

## Math ~ Appendix A

### Differentiation

Kindergarten	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
HEP	Double digit counting game	Identify specific characteristics of shapes i.e triangles	Write a number sentence solving both sides of the equation	Sort by 3 attributes: size, color, and shape	Add using dice with two 10-sided dice
Tier 2	Use of manipulatives	Practice number cards with dry erase boards	Sort shapes by attributes	Give them the sorting rule and have them sort accordingly	Add using a 10 and 6 sided dice
Tier 3	Counting sets – single digit numbers	Adding into pocket game with concrete manipulatives	Partner work with shape families	Identify patterns using ten-frames to add numbers within ten	Add using dice with two 6-sided dice
504	Singing and dancing to 100	Movement of shapes	Create shapes with ropes and partners	Make a collage based upon an attribute i.e number of sides	Feel and describe pairs of identical shapes in a “feely box”
ELL	Number walk	Identify numbers based upon number cards	Sort common objects by attributes i.e buttons	Practice teen numbers by reciting word pairs i.e three- thirteen	Scavenger hunt to find a specific number of objects
IEP	Counting sets – count aloud	Use of 10-frames to count and add	Show multiple ways to make 10	Explore graphing with concrete objects (connecting cubes)	Use pictures to illustrate number stories

Kindergarten	Unit 6	Unit 7	Unit 8	Unit 9
HEP	Use body length to measure objects i.e. hand span	Model addition and subtraction on the 100s grid	Recognize the patterns for counting beyond 100	Play “Top-It” using only large number cards
Tier 2	Compare lengths of objects using the terms “longer” and “shorter”	Model addition and subtraction on the number line	Choral count by ones using a rhythmic pattern or tune	Play dice subtraction to practice fact fluency within 5
Tier 3	Use picture cards to identify which objects are longer or shorter	Use manipulatives to practice adding and subtracting objects	Providing a starting and stopping ranges in terms of counting to 100	Use counters, fingers, or small number line for those who need to model numbers concretely
504	Practice lining up ends of objects to determine which is longer	Play “growing trains” to understand adding and subtracting objects	Build 3-D objects using toothpicks and marshmallows	Use manipulatives to solve “in” and “out” rules
ELL	Provide pictures to show greater, less, and equal to and have students identify using words	Use gestures when describing 3-D objects	Describe two and three dimensional shapes based upon an illustration	Use illustrations and gestures to reinforce the terms “greater than” and “larger”
IEP	Explain long, longer, longest to compare length	Model addition on the number line	Whisper numbers leading up to the starting number for a “running start”	While playing “Top-It” use lower numbered cards only

Grade 1	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
HEP	Make a six-sided dice and notice patterns with on the dice	Practice with quick-look cards using different dot patterns	Use parts and total diagram with an “unknown” and organize against a number card (1-10)	Use same size units to measure length using cubits and hand span units	In pairs, flip over 2 number cards to create a 2-digit number and have partner name the numbers before and after that
Tier 2	Make dot patterns with counters	Practice with quick-look cards at 3-second intervals	Use parts and total diagram to match to a domino	Sort objects into similar sized groups and describe relative size	Using a number grid, name numbers that come just before and after a two-digit number
Tier 3	Work with a partner to make and identify counter patterns	Practice with quick-look cards at 5-second intervals	Place number cards in numerical order and use a domino to create a match	Sort objects into similar sized groups	Play rolling for 50 using the number grid
504	Examine dot pattern on dice (6 sides)	Play 10-speed using only counters	Illustrate a number story	Identify objects that are about 3, 5, and 7 paperclips long	Fill in a missing number on a grid showing 120.
ELL	Distinguish between dots and line segments	Teach combinations of ten pennies by separating into each fist	Define “total” and “in all”	Use picture cards to identify “shorter than” “longer than” “about the same” length	Use arrows to help students visualize the numbers that come before and after
IEP	Observe a number of dots on a page and then show that value with their fingers	Play 10-speed using a ten-frame and ten counters	Place number cards in numerical order (no greater than 5) and use a domino to create a match	Observe concrete objects to determine which are longer and shorter	Find the number on a grid showing 120.

Grade 1	Unit 6	Unit 7	Unit 8	Unit 9
HEP	Use the hour hand to make a specific time	Explore patterns with fact families	Combine patterns blocks together to create a composite shape	Determine how to spend \$3.00 at a school store
Tier 2	Familiarize students with an hour hand only clock	Provide an experience with turn-around rule using 2 different colored dice	Create a pattern block shape based upon a description	Play “Animal Weight” top-it
Tier 3	Complete setting the time daily activity	Play subtraction BINGO to strengthen subtraction facts	Sort pattern blocks based upon attributes	Play “Animal Weight” top-it and use base ten blocks to find the total weight
504	Teacher dictates a time and students create it on a paper clock with hour only	Fill in a missing fact on a fact triangle	Use pattern block template to draw shapes	Draw a visual representation of a number story
ELL	Familiarize students with the terms face and hand in relation to a clock	Identify terms such as “triangle, fact, and fact family” using yes or no questions	Create a shape using pattern blocks and describe it in words	Use pictures and real life objects to tell number stories
IEP	Understand a normal routine for a person in the am vs the pm i.e. waking up	Play subtraction BINGO to strengthen subtraction facts using a number line	Create a shape using pattern blocks	Use concrete objects to represent a number story

Grade 2	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
HEP	Create a number line puzzle	Find combinations of numbers that add to 100	Complete the “finding subtraction mystery number” activity	Apply their understanding of time to complete number problems	Solve coin puzzles
Tier 2	Identify one, two, or three more or less on a number line	Find combinations of numbers that add to 100 with the aid of a number grid	Use counters to write subtraction number sentences	Match daily activities with times that they do them to the nearest half hour	Solve coin puzzles using illustrations and/or manipulatives
Tier 3	Place number cards in order from least to greatest	Use straws or cubes and longs to create groups of 10	Practice addition and subtraction facts using dominos	Use a visual model to assist in telling time	Practice counting up by using dice to generate numbers
504	Fill in the missing numbers on a number line	Play the exchange game using pennies and nickels	Use dominos to identify a missing fact	Partner work together to write and tell time	In partners, buy and sell items from a “store” and practice making change
ELL	Use their finger to slide on the number line (Total physical response technique)	Practice identifying coins properly – use of names and values	Define the words “first, then, now” for number stories	Use a human-like cartoon face to help understand the parts of the clock / time	In partners, practice being customers and clerks using appropriate language
IEP	Place number cards in order from least to greatest using concrete models	Play “spinning for money” using pennies, nickels, dimes, and quarters	Use concrete objects to create number models and stories	Show a visual between the difference between the hour and minute hand to write the time	Explore counting by 5, 10, and 25 using a visual model

Grade 2	Unit 6	Unit 7	Unit 8	Unit 9
HEP	Write their own number stories using a given number model	Play “Hit the Target” with two digit numbers	Use a Venn diagram to categorize shapes	Subtract a three digit number from a four digit number using base ten blocks
Tier 2	Solve number stories using a drawing or diagram	Play “Hit the Target” with two digit numbers and a focus on multiples of ten	Sort 2-dimensional shapes and describe their attributes	Practice subtraction using self-selected strategy
Tier 3	Act out a number sentences on a life-sized number line	Gain experiences with multiples of ten by finding the missing dots on a tens frame	Sort 2-dimensional shapes by a given name and/or attribute	Practice subtraction using base-ten short hand
504	Act out a number story	Play “Hit the Target” with the aid of concrete models	Draw a shape with a given attribute	Practice trading using base ten blocks to model subtraction
ELL	Use the poem “Band-aids” to read and solve number stories	Understand the term “change to” – making something different, using concrete objects i.e. clay or play-doh	Compare drawing by telling how they are similar and different	Review the meaning of the terms “trade” to understand two-digit subtraction
IEP	Identify “friendly numbers” on a number line	Practice finding differences between two digit numbers and multiples of ten using a number grid	Read the book “Shape Up” and describe the shapes using specific attributes	Adding and subtracting two digit numbers using base ten blocks

Grade 3	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
HEP	Measure elapsed time to the nearest minute	Challenge students to solve a number problem with 2 operations in 2 different ways	Create a “what’s my rule” problem	Create all possible whole-number rectangles that have a perimeter of 20	Write extended multiplication facts with multiples of ten
Tier 2	Measure time to the nearest minute using a picture / visual model	Challenge students to solve a number problem with 2 operations in 1 different way	Solve a “what’s my rule” problem (multiplication)	Find the perimeters of various polygons	Create a fact family house
Tier 3	Measure time to the nearest minute using a Judy Clock	Challenge students to solve a number problem in one way using a visual model	Solve a “what’s my rule” problem (addition)	Find the perimeter of various rectangles	Sort fact triangles based on known and unknown facts
504	Use their own hands and arms to demonstrate a given time	Complete activity “Writing multiplication stories”	Solve a “what’s my rule” problem (addition) using manipulatives	Practice measuring to the nearest half inch using a ruler	Relate multiplication and division by creating fact families
ELL	Learn the math terms “hands” “face” “far from” “near” “nearest”	Role-play a number story	Learn the terms “input” and “output”	Review definitions of area and perimeter	Compare two collections of objects and describe what’s missing
IEP	Small group practice measuring time with a Judy Clock	Challenge students to solve a number problem in one way using counters or concrete manipulatives	Solve a “what’s my rule” problem (addition) in pairs	Find the perimeter of a polygon by wrapping a string around the outside	Relate multiplication and division by creating fact families using drawings and/or manipulatives

Grade 3	Unit 6	Unit 7	Unit 8	Unit 9
HEP	Write numbers sentences with parenthesis to represent number patterns in arrays	Make fraction strips showing 5 <sup>th</sup> , 10 <sup>th</sup> , and 12 <sup>th</sup> and label each part	Solve word problems using whole dollars and parts of dollars as answers	Partition rectangles to solve two double digit multiplication facts
Tier 2	Solve number sentences with parenthesis	Compare fractions using fraction strips	Solve word problems using whole dollars as answers	Partition rectangles to solve one digit times two digit multiplication facts
Tier 3	Play “Name that Number” using 3 cards and 2 operations	Compare fractions using fraction strips using concrete manipulatives	Manipulate play money in a store setting	Complete “Break apart strategy to multiply” activity
504	Practice representing number stories by drawing pictures	Make fraction strips of fourths and halves and then compare fractions	Practice trading money to make change	Play “multiplication top-it” with extended facts
ELL	Discuss the difference between sentence equation and parenthesis	Practice folding and unfolding and relate it to the meaning of the words	Use common shopping language while trading money in the school store	Scaffold the term “decompose” by modeling with counters
IEP	Play “Name that Number” using 3 cards and 1 operations	Compare fractions using fraction strips using halves and fourths	Practice counting up using dollars and coins	Play “multiplication top-it” with simple facts



Grade 4	Unit 1	Unit 2	Unit 3	Unit 4
HEP	Using a budget of 35 dollars, students plan a meal	Identify and extend patterns with square numbers	Find equivalent fractions by folding paper (origami figures)	Explore patterns of millions and billions using sheets and reams of paper
Tier 2	Use base 10 blocks to round to nearest 10 or 100	Build arrays using visual models	Use number lines to identify and compare equivalent fractions	Play “Beat the Calculator” to practice extended multiplication facts
Tier 3	Use base 10 blocks to round numbers to nearest multiple of ten	Build arrays with centimeter cubes	Stacking fraction tiles to understand equivalent fractions	Play “Multiplication Top-It” to practice facts
504	Estimate to nearest 10 using number line or visual models	Build triangular numbers using counters	Have students generate equivalent names by use of a name collection box	Practice partial products multiplication using the rectangular area model
ELL	Understand the language of greater than, less than, equal to using pictures	Using visual representation to understand rows and column	Recognize names of equivalent fractions and match them to pictures	Will match objects that go together to help understand partial rectangle representations
IEP	Read “Betcha” Estimating and identify areas of estimation in real life	Find the next number in sequence by drawing and counting consecutive rows of dots	Use fraction tiles to identify equivalent fractions	Play “Multiplication Top-It” using digits 2,4,5,10

Grade 4	Unit 5	Unit 6	Unit 7	Unit 8
HEP	Add fractions with unlike denominators	Explore relationship between area and perimeter by asking question: do rectangles with the same perimeter have the same area?	Use fractions to create a recipe that makes only a single serving	Students write multi step number stories involving two operations and three steps
Tier 2	Add 10ths and 100ths using shorthand base ten	Practice finding area and perimeter of rectilinear figures	Students will work on doubling and tripling a recipe involving fractions	Solving two operations and three step number stories
Tier 3	Converting 10ths and 100ths using base ten blocks	Practice finding area and perimeter of rectilinear figures on a grid	Students will work on doubling a recipe involving fractions	Solving two step number stories with two operations
504	Represent tenths and hundredths on an overlapping hundredths and tenths grid	Practice finding area and perimeter of rectilinear figures using square tiles	Explore concept that multiple copies of a unit fraction may be represented using repeated addition	Act out two step and two operation number stories
ELL	Identify ten, tenths, and tens hundred, hundreds, and hundredths using a visual model representation	Understanding sequence by finishing patterns of numbers	Show unit fractions using measuring cups and spoons	Have students look at a line plot to understand concept of greatest number of, least number of
IEP	Add 10ths and 100ths using base ten blocks	Solve division problems by using models	Will use repeated addition to work on recipe to double a recipe involving fractions	Solving two step stories with two operations focusing on addition and subtraction

Grade 5	Unit 1	Unit 2	Unit 3	Unit 4
HEP	Work with finding area of rectangles with fractional sides	Understand traditional multiplication using place value patterns	Extend work on a number line to partition into 4ths, 8ths, 16ths, of an inch	Order decimal numbers by comparing baseball players batting averages
Tier 2	Finding area using only 1 fraction side	Solve real world problems and interpret a remainder	Number line partition on number line up to 2 into $\frac{1}{2}$ , 4ths, and 8ths	Order decimals by placing them on a number line
Tier 3	Find area of figure of fractions on a grid	Interpret remainders using concrete models and number lines	Using fraction tiles have students find equivalent fractions	Order and compare decimals by using decimal cards
504	Practice area of rectangles rolling dice	Create a word problem with a remainder and identify what remainder means	Create fraction strips of $\frac{1}{2}$ , 4ths, 8ths, and 10ths and find equivalents	Compare and order decimals using patterns within place value
ELL	Label key words on a diagram boundary, unit squares, region, area, overlap, gap	Scaffold understanding of the word remainder to mean left over and use a concrete example	Help students understand locate and location on number line	Relate the terms greater than less than or equal to with inequality symbols
IEP	Finding area of rectangles with whole numbers	Solve real world problems with remainders and understand what it means to ignore remainder	Using fraction tiles turn mixed numbers into improper fractions	Compare and order decimals using base ten blocks

Grade 5	Unit 5	Unit 6	Unit 7	Unit 8
HEP	Solve multi step fraction of fraction problem	Collect data and graph on a line plot then create problems that can be solved by examining a line plot and have fractional parts	Answer always, sometimes, never questions by referring to a quadrilateral hierarchy	Find area of a three or more composite rectilinear shapes
Tier 2	Use “Brownie Pan Model” to solve multiplication fraction problems	Solve problems using a line plot with fractional units	Draw a quadrilateral based on given attributes	Find area of a composite area shape by decomposing
Tier 3	Fold paper and label sections to identify fraction and representations	Partition a number line into fractional units of 2,4, and 8	Using hierarchy give as many names for a particular quadrilateral	Find area of a composite shape on grid paper
504	Complete the finding fractions of fractions activity	Given data students create a line plot with fractional units	Sort quadrilaterals based on a given attribute	Draw a rectangle using a rolled number cube as dimensions and decompose into triangles to find the area
ELL	Understand horizontal and vertical by combining words with gestures	Understand term reasonable by identifying reasonable situations within a given picture that is displayed	Given a quadrilateral students have to identify a particular attribute	Use examples and counterexamples to understand the meaning of the prefix non
IEP	Fold paper and label sections to identify fraction and representations limit to denominators of two and four	Given data students create a line plot with fractional units given on the number line using only $\frac{1}{2}$ and 4ths	Given a quadrilateral identify its defining characteristics	Find area of a rectilinear figure using square tiles

Grade 6	Unit 1 Prime Time	Unit 2 Comparing Bits and Pieces	Unit 3 Let's Be Rational	Unit 4 Variables and Patterns
HEP	Play the factor game up to 100	Find unit rates using a proportion	Solve division fraction by fraction problems to identify the pattern in the traditional algorithm	Create a story based on a time distance graph
Tier 2	Play the factor game and identify patterns amongst prime and composite numbers	Find unit rates using a double number line	Solve fraction divided by fraction division problems on number line	Complete a rate table using patterns of equivalents
Tier 3	Play the product game with factors up to 6	Find unit rates using only whole number answers	Solve division word problems using a visual representation to model the problem	Solve problems based on data on a graph
504	Build rectangles with square tiles to represent factor pairs	Shoot baskets to generate data to calculate percentages	Create a recipe involving fractions and double it and half it	Conduct a jumping jack experiment to identify a linear relationship
ELL	Create a visual representation to distinguish factors and multiples	Scaffold student understanding of the word per and for every, in creating for every statements	Understand connection between the word of and multiplication through visual "brownie pan model"	Create a poster for vocabulary such as variable, equation, expression, and rate
IEP	Use tiles to find common factors	Use tape diagrams to write comparison statements	Solve division divided by division problems using pattern blocks	Fill in a data table with missing parts that follow a linear relationship

Grade 6	Unit 5 Decimal Operations	Unit 6 Covering and Surrounding	Unit 7 Data About Us
HEP	Use a supermarket flyer to compare items to see which are better for purchase	Find area and perimeter of triangles and rectangles with all fractional side dimensions	Have students find mad of data containing fractions and decimals
Tier 2	Find perimeter and area of a polygon with decimal sidelines	Find areas of regular polygons by decomposing into rectangles and triangles	Students find the mad of data with the aid of a calculator
Tier 3	Using patterns of whole numbers relate the algorithm for adding and subtracting decimals	Find the volume of a rectangular prism by filling with appropriate size cubes	Find mean of a data set where the mean is a whole number
504	Use area model of multiplication to solve decimal problems	Compose and decompose rectilinear shapes on graph paper	Gather and collect data to create a box and whisker plot
ELL	Using a coupon they will learn tax is an additional cost and a discount is savings	Identify base and height of triangles given different orientations	Create a visual representation of minimum, maximum, mode, mean, and range
IEP	Use base 10 blocks to add decimal numbers	Use square tiles to find area of composite shapes	Find mean of data by using blocks to make equal stacks of cubes

**Math~ Appendix B**  
**Interdisciplinary Connections**

K	See p. 11 for specific lessons
1	See p. 25 for specific lessons
2	See p. 40 for specific lessons
3	See p. 52 for specific lessons
4	See p. 67 for specific lessons
5	See p. 82 for specific lessons
6	See p. 97 for specific lessons

## Math ~ Technology

### Appendix C

K	8.1.P.A.3 – Use digital devices to create stories with pictures, numbers, letters and words. (throughout the year) 8.1.P.C.1 – Collaborate with peers by participating in interactives digital games or activities (throughout the year)
1	8.1.P.A.5 – Use basic technology terms in the proper context in conversation with peers and teacher. (Unit 2) 8.1.2.F.1 – Collect and analyze data to identify solutions and/or make informed decisions. (Unit 1)
2	8.1.2.A.4 – Develop developmentally appropriate navigation skills in virtual environments (Unit 1)
3	8.2.5.A.5 – Identify how improvement in the understanding of materials science impacts technologies. (Unit 8)
4	8.1.5.A.4 – Graph data using a spreadsheet, analyze and produce a report that explains the analysis of data. (Throughout the year)
5	8.1.5.A.1 – Select and use the appropriate digital tools and Resources to accomplish a variety of tasks including solving problems. (Throughout the year completing various tasks)
6	8.1.8.F.1 – Explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision. 8.2.8.C.1 – Explain how different teams/groups can contribute to the overall design of a product.



**Math ~ Appendix D**  
**21<sup>st</sup> Century Skills – Career Ready Practices**

<b>Standard</b>	<b>Grade / Unit</b>
CRP1 Act as a responsible and contributing citizen and employee	Kindergarten – Unit 1 Grade 1 – Unit 1 Grade 2 – Unit 1
CRP2 Apply appropriate academic and technical skills	Grade 4 – Unit 2 Grade 6 – Unit 2, 3 and 4
CRP3 Attend to personal health and financial well-being	Grade 1 – Unit 1 Grade 2 – Unit 1
CRP4 Communicate clearly and effectively and with reason	Grade 2 – Unit 3 Grade 3 – Unit 1 Grade 4 – Unit 1 Grade 5 – Unit 1 Grade 6 – Unit 1
CRP5 Consider the environmental, social, and economic impacts of decisions	Grade 3 – Unit 2 Grade 6 – Unit 4
CRP6 Demonstrate creativity and innovation	Grade 6 – Unit 1, 2
CRP7 Employ valid and reliable research strategies	Grade 5 – Unit 1
CRP8 Utilize critical thinking to make sense of problems and persevere in solving them	Grade 3 – Units 8 & 9 Grade 6 – Unit 1

## Math ~ Appendix E

### 21<sup>st</sup> Century Life and Careers

Standard	Grade / Unit
9.1.4.A.2 – Identify potential sources of income	Grade 2 – Unit 1
9.1.8.A.6 – Explain how income affects spending decisions	Grade 6 – Unit 4
9.1.4.B.2 – Identify age appropriate financial goals	Grade 1 – Unit 4
9.1.4.B.3 – Explain what a budget is and why it is important	Grade 4 – Unit 1, Grade 6 - Unit 3
9.1.4.B.5 – Identify ways to earn and save	Grade 3 – Unit 2
9.1.8.B.1 – Distinguish among cash, check, credit card and debit cards	Grade 5 – DI Unit
9.1.8.B.2 – Construct a simple personal savings and spending plan based on various sources of income	Grade 6 – Unit 3
9.1.8.B.7 – Construct a budget to save for long-term, short-term and charitable goals	Grade 5 – DI Unit
9.1.8.B.8 – Develop a system for keeping and using financial records	Grade 5 – DI Unit
9.1.4.C.2 – Identify common sources of credit and types of credit	Grade 4 – Unit 1
9.1.8.C.1 – Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each	Grade 5 – Unit 4 Grade 6 – Unit 3
9.1.8.C.9 – Summarize the causes and consequences of personal bankruptcy	Grade 5 – DI Unit
9.1.4.D.3 – Distinguish between saving and investing	Grade 3 – Unit 1
9.1.4.E.2 – Apply comparison shopping skills to purchasing decisions	Grade 1 – Unit 9
9.1.8.E.1 – Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions	Grade 5 – DI Unit
9.1.8.E.2 – Identify personal information that should not be disclosed to others and the possible consequences of doing or not doing so	Grade 5 – Unit 5 Grade 6 – Unit 3
9.1.8.E.3 – Compare and contrast product facts versus advertising claims	Grade 6 – Unit 7
9.1.8.E.5 – Analyze interest rates and fees associated with financial services, credit cards, debit cards and gift cards	Grade 5 – Unit 3
9.1.8.E.6 – Compare the value of goods or services from different sellers when purchasing large quantities and small quantities	Grade 6 – Unit 2
9.1.8.E.8 – Recognize the techniques and effects of deceptive advertising	Grade 5 – DI Unit Grade 6- Unit 7
9.1.8.G.1 – Explain why it is important to develop plans for protecting current and future personal assets against loss	Grade 5 – DI Unit