap Plot on a number line one- and two-place decimals and fractions with denominators of 2, 4, 10, and 100. Game Name Game Description Number Line Journey Plot one-, two-, and three-place decimals on a number line. Decimal Greenies Write the decimal that represents a given place-value based visual model. Decimal Place Value Identify and interpret the digit values of a given decimal. Decimal Place Value Clouds Identify the place of a given digit within a	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>

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			decimal up to the thousandths place. The places are expressed with the words or symbols for the powers of ten. Expanded Form Write whole numbers and decimals in standard notation when given expanded form representations. Decimal Comparison Compare two decimals and record the result with an ordering symbol. Decimal Order Fill Fill the hole in the ground by correctly ordering the given decimals. Game Name Game Description Decimal Round Off Round one-, two-, and three-place decimals to the nearest whole number. Round Off Round whole numbers to the nearest ten, hundred, or thousand. Number Funnels Round whole numbers to the nearest given place value. The game also teaches place value concepts up to the hundred thousands place. Decimal Number Funnels Round decimals to the nearest given value. The game also teaches place value concepts up to the tenths place. Round Off Multiple Choice Select the number that can be rounded to the given number, which is marked as a point on the number line.	
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			Game Name Game Description Estimate Total Cost Estimate the total cost of the items placed in the shopping cart and plot the cost on the number line. Shop Total Cost Choose items whose total cost adds up to a given amount. Place Value Align Set up addition and subtraction problems involving whole numbers and decimals by aligning their digits by place value. Arithmetic Algorithm Add and subtract decimal money amounts using the standard algorithm. Estimate Addition and Subtraction Number Line Compute and estimate sums and differences of whole numbers and decimals on a number line. Arithmetic Algorithm Add one- and two-place decimals using the standard algorithm. Module 1: Concepts of Decimal Multiplication Game Name Game Description Jelly Blocks Fixed Platform Visually select the multiplicand that solves the problem in this model. Jelly Blocks Select the product of two numbers using this model. Jelly Blocks Number Sense Numerically select the multiplicand that solves	
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			the problem in this model. Jelly Blocks LI Given a numeric multiplication prompt of an integer with a decimal, determine the product. Money Multiplication Multiply money amounts by whole numbers. Decimal Multiplication Multiply decimals by whole numbers. Module 2: Decimal Multiplication Game Name Game Description Decimal Moves Given decimal and the corresponding integer, by multiplying by 10 or a tenth to move the decimal that turns the integer into the given decimal. High Wire Multiplication Using the model, set up and use the multiplication algorithm to calculate the product of two decimals. Finish the question by moving the decimal place appropriately. Decimal Multiplication Algorithm Set up and carry out the multiplication algorithm numerically. Finish the question by moving the decimal place appropriately. High Wire Final Stage Given two decimals and the product of their integer counterparts, determine where the decimal place should be placed to solve the product of the decimals. Module 1: Introduction to Decimal Division Game Name Game Description	
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			Jelly Blocks Fixed Platform Visually select the divisor that solves the problem in this model. Jelly Blocks Select the visual quotient of two numbers using this model. Jelly Blocks Decimals Select the numeric quotient of two integers or an integer and a decimal. Introduce quotients less than one. Exploratory Division Explore division with decimals. In particular, develop the strategy of appending zeros after the decimal point. Decimal Snake Using the model, carry out division by a single digit integer where the dividend may be a decimal and may need to append zeros. Whole Number Divisors Carry out the division algorithm with whole number divisors and dividends that may be decimals and may need to append zeros. Module 2: Decimal Division Game Name Game Description Range Trap Decimals Given a decimal divisor and dividend, estimate the number of times the divisor goes into the dividend. Introduction to Decimal Division Given decimal divisors, first set up an equivalent division question where the divisor becomes an integer. Decimal Division	
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			Carry out decimal division using the standard algorithm, appending zeros as needed, and setting up an equivalent problem where the divisor becomes an integer.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Decimals</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Decimals</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program. Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>			
	Summative Assessments (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>			

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Unit 4	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Geometry</i> <i>Shapes and Attributes</i> <i>Area and Perimeter</i> <i>Volume</i> <i>Area of Polygons</i> <i>Polygon Angle Sums</i>	Shapes and Attributes Area and Perimeter; Area of Polygons Multiplication Algorithm; Area and Perimeter; Area of Polygons Volume Polygon Angle Sums	3.G.1, 4.G.1, 4.G.2, 5.G.4 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7, 3.MD.7a, 3.MD.7b, 3.MD.8, 4.MD.3 3.MD.2, 5.MD.3, 5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5, 5.MD.5a, 5.MD.5b, 5.MD.5c 3.MD.5, 3.MD.5a, 3.MD.5b, 3.MD.6, 3.MD.7, 3.MD.7a, 3.MD.7b, 3.MD.8, 4.MD.3 4.MD.5, 4.MD.5a, 4.MD.7, 5.G.3, 5.G.4	Module 1: Shapes and Attributes Game Name Game Description Dot Shapes Connect dots to form shapes which will fill holes in the ground. Shape Types Identify different types of triangles (equilateral, acute, etc.) and different types of polygons (rectangle, rhombus, etc.) Shape Names Identify the given polygon. Pick Geometric Shapes 3D By Attributes Identify the number of faces, edges, or vertices on a three-dimensional shape. Pick Geometric Shapes 3D By Shapes Select the three-dimensional shape that has the given number of faces, edges, or vertices. Module 2: Lines Game Name Game Description Parallel or Perpendicular Identify parallel, perpendicular, and intersecting lines within a given set of lines. Parallel or Perpendicular with Labels Identify parallel, perpendicular, and intersecting lines within a given set of lines. This game also teaches the use of variables to	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>

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			label distinct lines. Which Angle Identify an angle as acute, obtuse, straight, or right when given its numerical or pictorial representation. Circle Parts Identify the radius, circumference and diameter of a circle Game Name Game Description Select Area Perimeter Find the area and perimeter of a rectangle using visual models. Area Perimeter Select Shape Construct a rectangle that has the given area and perimeter. Area Perimeter with Units Construct a rectangle that has the given area and perimeter. Later levels require students to make rectangles that have the same area and different perimeters or the same perimeter and different areas. Areas and perimeters are expressed using metric and U.S. customary units. Perimeter Select Calculate the perimeters of rectangles, triangles and other polygons and express them using metric and U.S. customary units. Area Select Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units. Area or Perimeter? Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units.	
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			Game Name Game Description Volume Fill Calculate the volume of a right rectangular prism and express it using metric or U.S. customary cubic units. Volume Select Calculate the volumes of rectangular and triangular prisms and express them using metric or U.S. customary cubic units. Game Name Game Description Area of rectangle Find the area and perimeter of a rectangle using visual models. Complete Box Write an expression to describe the area. Includes adding or deducting from the area. Equal Areas Determine which figure is divided up equally based on area. Bricks Arrange the shapes to create the composite shape shown. Mean Height Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers. Area Select Calculate the areas of rectangles, triangles and parallelograms and express them using metric and U.S. customary units. Game Name Game Description Angle Sums With Triangles Find the sum of a polygon's interior angles by	
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			decomposing the polygon into a set of triangles. Angle Sums Find the sum of a polygon's interior angles by decomposing the polygon into a set of triangles and using the sum of interior angles fact for triangles. Missing Angle Find the magnitude of the missing angle on a triangle or quadrilateral using facts about the sums of their interior angles. This game also introduces the use of a protractor as a tool used to measure an angle. Missing Angle LI Find the magnitude of the missing angle on a triangle or quadrilateral using facts about the sums of their interior angles. This game also introduces the use of a protractor as a tool used to measure an angle.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Geometry</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Geometry</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		

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Evaluation	<i>Formative Assessments</i> (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>
	<i>Summative Assessments</i> (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>

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Unit 5	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>The Number System</i> <i>Rational Concepts</i> <i>Negative Numbers</i> <i>Coordinates and Distances</i> <i>Addition and Subtraction with Negative Numbers</i> <i>Multiplication and Division with Negative Numbers</i> <i>Multiplying and Dividing Rational Numbers</i> <i>Adding and Subtracting Rational Numbers</i>	Rational Concepts; Percents; Unit Rates, Tables, and Graphs; Applying Rates and Ratios	6.RP.3, 6.RP.3c, 6.NS.6, 6.NS.6c (Supporting: 6.RP.3b, 7.RP.3) 6.NS.5, 6.NS.6, 6.NS.6a, 6.NS.6b, 6.NS.6c (Supporting: 6.NS.7, 6.NS.7a, 7.NS.1, 7.NS.1a, 7.NS.1b, 7.NS.1c, 7.NS.2, 7.NS.2a)	Module 1: Non-Repeating Decimals Game Name Game Description Percent Tractor Convert the given fraction into a percent. This game relates fractions with power of ten denominators to percents using a model. Percent Tractor 4ths, 5ths Convert the given fraction into a percent. This game relates common fractions to percents using a model. Percent Grid Identify the decimal, fraction, and percent equivalents of numbers using the given model. Percent Grid Bubble Convert percents into fractions with power of ten denominators. Fraction, Percent, Decimal Trap Estimate the location of fractions, decimals, and percents on the number line.	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>
	Unit Rates, Tables, and Graphs	6.NS.6, 6.NS.6b, 6.NS.8 (Supporting: 6.EE.9, 6.G.3, 7.RP.2d)		
	Rational Concepts; Percents	6.NS.3, 6.NS.6, 6.NS.6a, 6.NS.6c, 6.EE.6, 7.NS.1, 7.NS.1c, 7.NS.1d, 7.NS.3		
	Addition and Subtraction with Negative Numbers (Factors and Multiples)	6.NS.6, 6.NS.6a, 6.NS.6c, 7.NS.2, 7.NS.2a, 7.NS.2c, 7.NS.3 (Supporting: 7.NS.2b)		
	Coordinates and Distances; Addition and Subtraction with Negative Numbers; Multiplication	6.NS.6, 6.NS.6a, 6.NS.6c, 7.NS.2, 7.NS.2a, 7.NS.2b, 7.NS.2c, 7.NS.3 6.NS.6a, 6.NS.6c, 7.NS.1, 7.NS.1c, 7.NS.1d, 7.NS.3 (Supporting: 7.EE.4, 7.EE.4a)	Module 2: Repeating Decimals Game Name Game Description Fraction to Decimal Conversions Convert between fraction and decimal representations of numbers using the division algorithm. Repeating Decimals to Fractions Choose an equivalent fraction given a repeating decimal using the division algorithm. Fractions to Repeating Decimals	

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	and Division with Negative Numbers; Multiplying and Dividing Rational Numbers; Percents (Properties of Operations; Solving One-Step Equations; Solving Two-Step Equations; Solving Linear Equations)		Choose an equivalent repeating decimal given a fraction using the division algorithm. Pie Chart Make Fraction Create a pie chart based on data. Pie Chart Make Table Create table values based on a given pie chart. Game Name Game Description Temperature Changes Determine the temperature change or the new temperature by reading and comparing the temperature on two thermometers, or by reading the original temperature and the description of the change. Negative Number Line Trap Plot positive and negative integers on a number line, presented in simplest form or with two or more leading negative signs. Least or Most Identify the least or greatest element in a set of negative integers. Least or Most LI Answer questions about the least or greatest element in a set of negative integers. Fraction and Decimal Trap Plot positive and negative fractions, mixed numbers, and decimals on a number line. Game Name Game Description Coordinate Trap Negatives Select the location of a coordinate pair on a coordinate grid. Number Line Distances Represent the distance between two points on a number line as a numerical expression.	
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			Grid Distances Find the distance between two points that lie on the same vertical or horizontal line in a coordinate plane. Line Capture Draw a line that goes through two given points in a coordinate plane. Line Capture Table Draw a line in a coordinate plane when given the coordinates of two points on the line. Module 1: Addition Patterns Game Name Game Description Make it Linear Identify the missing number in the given linear sequence. Make it Linear LI Fill in the missing number in the given linear sequence of integers. Module 2: Addition and Subtraction Game Name Game Description Integers on the Number Line Add and subtract positive and negative integers and locate the results on a number line. Add Stacks Negative Identify the positive or negative integer that can be added to one number to obtain another number. Thermometer Learn to read the temperature on a thermometer. Determine the temperature	
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			change by reading and comparing the temperature on two thermometers. Temperature Changes Learn to read the temperature on a thermometer. Determine the temperature change by reading and comparing the temperature on two thermometers. Solve Equation Multiply whole numbers using an area model. Negative Variable Stacks Solve the multi-step equation expressed as a model. Module 1: Introduction to Negative Multiplication Game Name Game Description Crank Stacks Multiply negative and positive numbers, and find missing multiplicands, using visual strategies. Kaboomerang Ornament Multiplication Multiply negative and positive integers by whole number multipliers using number line strategies. Write Multiplication Expression Represent repeated addition of negatives as a multiplication statement. Module 2: Two Negative Terms Game Name Game Description Grid Expression Model multiplication statements using an area model. Variable Stacks	
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			Find unknown multiplicands using visual models of negation. Solve Equation Solve for unknown multiplicands in an equation using visual models. Mult/Div Stacks Create multiplication or division expressions given a product or quotient using visual models of negation. Jelly Block Integers Evaluate or solve for unknowns given a multiplication or division statement on a number line. Jelly Block Decimals Evaluate or solve for unknowns given a decimal multiplication or division statement on a number line. Operation Race Evaluate multi-step multiplication and division problems using the order of operations. Module 3: Algorithm and Negatives Game Name Game Description Highwire Multiplication Evaluate multiplication of negative numbers using an algorithm with visual support. Answer Check Express an unknown in an equation as a mathematical expression. Module 1: Introduction to Negative Multiplication Game Name Game Description	
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			Crank Stacks Visual Multiply positive and negative fractions by a whole number using a visual model. Crank Stacks Numeric Multiply positive and negative fractions by a whole number using numeric strategies Crank Stacks Into the Unknown Solve for a missing positive or negative fractional coefficient given a whole number and fractional product using a visual model. Kaboomerang An Ornament Solve for a missing positive fractional coefficient given an integer multiplicand and product using a number line model. Module 2: Multiplication, Division and Two Operands Game Name Game Description Variable Stacks Visual Solve for an unknown rational multiplicand given another, and a rational product, using a visual model. Variable Stacks Numeric Solve for an unknown rational multiplicand given another, and a rational product, using a visual model with a numeric prompt. Multiplication and Division Stacks Countdown Solve for an unknown rational multiplicand or divisor using a visual model. Multiplication and Division Stacks Pit Stop Solve for an unknown rational multiplicand or divisor using a visual model. Multiplication and Division Stacks Finish Line	
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			Solve for an unknown rational multiplicand or divisor using a visual model. Kaboomerang Ornaments Solve for a missing positive fractional coefficient given multiple integer multiplicands and products using a number line model. Module 1: Negative Addition and Subtraction Concepts Game Name Game Description JiJi Cycle Relate a collection of fractions represented with circular diagrams to a single point on the number line. Crank Pies Evaluate Add and subtract fractions with like denominators using circular diagrams displaying equal parts of a whole. Crank Pies Missing Term Add and subtract fractions with like denominators using circular diagrams displaying equal parts of a whole. Crank Pies Numeric Add and subtract fractions with like denominators using circular diagrams displaying equal parts of a whole. Variable Stacks Same Sign Add positive and negative fractions of the same sign using visual models. Variable Stacks Mixed Signs Add positive and negative fractions of different signs using visual models. Variable Stacks Missing Term Find missing terms in addition situations using positive and negative fractions of the same sign, using visual models.	
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			Module 2: Subtracting Negatives Game Name Game Description Estimate Arithmetic with Big Numbers Evaluate expressions with positive and negative terms and plot as a point on the number line. Scale Frac Add Sub Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Scale Frac 3 Terms Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Numline Add Sub Negation Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models. Numline Add Sub 3 Terms Add and subtract fractions and mixed numbers on the number line. The fractions and mixed numbers are presented using visual models.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>The Number System</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>The Number System</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i>		

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		Product: Students that are at the level of achievement for the topic are able to go on <i>to the next topic they need guidance in.</i>
Evaluation	Formative Assessments (<i>ongoing & mid-lesson</i>): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>	
	Summative Assessments (<i>unit final evaluation</i>): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>	

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Unit 6	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Ratios and Proportional Relationships</i> <i>Proportional Relationships</i> <i>Percents</i> <i>Unit Rates, Table and Graphs</i> <i>Applying Rates and Ratios</i>	<i>Ratio</i>	6.RP.1, 7.RP.2, 7.RP.2b (Supporting: 6.RP.2, 6.RP.3d, 7.RP.2a, 7.RP.3)	Module 1: Proportional Reasoning	<i>Math 1 Materials</i>
	<i>Factor</i>		Game Name Game Description Ratio Monster	<i>Computers/iPads</i>
	<i>Multiple</i>	6.RP.3, 6.RP.3c, 6.NS.6, 6.NS.6c (Supporting: 7.RP.3)	Given a model for a ratio and either the antecedent or consequent, find the missing parts.	<i>ST MATH HSI Program</i>
	<i>Equivalent</i>		Build-A-Monster	<i>Whiteboards</i>
	<i>Proportion</i>	6.RP.1, 6.RP.2, 6.RP.3, 6.RP.3a, 6.RP.3b, 7.RP.2, 7.RP.2b, 7.RP.2d	Find a visual ratio to describe the data.	<i>Paper</i>
	<i>Common</i>	(Supporting: 7.RP.2a, 7.RP.2c, 7.RP.3)	Stretch-A-Block Scale blocks by whole number factors using a visual model.	<i>Pencils</i>
	<i>Rate</i>	6.RP.3, 7.RP.2, 7.RP.2b (Supporting: 6.RP.1, 6.RP.2, 6.RP.3b, 6.RP.3d, 7.RP.3)	Stretch-A-Block 2 Scale blocks using a visual model. This game uses both whole numbers and fractions as scale factors. Rubberbands Negatives Given a model on scaling, explore proportional reasoning with negative scale factors. Kaboomerang!! Proportional reasoning in this number line model.	
			Module 2: Numbers and Proportions Game Name Game Description More Monster Parts Given a multiple term ratio, determine the missing parts that fulfill the ratio. Build-A-Monster LI Write a ratio to describe the data.	

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			Ornaments Proportions Given a ratio, select equivalent ratios using the model. Ornaments Picka- Proportion Given data, chose and complete the ratio that describes it. Game Name Game Description Percent Tractor Convert the given fraction into a percent. This game relates fractions with power of ten denominators to percents using a model. Percent Tractor 3rds, 4ths, 5ths Convert the given fraction into a percent. This game relates common fractions to percents using a model. Percent Grid Identify the decimal, fraction, and percent equivalents of numbers using the given model. Percent Grid Bubble Convert percents into fractions with power of ten denominators. Fraction, Percent, Decimal Trap Estimate the location of fractions, decimals, and percents on the number line. Percent of a Set The value which is a specified percent of another number. Module 1: Unit Rates Game Name Game Description Hungry Monsters Given a ratio, find the missing monsters or missing fruit. Ornaments Operations Given equivalent ratios in the model,	
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			determine the scale factor. Blob Price Solve unit rate problems involving unit pricing. Module 2: Tables and Graphs Game Name Game Description Monster Graphs Given a rate, plot equivalent rates on a graph. Monster Graphs Build Rates Given a graph of equivalent rates, determine an additional or reduced rate. Monster Tables Given a rate, write equivalent rates in a table. Monster Tables Build Rates Given a table of equivalent rates, determine an additional or reduced rate. Ornaments Tables Determine which table describes a proportional relationship and complete the table. Game Name Game Description Seed Worm Select the number of increments, the length of the increment, or the total distance, when given the other two. Seed Worms Determine the missing values for two seed worm problems which have a dependence between them. Seed Worms Fractions Determine the missing values for two seed worm problems, now using fractional increments as well as whole number ones. Speed Worms Estimate the point at which the seed worms	
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			will meet, based on their directions, speeds, and starting locations. In other levels, adjust the speed of one of the worms so that the two worms will meet at the designated spot.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Ratio's and Proportional Relationships</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Ratio's and Proportional Relationships</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>			
	Summative Assessments (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>			

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Unit 7	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Expressions and Equations</i> <i>Factors and Multiples</i> <i>Properties of Operations</i> <i>Using Parentheses</i> <i>Solving One-Step Equations</i> <i>Solving Two-Step Equations</i> <i>Solving Linear Equations</i> <i>Exponents, Squares and Roots</i>	<i>Factor</i>	Supporting: 6.NS.4	Game Name Game Description	<i>Math 1 Materials</i>
	<i>Multiples</i>	6.EE.2, 6.EE.3	Multiples Identify multiples of a given whole number.	<i>Computers/iPads</i>
	<i>Ratios</i>	(Supporting: 6.EE.2a, 6.EE.2b, 6.EE.2c, 6.EE.4, 6.EE.6)	Factors Identify factors of a given whole number.	<i>ST MATH HSI Program</i>
	<i>Prime</i>	6.EE.2, 6.EE.3	Multiples and Factors Identify factors or multiples of a given whole number.	<i>Whiteboards</i>
	<i>Distributive</i>	(Supporting: 6.EE.2a, 6.EE.2b, 6.EE.2c, 6.EE.4)	Prime Factorization Find prime factorizations for given whole numbers using tree diagrams.	<i>Paper</i>
	<i>Parentheses</i>	6.EE.5, 6.EE.7, 7.EE.4, 7.EE.4a, 8.EE.7, 8.EE.7b, A-REI.3	Find the Primes Identify which of the numbers in a given set are primes.	<i>Pencils</i>
	<i>Operation</i>	(Supporting: 6.EE.4, 6.EE.6, A-REI.2)	Prime Factorization Bubble Find prime factorizations for given whole numbers and fill in the bubbles to create the prime factorization expression.	
	<i>Commutative</i>	6.EE.7, 7.EE.4, 7.EE.4a, 8.EE.7, 8.EE.7b, A-REI.3	Game Name Game Description	
	<i>Like Terms</i>	(Supporting: 6.EE.4, 6.EE.6, A-REI.2)	Operation Race Evaluate numerical expressions using the correct order of operations.	
	<i>Variable</i>	6.EE.7, 7.EE.4, 8.EE.7, 8.EE.7b, A-REI.3	Multiplying with Parentheses Learn the meaning of and how to simplify expressions involving variables and parentheses.	
	<i>Exponent</i>	(Supporting: 6.EE.4, 6.EE.6, 8.EE.7a, A-REI.2)	Distributive Property Use the distributive property to show the meaning of expressions with parentheses and variables.	
		6.EE.1 (Supporting: 6.EE.2b, 8.EE.1, 8.EE.3, 8.EE.4)	Operation Race with Parentheses Identify the operator precedence for numerical	

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			expressions involving arithmetic operations and parentheses. Game Name Game Description Complete Box Fill in the blanks to create an expression that represents the area and arrangement of blocks that is shown. Which Parentheses? Identify where the parentheses should be placed to make the expression equal to the given value. Box Commute Use the commutative property to transform the given expression into one that represents a different configuration of blocks. Wall Factory Choose values for the variables to make the given expression represent the configuration of blocks in the ground. Wall Factory Multiple Choice Choose the expression that could represent the given configuration of blocks. Missing Addend Fill in the missing addend to make the equation true. Variable Stacks Solve one- and two-step one-variable linear equations involving addition and multiplication. The two sides of the equation are modeled as stacks that need to have equal height. Solve Equation Solve one-variable addition, subtraction, or multiplication equations.	
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			Rolling Equations Use a number line model to solve one-variable addition equations and to find particular solutions to two-variable addition equations, including equations with multiple instances of the variable or variables. Variable Stacks LI Solve one- and two-step one-variable addition and multiplication equations that are presented symbolically. Module 1: Equations and Unknowns Game Name Game Description Rolling Equation Students will select a pair of numbers (all positive) that fit the relationship (additive, multiplicative, or both) displayed by visual representation of jumps on the number line. Variable Stacks Students will solve visual equations of the form of $px+q=r$, where p,q,r, and x are any integer value. Variable Stacks with Like Terms Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value. Inverse Game Students will select the inverse operation or reciprocal of whole numbers and fractional numbers to bring the visual equation back into balance. Solve Equation Students will solve symbolic equations of the form of $px+q=r$, where p,q,r, and x are any integer value.	
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			Solve Equation Like Terms Students will solve symbolic equations of the form of $px+qx=r$, where p,q,r, and x are any integer value. Module 2: Fractions and Multiple Unknowns Game Name Game Description Frac Wall Students will solve visual equations of the form $px=r$, where p and x are positive rational numbers (of the form a/b). Variable Stacks Fractions Students will solve visual and symbolic equations in the form $px+q=r$, where x,q, and r are integers and p is a rational number (of the form a/b). Rolling Equation Multiple Unknowns Find particular solutions to two-variable linear equations using a number line model. Module 1: Solving Linear Equations Game Name Game Description Rolling Equation Students will select a pair of numbers (all positive) that fit the relationship (additive, multiplicative, or both) displayed by visual representation of jumps on the number line, including variables on both sides. Variable Stacks Students will solve visual equations of the form of $px+q =rx$ where p,q,r,s,t,u and x are any integer value. Inverse Game	
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			Students will select the inverse operation or reciprocal of whole numbers and fractional numbers to bring the visual equation back into balance. Solve Equation Students will solve symbolic equations of the form of $px+q=r$ where p,q,r, and x are any integer value. Module 2: Fractions and Two Variables Game Name Game Description Frac Wall Students will solve visual equations of the form $px=r$, where p and x are positive rational numbers (of the form a/b). Variable Stacks Fractions Students will solve visual and symbolic equations in the form $px+q=r$, where x,q, and r are integers and p is a rational number (of the form a/b). Solve Equation, Many Solutions Students will see examples of linear equations with one solution and infinitely many solutions. Variable Stacks Multiple Variables Students will solve visual and symbolic equations with multiple variables and rational numbers of the form $y=mx+b$, $ay=bx$, $ay+bx=c$. Module 1: Exponentiation Game Name Game Description Build Shape Build the given shape using visual exponentiation. Circle Exponents Build the given shape using repeated	
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			multiplication. Exponential Notation Build the given shape using exponential notation. Perfect Squares Determine which number or product is a perfect square. Repeated Expressions Given a exponential or multiplicative expression, select repeated addition or repeated multiplication. Write Exponential Expressions Given a repeated multiplication or addition expression, write the expression in exponential or multiplicative notation. Module 2: Exponentiation and the Other Operations Game Name Game Description Number Line Exponents Plot an exponential expression on the number line. Number Line Exponents Bubble Select Evaluate an exponential expression. Operation Race with Exponents Decompose an expression without parentheses by using the order of operations. Number Line Exponents Two Operations Given an expression with two operations, evaluate it using the number line. Number Line Exponents Two Ops Bubble Select Numerically evaluate an expression that has two operations.	
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			Operation Race with Parentheses Decompose an expression using the full order of operations (parentheses included). Module 3: Integer Exponents Game Name Game Description Cube Exponents Select the exponential expression that matches the given model. Cube Exponents Bubble Select Select the missing digit that will match the exponential expression with the given model. Place Value Powers of 10 Determine the power of ten (positive and negative) that corresponds to the appropriate place value. Operations Race, Powers of 10 Evaluate numeric expressions involving both decimals and positive or negative powers of ten.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Expressions and Equations</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Expressions and Equations</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i>		

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		Product: Students that are at the level of achievement for the topic are able to go on <i>to the next topic they need guidance in.</i>
Evaluation	Formative Assessments (<i>ongoing & mid-lesson</i>): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>	
	Summative Assessments (<i>unit final evaluation</i>): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>	

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Unit 8	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Functions</i> <i>Linear Relationships</i> <i>Graphing Linear Functions</i> <i>Parabolas and Quadratic Functions</i> <i>Factoring Quadratics</i>	<i>Number Line</i>	6.RP.1, 6.RP.3a, 7.RP.2, 7.RP.2b	Module 1: Single-Step Functions Game Name Game Description	<i>Math 1 Materials</i>
	<i>Input</i>	(Supporting: 6.EE.9, 7.RP.2a, 7.RP.2c, 7.RP.2d, 7.EE.4, 7.EE.4a, 8.EE.5, 8.F.1, 8.F.5)	Kaboomerang Single-Step Differentiate between scaling and offsetting with double number lines.	<i>Computers/iPads</i>
	<i>Output</i>		Ornaments Single-Step Find unknown values given either a scaling or offsetting relationship.	<i>ST MATH HSI Program</i>
	<i>Function</i>	6.EE.9, 8.EE.5, A-REI.10, F-IF.7, F-IF.7a	Ornaments Numeric Apply numeric strategies for offsetting or scaling with double number lines.	<i>Whiteboards</i>
	<i>Linear</i>	(Supporting: 7.EE.4, 7.EE.4a, 7.EE.4b, 8.F.1, 8.F.3, 8.F.4, 8.F.5, F-IF.1, F-IF.4)	Make it Linear Given some points on a table, complete the missing values given that it is a linear relationship.	<i>Paper</i>
	<i>Unit Rate</i>		Linear Transform Identify inputs, outputs, slope and offset for a linear relationship.	<i>Pencils</i>
	<i>Transform</i>	6.EE.9, A-REI.10, F-IF.7, F-IF.7a (Supporting: 8.F.1, F-IF.1, F-IF.4)	Module 2: 2-Step Linear Functions Game Name Game Description	
	<i>Parabola</i>		Kaboomerang Two-Step Combine offsetting and scaling to model linear function with a double number line.	
	<i>Quadratic</i>	A-SSE.3, A-SSE.3a	Ornaments Two-Step Table Find unknown values given a linear relationship.	
	<i>Standard Form</i>		Make it Linear Non Unit Rate Given some non-sequential points on a table, complete the missing values given that it is a linear relationship.	
			Linear Transform Fractional Slope	

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			Given a table, identify the fractional slope and integer offset that describes the linear relationship. Kaboomerang Litmus Test Apply previous numeric and mathematical understandings to model and then solve linear problems in a non-numeric environment. Game Name Game Description Linear Balloons Place the missing balloon(s) in place so that the result forms a line. Space Slope Given a slope and a point, rotate the line to describe the information. Linear Balloons Match Equation Given a linear equation, shift and rotate the line to describe the equation. Graph Sweep Adjust the given equation so that the sweeping line matches the desired line. Linear Balloons Tables Given an equation, fill in a table of values that satisfy the equation. Graph Sweep Bubble Select Given a line, write the equation that describes it using the graph sweep model. Linear Balloons Graphing Given a line, write the equation that describes it using the balloon model. Module 1: Graphing Parabolas Game Name Game Description Parabola Balloons Place the missing balloon(s) in place so that the result forms a parabola.	
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			Parabola Balloons Match Equation Tags Given a quadratic equation where $b = 0$, use the given tools to describe the equation. Here, a and c will have number tags on. Graph Sweep Adjust the given equation so that the sweeping parabola matches the desired parabola. Here, b is zero. Parabola Balloons Table Given an equation with $b = 0$, fill in a table of values that satisfy the equation. Parabola Balloons Symbolic Given a parabola, write the equation that describes it using the balloon model. Here, b is given as zero. Parabola Balloons Match Equation Given a parabola where $b = 0$, use the given tools to describe the equation. Here, a and c will not have number tags. Module 2: Graphing Parabolas Standard Form Game Name Game Description Parabola Balloons Standard Form Given visual tools for a, b, and c, describe the parabola that pops the balloons. Parabola Balloons Match Equation Tags Given a quadratic equation (one coefficient is always zero), use the given tools to describe the equation. Here, a, b and c will have number tags on. Graph Sweep Single Adjust the given equation so that the sweeping parabola matches the desired parabola.	
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			Parabola Balloons Standard Form Table Given an equation, fill in a table of values that satisfy the equation. Parabola Balloons Enter Equation Given a parabola, use the given tools to describe the equation or enter the coefficients directly. Graph Sweep Multiple Puzzles Repeatedly adjust the given equation so that the sweeping parabola matches the desired parabola. Game Name Game Description Grid Expressions Build a rectangle given the dimensions. Select rectangle dimensions given a rectangle. Product Sum Drop Given a product and a sum, select two numbers that both add up to the sum and multiply to the product. Polynomial Fill Positive Factor a quadratic expression.	
Differentiation	Support -- for students who are struggling with the content	Content: <i>Functions</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving	Content: <i>Functions</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that</i>		

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	students. <i>they need guidance with.</i> Product: Students that are at the level of achievement for the topic are able to go on <i>to the next topic they need guidance in.</i>
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>
	Summative Assessments (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>

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Unit 9	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Statistics and Probability</i> <i>Data and Graphing</i> <i>Mean, Median, Mode and Range</i> <i>Probability</i>	<i>Mean</i>	6.SP.2 Supporting: 6.SP.1, 6.SP.3, 6.SP.5, 6.SP.5c, 7.SP.4	Game Name Game Description Mean Height Find the mean height of a collection of stacks of blocks, or the mean of a collection of numbers.	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>
	<i>Median</i>		What's the Range? Intro Select number of blocks that is equal to the range of a given list of whole numbers.	
	<i>Mode</i>	7.SP.5 Supporting: 7.SP.7, 7.SP.7a, 7.SP.7b	What's the Range? Find the range of a list of whole numbers and bubble select to record the answer.	
	<i>Range</i>		Median In The Middle Find the median of a collection of whole numbers.	
	<i>Probability</i>	3.MD.3	Mode Is Most Intro Identify the mode of a given collection of shapes, letters, or numbers.	
	<i>Vertical</i>		Mode Is Most Identify the mode of a given list of shapes, letters, or numbers.	
	<i>Horizontal</i>		Mean Median Mode Review Find the mean, median, or mode for a given sample of elements.	
	<i>Bar Graph</i>		Game Name Game Description Least Most Probability Answer probability questions by describing events as likely, unlikely, probable, or improbable.	
	<i>Pie Chart</i>		High, Low, Certain and Impossible Probability Identify the outcome that matches the given description - certain, impossible, likely or	
	<i>Double Bar Graph</i>			

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		unlikely. Estimate Probability with Marbles Estimate the probability of selecting or not selecting a particular type of marble from the given jar. Estimate Probability with Spinner Estimate the probability of the spinner landing inside or outside of a given region. Estimate Probability Dice Estimate the probability of a particular outcome of a roll of a die. Game Name Game Description Bar Graph Bridge Construct vertical and horizontal bar graphs for a data set given as single observations or in a table. Bar Graph Bridge LI Construct a bar graph for a data set from either a visual representation or a description of the data. Pie Chart Fill Data Read a pie chart labeled with fractions and create a data set that could be represented by the chart. Pie Chart Fill Chart Construct a pie chart from a data set given as observations or in a table. Double Bar Graph Explore double bar graphs by constructing graphs from a table of data. Read a double bar graph and fill in missing values in the data table.	
Differentiation	Support -- for students who	Content: <i>Statistics and Probability</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and</i>	

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	are struggling with the content	<i>show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>
	Extension – for high achieving students.	Content: <i>Statistics and Probability</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>
Evaluation	Formative Assessments (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>	
	Summative Assessments (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>	

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Unit 10	Length of Unit ... 3 Weeks ...			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
<i>Challenge</i> <i>Challenge Games</i>	<i>All vocabulary from previous Units</i>	<i>All standards listed from previous Units.</i>	<i>Various Logic Games</i> <i>Visual Concepts</i> <i>Find Patterns</i>	<i>Math 1 Materials</i> <i>Computers/iPads</i> <i>ST MATH HSI Program</i> <i>Whiteboards</i> <i>Paper</i> <i>Pencils</i>
Differentiation	Support -- for students who are struggling with the content	Content: <i>Challenge</i> Process: <i>As a teacher I am able to log into each students program. I am able to pause, play-back, and show/guide students through the process of finding the correct process to solve.</i> Product: <i>Students will be able to explain the math to the teacher as well as pass the level of the program on their own.</i>		
	Extension – for high achieving students.	Content: <i>Challenge</i> Process: <i>If students do well on the Diagnostic Test the program allows them to jump to the next level that they need guidance with.</i> Product: <i>Students that are at the level of achievement for the topic are able to go on to the next topic they need guidance in.</i>		

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Evaluation	<i>Formative Assessments</i> (ongoing & mid-lesson): <i>At the beginning of the year a Diagnostic Test is given. This test allows the teacher as well as the program to place students accordingly within the program.</i> <i>Pre-Tests are given before each unit to see if the prior knowledge of the student. During the duration of the lessons students are shown visually any mistakes they make so that they are able to correct them. The program is always assessing students.</i>
	<i>Summative Assessments</i> (unit final evaluation): <i>A Post-Test is given at the end of each Unit. At the end of the year a Final Diagnostic Test will be given.</i>