

Overview

The following is the Mathematics curriculum developed for Sacred Heart of Jesus Elementary School. The curriculum was developed by the staff using the following resources:

Diocesan Guidelines

Massachusetts Frameworks

First Grade: Math, McGraw-Hill Mathematics

Second Grade: Math, McGraw-Hill Mathematics

Third Grade: Math, McGraw-Hill Mathematics

Fourth Grade: Math, McGraw-Hill Mathematics

Fifth Grade: Level 5, McGraw-Hill Mathematics, MacMillan/McGraw Hill (main text & series); Level 5 Holt Mathematics, Holt, Rinehart & Winston, Publishers (supplemental)

Sixth Grade: Level 6 Addison-Wesley Mathematics, Addison-Wesley Publishing Co. (main text); Level 6 Holt Mathematics, Holt Rinehart & Winston, Publishers (supplemental)

Seventh Grade: Grade 7 Addison-Wesley Mathematics, Addison-Wesley Publishing Co. (main text & series); Level 7 Holt Mathematics, Holt, Rinehart & Winston Publishers (supplemental)

Eighth Grade: Grade 8 Addison-Wesley Mathematics, Addison-Wesley Publishing Co. (main text & series); Algebra 1 McDougal Littell, McDougal Littell Inc. (supplemental)

Number Sense and Operations

KINDERGARTEN

- **Numbers to 10 (K.N.1)**
 - **Introduce** counting, reading, writing numbers to 20
 - **Introduce and** understand that 0 means none
 - **Introduce** comparison of numbers using more and fewer
 - **Introduce** solving problems by comparing data
 - **Introduce** solving problems by finding a pattern
 - **Introduce** counting and ordering groups to 10
 - **Introduce** ordinal numbers to 5th
- **Addition Concepts (K.N.7)**
 - **Introduce the use of** pictures and objects to model and solve addition problems to 10
 - **Introduce** determination of sequence of events
 - **Introduce** solving problems by drawing pictures
 - **Introduce** writing addition in horizontal and vertical form
 - **Introduce** finding sums by adding zero
- **Addition Strategies and Facts to 12 (K.N.7)**
 - Use manipulatives to **introduce** the commutative property of addition
- **Subtraction Concepts (K.N.7)**
 - **Introduce, reinforce and master the** use of pictures and objects to model and solve subtraction problems to 10
 - **Introduce** the use of cubes to subtract 5 and 6
 - **Introduce** drawing conclusions from what happened within the story
 - **Introduce** subtraction using horizontal and vertical forms
 - **Introduce** finding the difference by subtracting zero or all
- **Money (K.N.6)**
 - **Introduce** the value of pennies, nickels, dimes and quarters
- **Fractions (K.N.2)**
 - **Introduce** equal parts of a whole
 - **Introduce** halves and one-half of a whole
 - **Introduce** fourths and one-fourth of a whole
 - **Introduce** solving problems by drawing pictures
 - **Introduce** fractions of a group of a set

Number Sense and Operations

FIRST GRADE

- **Numbers To 20 (2.N.1)**
 - Review counting, reading, and writing numbers to 10 (remove)
 - Review counting, reading, and writing numbers to 15 (remove)
 - Reinforce counting, reading, and writing numbers to 20
 - Reinforce the understanding that 0 means none
 - Reinforce the comparison of numbers using more and less
 - Reinforce solving problems by comparing data
 - Reinforce solving problems by finding a pattern
 - Introduce counting and ordering groups to 20
 - Introduce ordinal numbers to 10th
 - Introduce analyzing data and make decisions
 - Apply math concepts to investigate science concepts (clarify?)
 - Introduce recognition of symbols: +, -, +, <, >
- **Addition Concepts (2.N.9)**
 - Introduce the use of pictures to show number stories for sums to 5
 - Introduce the use of pictures to create addition sums to 8
 - Introduce the use of two-color counters to make 5 and 6
 - Introduce the use of two-color counters to make 7 and 8
 - Review determining sequence of events
 - Review solving problems by drawing pictures
 - Review writing addition in horizontal and vertical form
 - Review finding sums by adding zero
 - Introduce addition facts to 18
- **Addition Strategies and Facts To 12 (2.N.7)**
 - Introduce the "counting on" strategy to add
 - Introduce counting on 1, 2, or 3 on a number line to find sums to 12
 - Introduce using doubles to find sums to 12
 - Introduce using doubles plus 1 to find sums to 12
 - Introduce using picture clues to solve problems
 - Introduce writing number sentences to solve problems
 - Use manipulatives to reinforce the commutative property of addition
 - Introduce using different strategies to practice addition facts to 12
 - Introduce different addition sentences for a number
 - Introduce different ways to add three numbers
- **Subtraction Concepts (2.N.7)**
 - Introduce pictures to subtract numbers from 5
 - Introduce pictures to explore subtraction facts to 8
 - Reinforce the use of cubes to subtract from 5 and 6
 - Introduce cubes to subtract from 7 and 8
 - Reinforce drawing conclusions from what happened within a story

- **Introduce** solving problems by using the "fact it out" strategy
- **Reinforce** subtracting using horizontal and vertical forms
- **Reinforce** finding differences by subtracting zero or all
- **Introduce** subtracting to compare numbers
- **Introduce** addition to check subtraction
- **Subtraction Strategies and Facts To 12 (2.N.7)**
 - **Introduce** the "counting back" strategy to subtract
 - **Introduce** counting back 1, 2, or 3 on a number line to subtract
 - **Introduce** finding differences by using the related doubles fact
 - **Introduce** related subtraction facts to 12
 - **Introduce** different strategies to practice subtraction facts to 12
 - **Introduce** pictures or the words in a story to help make inferences to solve story problems
 - **Introduce** solving problems by writing a subtraction sentence
 - **Introduce** the inverse relationship between addition and subtraction
 - **Introduce** the inverse relationship between addition and subtraction to find missing numbers
 - **Introduce** complete fact families
 - **Introduce** different subtraction sentences to name a number
- **Money (2.N.6)**
 - **Reinforce** the value of pennies, nickels, dimes, and quarters
 - **Introduce** counting coins
 - **Introduce** finding the value of a mixed set of coins
 - **Introduce** different combinations of coins that equal the same value
 - **Introduce** prior knowledge to solve problems
 - **Introduce** coins and the "fact it out" strategy to solve problems
 - **Introduce** the value of a dollar
 - **Introduce** adding and subtracting money amounts to 12 cents
- **Addition and Subtraction Facts To 20 (2.N.7)**
 - **Introduce** doubles to add.
 - **Introduce** doubles plus 1 to add.
 - **Introduce** finding sums when 10 is an addend
 - **Introduce** the "make a ten" strategy to add 7, 8, or 9
 - **Introduce** different strategies to practice addition facts to 20
 - **Introduce** doubles or the make a ten strategy to add three numbers
 - **Introduce** adding three 1-digit numbers
 - **Introduce** finding main points and details to solve problems
 - **Introduce** choosing the operation to solve problems
 - **Introduce** addition doubles facts to subtract
 - **Introduce** and practice related subtraction facts
 - **Introduce** the inverse relationship between addition and subtraction to 20
 - **Introduce** the inverse relationship of addition and subtraction to find missing numbers
 - **Introduce** and complete fact families
 - **Introduce** analyzing data to make decisions

- **Fractions (2.N.3)**
 - **Reinforce** equal parts of a whole
 - **Reinforce** halves and one-half of a whole
 - **Reinforce** fourths and one-fourth of a whole
 - **Introduce** thirds and sixths and one-third and one-sixth of a whole (**is this really done?**)
 - **Introduce** picture clues to solve problems
 - **Reinforce** solving problems by drawing pictures
 - **Reinforce** identifying fractions of a group or set
 - **Introduce** recognizing possible outcomes or the likelihood for something to occur
- **Add and Subtract 2-Digit Numbers (2.N.10)**
 - **Introduce** adding multiples of 10
 - **Introduce** adding multiples of ten to a 2-digit number
 - **Introduce** place/value models to add 2-digit numbers without regrouping
 - **Introduce** addition facts to add 2-digit numbers without regrouping
 - **Introduce** adding 2-digit and 1-digit numbers with regrouping
 - **Introduce** steps in a process to solve problems
 - **Introduce** subtracting multiples of 10
 - **Introduce** subtracting multiples of 10 from a 2-digit number
 - **Introduce** place/value models to subtract 2-digit numbers without regrouping
 - **Introduce** subtraction facts to subtract 2-digit numbers without regrouping
 - **Introduce** subtracting 1-digit numbers from 2-digit numbers with regrouping
 - **Introduce** guess and check to solve problems
 - **Introduce** the inverse relationship between addition and subtraction

Number Sense and Operations

SECOND GRADE

- **Numbers To 1000** (2.N1-2.N2, 2.N.4)
 - Reinforce recognizing groups of objects with the same numbers of objects of that group, which has more or less
 - Reinforce recognizing and writing numbers to 100
 - Recognize and use ordinal numbers (remove- in place value already)
 - Recognize and write numbers to 99 (remove)
 - Reinforce identifying which number is greater or less using numbers to 100
 - Reinforce the standard form for tens and ones
 - Introduce ordering two numbers to 100
 - Introduce the standard form for numbers greater than 100
 - Introduce ordering and comparing numbers greater than 100
 - Introduce and reinforce differentiating between odd and even numbers
 - Reinforce practicing and recognizing symbols: +, -, =, <, >
 - Introduce practicing and recognizing symbol: x
 - Reinforce place value: tens, ones, hundreds
 - Introduce place value: thousands
 - Introduce numbers in expanded notation to the thousands place
 - Use roman numbers I-V (remove)
 - Introduce experimenting; gathering and analyzing data to draw conclusions
 - Introduce making and using lists and draw diagrams to make decisions
 - Introduce adding and subtracting two-digit numbers with and without regrouping
 - Introduce choosing the appropriate operation (addition or subtraction)
 - Introduce and memorize basic addition and subtraction facts to 18 and multiplication tables for 0s through 12s
 - Reinforce practicing problem solving strategies in seeking solutions to word problems
- **Addition Concepts** (2.N.9)
 - Introduce patterns on an addition table
 - Introduce creating an equation using the different combinations of a given sum
 - Introduce and use an addition table to solve problems
 - Introduce and identify missing addends in facts to 18 by performing the inverse operation
 - Reinforce skill in problem-solving by organizing data on a table, a pictograph or a bar graph
 - Use and practice finding ordered pairs in a place on a graph (remove)
- **Addition Strategies** (2.N.7, 2.N.12)
 - Introduce adding two or three numbers with sums to 10 (make a 10 fact to

- **add)**
- **Introduce** adding two or three numbers with sums to 18
- **Introduce** adding a two-digit and one-digit number
- **Introduce** adding three or more one-digit numbers
- Introduce adding two or three two digit number with or without regrouping
- **Introduce** adding two or more three-digit to six-digit numbers with regrouping
- **Reinforce** using the Commutative Property to find sums
- **Reinforce** using a number line to count on to add
- **Introduce** doubles and doubles plus one to add
- **Introduce** making a ten strategy to add seven, eight and nine
- **Subtraction Concepts (2.N.7)**
 - Draw pictures to solve problems
 - Use a number line to count back to subtract
 - Use counting cubes, pennies, number cards, objects and 100 table for solving subtraction
 - Use addition to check subtraction
 - Write number sentences to solve problems
 - Use doubles to subtract
- **Subtraction Strategies (2.N.7-2.N.8)**
 - Reinforce subtracting from numbers to **12**
 - **Introduce** subtracting from numbers 11-18
 - **Reinforce** subtracting two-digit numbers with or without regrouping
 - **Reinforce** subtracting a one-digit number from a two-digit number
 - **Introduce** subtracting two three-digit numbers with or without regrouping
 - **Reinforce** counting back to subtract
 - **Reinforce** solving problems by writing a subtraction number sentence
- **Money (2.N.6)**
 - **Reinforce** and practice with the value of pennies, nickels, dimes, quarters, and dollars
 - Introduce estimating and rounding amounts of money to the nearest dollar or make change
 - **Reinforce** different strategies to find the value of a mixed set of coins to \$1.00
 - Introduce the value of a half-dollar and find equivalent sets of coins for \$0.50
 - **Introduce** the fewest amount of coins for an amount up to \$1.00
 - **Introduce** the value of dollars and cents up to \$5.00
 - **Introduce** making and using a list to make decisions
 - **Reinforce** and practice with play coins
 - **Introduce** and practice with play bills, price tags, objects and price cards
 - **Introduce** adding and subtracting money, without regrouping, using dollars and cents, and using the \$ **symbol** and decimal point
 - **Introduce the value of a \$1.00 coin and find equivalent sets of coins up to**

\$10.00

- **Problem Solving** (2.N.12)
 - **Introduce** reading to set a purpose
 - **Reinforce** drawing a picture
 - **Introduce** summarizing
 - **Reinforce** writing a number sentence
 - **Introduce** drawing conclusions using logical reasoning
 - **Introduce** cause and effect
 - **Introduce** finding important and unimportant information
 - **Introduce** choosing the process; the operation
 - **Reinforce** sequencing of events
 - **Reinforce** using a table
 - **Reinforce** drawing conclusions
 - **Introduce** using maps
 - **Introduce** making predictions and decisions
 - **Introduce** finding the main idea and details
- **Multiplication Concepts**
 - **Introduce** equal groups
 - **Introduce** repeated addition to multiply
 - **Introduce** arrays to assist in multiplication
 - **Introduce** multiplying a single-digit number by another single-digit number
 - **Introduce** single-digit multiplication
- **Multiplication Strategies**
 - **Introduce** drawing a picture to find the solution to word problems
 - **Introduce** equal groups. Practice repeated subtraction to find how many groups
 - **Introduce** equal sharing. Count how many groups
 - **Reinforce** counting by 2s, 3s, or 5s to 20
 - **Introduce** addition to develop multiplication facts
 - **Introduce** multiplying a one-digit number by 2s, 3s, or 5s using facts to 20
- **Division Concepts**
 - **Use division to make decisions about how many groups (remove)**
 - **Analyze data and use diagrams and charts to solve problems (remove)**
 - **Introduce** finding how many groups and if there is a remainder or not
- **Division Strategies**
 - **Practice and use subtraction to develop the division concept(remove)**
 - **Practice repeated subtraction to divide and find out how many in a group (remove)**
 - **Draw a picture to find a solution (remove)**
 - **Practice using coins, objects, connecting cubes and graph paper (remove)**
- **Fraction Concepts** (2.N.3)
 - **Reinforce** one half and one fourth- **and two thirds (remove)**
 - **Introduce** one third

- **Introduce** identifying more than one equal part of a region
- **Reinforce** using visual aids to compare fractions
- **Fraction Strategies (2.N.3)**
 - **Reinforce** using logical reasoning and drawing pictures to answer questions on fractions
 - **Reinforce** identifying fractions as equal parts of a group
 - **Introduce** writing the fractional part of a group
 - **Introduce** most likely and least likely outcomes
 - **Introduce** making predictions to solve for a fraction
 - **Introduce** collecting data, experiment, and answer questions
 - **Introduce** using graph paper, measuring cups, rulers, small jars, and connect cubes

Number Sense and Operations

THIRD GRADE

- **Numbers to 1000** (4.N.1-4.N.7)
 - **Reinforce** reading and writing numbers to at least the 100,000 place
 - **Introduce and reinforce** comparing and ordering numbers
 - **Introduce** representing, ordering and comparing larger numbers (to at least 100,000) using expanded notation
 - **Introduce** odds, evens, factors, or multiples of a given number to which a number may belong
 - **Introduce and reinforce** skip counting by using any number
 - **Introduce and reinforce** calculating addition and subtraction of three and four digit numbers with regrouping
 - **Reinforce using appropriate operations to solve problems**
- **Fraction and Decimal Concepts** (4.N.3-4.N.6, 4.N.18)
 - **Introduce** and demonstrate an understanding of fractions as parts of unit wholes as parts of a collection, and as locations on the number line
 - **Introduce** models to relate common fractions and mixed numbers, find equivalent fractions, mixed numbers, and order fractions
 - **Introduce** concrete objects and visual models to add and subtract common fractions
 - **Introduce** identifying, writing and comparing fractions using denominators to 10
 - **Introduce** finding an equivalent fraction in simplest form
- **Multiplication and Division**(4.N.8-4.N.15)
 - **Reinforce** using various meanings and models of multiplication
 - **Introduce** using various meanings and models of division of whole numbers
 - **Introduce** the commutative, associative, and identity properties of operations on whole numbers
 - **Introduce** appropriate operations (**addition, subtraction (remove)** multiplication, and division) to solve problems, **including those involving money (remove)**
 - **Reinforce** multiplication facts through 12 x 12 and **introduce** related division facts
 - **Introduce** multiplying up to three digit number by a one digit factor
 - **Introduce** dividing up to three digit whole numbers with a single digit divisor (with or without remainders) accurately
- **Estimation**(4.N.16-4.N.17)
 - **Introduce** rounding whole numbers through 100,000 to the nearest 10, 100, 1,000, 10,000, and 100,000
 - **Introduce** a variety of strategies (rounding, and regrouping) to estimate quantities, measures and the results of whole number computations up to three digit whole numbers and amount of money to \$1000

- **Money**
 - **Reinforce** recognizing and counting bills and make change
 - **Reinforce** appropriate operations (addition, subtraction) to solve problems involving money
 - **Introduce** appropriate operations (multiplication, division) to solve problems involving money

Number Sense and Operations

FOURTH GRADE

- **Whole Numbers** (4.N.1-4.N.2)
 - **Reinforce** comparing and ordering whole numbers up to 6 digits
 - **Introduce** rounding a number to the whole number
 - **Reinforce** place value and read/write whole numbers in standard expanded and written form
 - **Reinforce** adding two or more 3-6 digit numbers with regrouping
 - **Reinforce** subtracting two 3-6 digit numbers with regrouping
 - **Introduce** multiplying a 2-digit number by a 2-digit number
 - **Introduce** multiplying a 3-digit number by a 3-digit number
 - **Introduce** multiplying by 10, 100, 1000
 - **Reinforce** dividing a 2-digit number by a 1 digit number with a remainder
 - **Introduce** dividing a 2-5 digit number by a 2- digit number
 - **Introduce** dividing by 10, 100, 1000
- **Fractions and Decimals** (4.N.3-4.N.6)
 - **Introduce** the numerator and denominator of a fraction
 - **Introduce** adding and subtracting fractions with like denominators
 - **Introduce** adding and subtracting mixed numbers with like denominators
 - **Reinforce** writing the simplest form of a fraction
 - **Introduce** writing a fraction as a mixed number and a mixed number as a fraction
 - **Introduce** finding the factors of a number and determines if the number is prime or composite
 - **Introduce** comparing and ordering decimals and their equivalent fractions
 - **Introduce** reading and writing decimals
 - **Introduce** writing a fraction or mixed numbers with denominators 10, 100, 1000 as a decimal
 - **Introduce** rounding numbers to the nearest tenth, hundredth, and thousandths place
 - **Introduce** adding and subtracting fractions with like or unlike denominators with regrouping
 - **Introduce** adding and subtracting decimals
 - **Introduce** multiplying a decimal by a whole number
 - **Introduce** multiplying two decimals
- **Estimation** (4.N.16-4.N.17)
 - **Introduce** when using an estimate is appropriate
 - **Introduce** estimation to check solutions to determine results

Number Sense and Operations

FIFTH GRADE

- **Whole numbers and number theory**
 - **Master** comparing and ordering whole numbers (6.N.7)
 - **Master** whole number place value to billions(6.N.2)
 - **Introduce** whole number properties
 - **Master** adding whole numbers-accurately(6.N.13)
 - **Master** subtracting whole numbers-accurately(6.N.13)
 - **Reinforce** multiplying whole numbers-accurately(6.N.13)
 - **Reinforce** dividing whole numbers-accurately (6.N.13)
 - **Reinforce** selecting and using the appropriate operations when solving problems with whole numbers(6.N.12)
 - **Reinforce** estimating computations with whole numbers (6.N.16)
 - **Introduce** positive exponents and powers of ten (6.N.1)
 - **Introduce** prime and composite and Number theory concepts (6.N.8)
 - **Introduce** prime factorization
 - **Introduce** order of operations(6.N.11)
 - **Reinforce** understanding the inverse relationship of addition and subtraction (6.N.12)
 - **Introduce** the inverse relationship of multiplication and division
- **Decimals**
 - **Reinforce** comparing and ordering decimals (6.N.7)
 - **Reinforce** decimal place value to thousandths (6.N.2)
 - **Reinforce** reading and writing decimals
 - **Reinforce** relating decimals to money concepts
 - **Reinforce** rounding decimals up to nearest hundred thousandth
 - **Introduce** terminating and repeating decimals
 - **Reinforce** positive addition of decimals-accurately (6.N.13)
 - **Reinforce** positive subtraction of decimals-accurately (6.N.13)
 - **Reinforce** positive multiplication of decimals-accurately (6.N.13)
 - **Reinforce** electing and using the appropriate operations when solving problems with positive decimals (6.N.12)
 - **Reinforce** estimating computations with positive decimals (6.N.16)
- **Fractions**
 - **Reinforce** comparing and ordering fractions (6.N.7)
 - **Introduce** fraction concepts(6.N.8)
 - Factors
 - Greatest Common Factor
 - Multiples
 - Least Common Multiple
 - Divisibility rules for 2, 3, 5, 6, 9, and 10
 - **Reinforce** identifying and determining equivalent fractions, mixed numbers, improper fractions, lowest term fractions and reciprocals (6.N.5)
 - **Introduce** positive addition of fractions-accurately (6.N.14)

- **Introduce** positive subtraction of fractions-accurately(6.N.14)
- **Introduce** positive multiplication of fractions-accurately(6.N.14)
- **Introduce** positive division of fractions-accurately (6.N.14)
- **Reinforce** selecting and using the appropriate operations when solving problems with positive fractions (6.N.12)
- **Introduce** estimating computations with positive fractions (6.N.12)
- **Percentages**
 - **Introduce** comparing and ordering percents(6.N.7)
 - **Introduce** selecting and using the appropriate operations when solving problems with percents(6.N.12)
 - **Introduce** estimating computations with percents (6.N.16)

Number Sense and Operations

SIXTH GRADE

- **Whole Number and Number Theory**
 - **Master** comparing and ordering whole numbers (6.N.7)
 - **Master** whole number place value to billions (6.N.2)
 - **Reinforce** whole number properties
 - **Master** adding whole numbers-accurately (6.N.13)
 - **Master** subtracting whole numbers-accurately (6.N.13)
 - **Master** multiplying whole numbers-accurately (6.N.13)
 - **Master** dividing whole numbers-accurately (6.N.13)
 - **Master** selecting and using the appropriate operations when solving problems with whole numbers(6.N.12)
 - **Reinforce** estimating computations with whole numbers (6.N.16)
 - **Master** positive exponents and powers of ten (6.N.1)
 - **Master** prime and composite and number theory concepts (6.N.8)
 - **Master** prime factorization
 - **Master** order of operations (6.N.11)
 - **Reinforce** understanding the inverse relationship of addition and subtraction (6.N.12)
 - **Master** understanding the inverse relationship of multiplication and division
 - **Reinforce** scientific notation
 - **Reinforce** square numbers and square roots (remove)
- **Decimals**
 - **Master** comparing and ordering decimals (6.N.7)
 - **Master** decimal place value to thousandths (6.N.2)
 - **Master** reading and writing decimals
 - **Master** relating decimals to money concepts
 - **Master** rounding decimals up to nearest hundred thousandth
 - **Reinforce** terminating and repeating decimals
 - **Master** positive addition of decimals-accurately (6.N.13)
 - **Master** positive subtraction of decimal-accurately (6.N.13)
 - **Master** positive multiplication of decimal-accurately (6.N.13)
 - **Master** positive division of decimal-accurately (6.N.13)
 - **Master** selecting and using the appropriate operations when solving problems with positive decimals (6.N.12)
 - **Master** estimating computation with positive decimals (6.N.16)
- **Fractions**
 - **Master** comparing and ordering fractions (6.N.7)
 - **Reinforce** fraction concepts (6.N.8)
 - Factors
 - Greatest Common Factor
 - Multiples
 - Least Common Multiple

- Divisibility rules for 2, 3, 4, 5, 6, 8, 9 and 10
- **Master** identifying and determining equivalent fractions, mixed numbers, improper fractions, lowest term fractions, and reciprocals (6.N.5)
- **Reinforce** positive addition of fractions-accurately (6.N.14)
- **Reinforce** positive subtraction of fractions-accurately(6.N.14)
- **Reinforce** positive multiplication of fractions-accurately (6.N.14)
- **Reinforce** positive division of fractions-accurately (6.N.14)
- **Master** selecting and using the appropriate operations when solving problems with positive fractions (6.N.12)
- **Reinforce** estimating computation with positive fraction (6.N.12)
- **Percentages**
 - **Reinforce** comparing and ordering percents (6.N.7)
 - **Reinforce** selecting and using the appropriate operations when solving problems with percents (6.N.12)
 - **Reinforce** estimating computations with percents (6.N.16)
- **Ratios and Proportions**
 - **Introduce** concept of ratio, equal ratios, proportion, and percent (6.N.5)
 - **Introduce** using ratios and proportions in solving problems of unit rates, interest, discount and sale prices, and commissions
 - **Introduce** integers positions on a number line (6.N.6)
 - **Introduce** addition of integers (6.N.15)

Number Sense and Operations

SEVENTH GRADE

- **Reinforce** representing and calculating numbers in scientific notation (8.N.4)
- **Reinforce** order of operations including: positive integers exponents and square roots (8.N.7)
- **Master** properties of mathematical operations on rational numbers (8.N.8)
- **Reinforce** identifying and applying number theory concepts-prime factorization and solving problems with fractions (8.N.5)
- **Introduce** an understanding of absolute value (8.N.6)
- **Reinforce** the relationship (compare, order, estimate and converting) between rational numbers, decimals, percents and integers (8.N.1)
- **Reinforce** Using ratios and proportions in solving problems of unit rates, interest, discount and sale prices, and commissions (8.N.3)
- **Reinforce** inverse relationship of math operations, also squaring and square root (8.N.9)
- **Reinforce** calculating and estimating with rational numbers, decimals, large and small percents and integers (8.N.10)
- **Reinforce** simplifying expressions involving all mathematical operations (8.N.8)
- **Reinforce** application of when to estimate or exact answer is needed (8.N.11)
- **Introduce** solving math problems involving rational numbers and integers (8.N.12)
- **Reinforce using square roots**
- **Introduce square roots**

Number Sense and Operations

EIGHTH GRADE

- **Master** representing and calculating numbers in scientific notation (8.N.4)
- **Master** order of operations including: integers, exponents (includes negative exponents), and square roots (8.N.7)
- **Master** properties of mathematical operations on rational and
- **Introduce** irrational numbers (8.N.8)
- **Master** identifying and applying number theory concepts-prime factorization, relatively prime and solving problems with fractions (8.N.5)
- **Reinforce** an understanding of absolute value (8.N.6)
- **Reinforce** the relationship (compare, order, estimate and converting) between rational numbers, decimals, percents, and integers (8.N.1)
- **Reinforce** inverse relationship of math operations also squaring and square roots (8.N.9)
- **Master** calculating and estimating with rational numbers, decimals, large and small percents and integers (8.N.10)
- **Reinforce** simplifying expressions involving all mathematical operations (8.N.8)
- **Master** application of when to estimate or exact answer is needed (8.N.11)
- **Reinforce** solving math problems involving rational and irrational numbers (8.N.12)

Patterns, Relations, and Algebra

KINDERGARTEN

- **Place Value and Patterns (K.P.1-K.P.4)**
 - **Introduce** estimating magnitude of numbers
 - **Introduce** retelling a story relating all the important details
 - **Introduce** solving problems by making graphs
 - **Introduce** counting by fives and tens up to 50
 - **Introduce** identifying attributes of objects as a foundation for sorting and classifying

Patterns, Relations, and Algebra

FIRST GRADE

- **Place Value and Patterns (2.P.4)**
 - **Introduce** patterns of tens
 - **Introduce** using objects to model tens and ones
 - **Introduce** writing numbers to 50 using models and place value representation
 - **Introduce** reading and writing numbers to 100 using models
 - **Introduce** place value for numbers to 100
 - **Reinforce** estimating magnitude of numbers
 - **Reinforce** retelling a story relating all the important details
 - **Reinforce** solving problems by making graphs
 - **Introduce** identifying one and ten more than and one and ten less than a given number
 - **Introduce** comparing a 1-digit and 2-digit numbers
 - **Introduce** ordering number 1 to 100
 - **Introduce** skip counting patterns of 5s and 10s to 100
 - **Introduce** skip counting patterns of 2s to 100
 - **Introduce** skip counting patterns of 3s and 4s
 - **Introduce and reinforce** identifying ordinal numbers to 10
 - **Introduce** identifying odd and even numbers up to 100

Patterns, Relations, and Algebra

SECOND GRADE

- **Place Value and Patterns (2.P.1-2.P.2, 2.P.4-2.P.7)**
 - **Introduce** estimating magnitude of numbers using real-life pictured/groups
 - **Introduce** reading, writing and representing 10ø
 - **Introduce** traditional place value models (base-ten blocks, tens and ones)
 - **Reinforce** counting, reading and representing numbers to 100
 - **Reinforce** using place-value models to identify tens and ones
 - **Introduce** drawing conclusions by using clues
 - **Introduce** using place-value charts
 - **Introduce** one hundred charts, number lines, connecting cubes, calendars and grid paper
 - **Introduce** logical reasoning, place value, and order of numbers to solve patterns and problems
 - **Introduce** comparing numbers to 100
 - **Reinforce** ordering numbers to 100
 - **Reinforce** skip counting to 100 by 2ø, 3ø, 4ø and 5ø
 - **Reinforce identifying** odd and even numbers
 - **Master** using ordinal numbers **to 10**
 - **Introduce** making and using a list and draw pictures to make a decision

Patterns, Relations, and Algebra

THIRD GRADE

- **Introduce** numeric patterns, including multiplication patterns, like 3, 30, 300, 3000 (4.P.1)
- **Master** using symbols in mathematical sentences that use: =, +, - (4.P.2)
- **Reinforce** using symbols in mathematical sentences that use: <, >, x
- **Introduce** using symbols in mathematical sentences that use: ÷
- **Introduce** determining the values of a variable in simple equations (e.g. $4106 \text{ ó a} = 37$) (4.P.3)
- **Reinforce** using pictures, models, tables, charts, graphs, words, and number sentences to interpret relationships (4.P.4)
- **Reinforce** using a symbolic key on a pictograph to solve problems
- **Reinforce** using tally marks to summarize information

Patterns, Relations, and Algebra

FOURTH GRADE (* BIG GAP)

- **Reinforce** numeric patterns, including multiplication patterns like 3, 30, 300, 3000 (4.P.1)
- **Master** using symbols in mathematical sentences that use: $<$, $>$, \times
- **Reinforce** using symbols in mathematical sentences that use: \div (4.P.2)
- **Reinforce** the values of a variable in simple equations (e.g. $4106 \div a = 37$) (4.P.3)
- **Reinforce** using pictures, models, tables, charts, graphs, words, and number sentences to interpret relationships (4.P.4)
- **Fundamentals of Algebra**
 - **Reinforce** evaluating algebraic expression
 - **Introduce** using variables and open sentences to express relationships
 - **Reinforce** using patterns and relationships to analyze and problem solve
 - **Introduce reading** positive and negative numbers
 - **Introduce** solving a linear equation with one variable using inverse operations
 - **Introduce** an understanding of commutative properties for addition and multiplication

Patterns, Relations, and Algebra

FIFTH GRADE

- **Reinforce** analyzing and determining rules for patterns and progressions (6.P.2)
- **Reinforce** missing number and number sentences (6.P.3)
- **Reinforce** replacing variables with given values and evaluate (6.P.2)

Patterns, Relations, and Algebra

SIXTH GRADE

- **Reinforce** analyzing and determining rules for patterns and progressions (6.P.1)
- **Reinforce** variables and equations(6.P.2)
- **Introduce** real situations with mathematical relations (6.P.4)
- **Introduce** solving linear equations (6.P.5)

Patterns, Relations, and Algebra

SEVENTH GRADE

- **Reinforce** analyzing patterns in tables, graphs, words and symbolic expression (8.P.1)
- **Reinforce** solving simple equations with multiple variables(8.P.2)
- **Reinforce** solving linear equations with one variable(8.P.7)
- **Introduce** using identity property to solve algebraic equations (8.P.3)
- **Reinforce** identifying roles of variables (8.P.6)

Patterns, Relations, and Algebra

EIGHTH GRADE

- **Master** analyzing patterns in tables, graphs, words and symbolic expression (8.P.1)
- **Reinforce** solving simple equations with multiple variables (8.P.2)
- **Reinforce** solving linear equations with one variable (8.P.7)
- **Reinforce** using identity property to solve algebraic equations (8.P.3)
- **Reinforce** identify roles of variables (8.P.6)
- **Introduce** creating, using and relating symbolic expressions to verbal, tabular, and graphic representations (8.P.4)
- **Introduce** linear equations used to analyze problems and model to show proportional relationships (8.P.9)
- **Introduce** concept of slope, identified and used in solving problems (8.P.5)
- **Introduce** representing and comparing linear growth using tables and graphs (8.P.10)

Geometry

KINDERGARTEN

- **Geometry (K.G.1-K.G.4)**
 - **Introduce** identifying solid figures and relate them to real-life objects
 - **Introduce** identifying faces of solid figures
 - **Introduce** sides and corners of plane figures
 - **Introduce** how shapes are alike and different to solve problems
 - **Introduce** finding patterns to solve problems
 - **Introduce** classifying plane figures by common attributes of color, size, and shape
 - **Introduce** combining plane figures to make new shapes
 - **Introduce** identifying positions of objects in space, and use appropriate language (e.g. beside, inside, next to, close to, above, below, apart) to describe and compare their relative positions

FIRST GRADE

- **Geometry (2.G.1)**
 - **Introduce** describing objects by position
 - **Introduce** giving and following directions about location
 - **Reinforce** identifying solid figures and relating them to real-life objects
 - **Reinforce** identifying faces of solid figures
 - **Reinforce** recognizing sides and corners of plane figures
 - **Reinforce** how shapes are alike and different to solve problems
 - **Reinforce** finding patterns to solve problems
 - **Reinforce** classifying plane figures by common attributes of color, size and shape
 - **Reinforce** combining plane figures to make new shapes
 - **Introduce** making and matching figures that are the same size and shape
 - **Introduce** applying geometry concepts to investigate science concepts (clarify?)

SECOND GRADE

- **Geometry (2.G.1-2.G.7)**
 - **Introduce** identifying and extending patterns
 - **Introduce** identifying and exploring plane figures: circles, triangles, rectangles and squares
 - **Introduce** identifying and exploring solid figures: cylinders, spheres, cones and cubes
 - **Introduce** identifying and exploring faces, sides and corners of figures
 - **Introduce** identifying and creating symmetrical figures
 - **Introduce** calculating and experimenting with perimeter, area and volume of geometric figures using standard and/or non-standard units of measure
 - **Introduce** exploring 2-dimensional figures: quadrilateral, pentagon, hexagon, octagon, and their attributes
 - **Introduce** identifying 2 congruent figures
 - **Introduce** identifying, building, sorting and drawing shapes
 - **Introduce** blocks, tan-grams, and graph paper

THIRD GRADE (*BIG GAP)

- **Geometry**
 - **Reinforce** recognizing number of sides, faces, **vertices**, and symmetry of **plane** and three dimensional geometric shapes (4.G.1)
 - **Introduce** recognizing right angles, diagonals
 - **Introduce** comparing **plane** and three dimensional shapes (e.g. **circles, polygons- especially triangles and quadrilaterals-cubes, spheres, and pyramids**) **NO** (4.G.2)
 - **Introduce** recognizing similar figures even if they are **placed** differently (4.G.3)
 - **Introduce** identifying angles as acute, right or obtuse (4.G.4) **NO**
 - **Introduce** drawing intersecting, parallel, and **perpendicular lines** (remove) (4.G.5) **NO**
 - **Introduce** Use ordered pairs of number and/or letters, graph, locate and identify points (4.G.6)
 - **Introduce** applying techniques such as reflection (flips), rotations (turns) and translations (slides) for determining if two figures are congruent (4.G.7)
 - **Reinforce** identifying line symmetry in **plane figures** (4.G.8)
 - **Introduce** drawing **plane figures** (polygons, circles, triangles, quadrilaterals)

FOURTH GRADE

- **Geometry (4.G.1-4.G.9)**
 - **Introduce analyzing sides, faces, vertices, reight angles, diagonals, symmetry of plane figures and 3D shapes.**
 - **Reinforce comparing sides, faces, vertices, reight angles, diagonals, symmetry of plane figures and 3D shapes.**
 - **Reinforce** describing, modeling, drawing, comparing plane figures
 - **Introduce** classifying plane figures
 - **Recognize similar shapes (remove)**
 - **Reinforce** identifying angles as acute, right or obtuse
 - **Reinforce** describing and drawing intersecting and parallel lines
 - **Introduce** describing and drawing perpendicular lines
 - **Reinforce** using ordered pairs of number and/or letters, graph, locate, identify points and **introduce** describing paths (first quadrant)
 - **Reinforce** describing and applying techniques such as reflections (flips), rotations (turns) and translations (slides) for determining if two shapes are congruent
 - **Reinforce** identifying and describing line symmetry in **plane figures**
 - **Predict and validate the results of portioning, folding and combining two and three-dimensional shapes (remove)**
 - Geometric words
 - **Introduce** type of polygons
 - **Use simple geometric terms (remove)**
 - Identify, draw and compare geometric shapes
 - **Master** circles, triangles, rectangles, or squares
 - **Reinforce** parallel and perpendicular lines
 - **Identify and Compare**
 - **Introduce** points, line segments, angles, rays
 - **Introduce** classifying triangles, angles and quadrilaterals

FIFTH GRADE

- **Geometry**
 - **Master** exploring geometry
 - **Master** concrete models
 - **Reinforce** identifying plane figures (6.G.1)
 - **Reinforce** classifying angles
 - **Reinforce** classifying polygons
 - **Introduce** identifying dimensional figures (6.G.2)
 - **Reinforce** relating plane to dimensional figures (6.G.9)
 - **Reinforce** symmetry-Identify (6.G.7)
 - **Reinforce** congruent figures (6.G.8)
 - **Reinforce** relationships between points, lines, and planes (6.G.3)

Geometry

SIXTH GRADE

- **Geometry**
 - **Master** identifying plane figures (6.G.1)
 - **Reinforce** classifying polygons
 - **Reinforce** identifying dimensional figures (6.G.2)
 - **Reinforce** relating plane to dimensional figures (6.G.9)
 - **Reinforce** symmetry-Identify (6.G.7)
 - **Reinforce** congruent figures (6.G.8)
 - **Reinforce** relationships between points, lines, and planes (6.G.3)
 - **Introduce** identifying and graphing points (in the positive quadrants) on a positive coordinate plane (6.G.4)

SEVENTH GRADE

- **Geometry**
 - **Introduce** relationships between the number of side and measurement of angles (8.G.1)
 - **Reinforce** categorizing figures in terms of congruency and similarity to find solutions (8.G.2)
 - **Introduce** intersecting lines in the relationship of angle formation (8.G.3)
 - **Introduce** using straight edge, compass and protractor to draw geometric shapes (8.G.5)
 - **Introduce** assessing tessellations on unmarked and coordinate planes (8.G.6)
 - **Master finding area of all shapes**
 - **Master perimeters of all shapes**
 - **Reinforce finding volume of all shapes**

EIGHTH GRADE

- **Geometry**
 - **Reinforce** identifying relationship between the number of side and measurement of angles (8.G.1)
 - **Master** categorizing figures in terms of congruency and similarity to find solutions (8.P.2)
 - **Reinforce** identifying intersecting lines in the relationship of angle formation (8.G.3)
 - **Reinforce** using straight edge, compass, and protractor to draw geometric shapes (8.G.5)
 - **Reinforce** assessing tessellations on unmarked and coordinate planes (8.G.6)
 - **Introduce** applying Pythagorean theory (8.G.4)
 - **Introduce** using physical appearance, distinguishing attributes and spatial relationships to identify three dimensional figures (8.G.7)
 - **Master finding volume of all shapes**

Measurement

KINDERGARTEN

- **Time (K.M.1-K.M.2)**
 - **Introduce** telling time to the hour and to the half hour
 - **Introduce** using sequence of events to solve problems
 - **Introduce** reading a calendar and identify days of the week and the months of the year
 - **Introduce** choosing the appropriate units and instruments to measure times
- **Measurement (K.M.1-K.M.3)**
 - **Introduce** measuring length with nonstandard units
 - **Introduce** measuring length in inches
 - **Introduce** reading Fahrenheit thermometers
 - **Introduce** recognizing and comparing the attributes of length, volume/capacity, weight, area, and time using appropriate language (e.g. longer, taller, shorter, same length, heavier, lighter, same weight, holds more, holds less, hold the same amount.
 - **Introduce** making and using estimates of measurements from everyday experiences

Measurement

FIRST GRADE

- **Time (2.M.2)**
 - **Reinforce** telling time to the hour and to the half hour
 - **Reinforce** using sequence of events to solve problems
 - **Introduce** using the act it out strategy and a clock to solve problems
 - **Reinforce** reading a calendar and identifying days of the week and the months of the year
 - **Reinforce** choosing the appropriate units and instruments to measure time
- **Measurement (2.M.4)**
 - **Reinforce** measuring length with nonstandard units
 - **Reinforce** measuring length in inches
 - **Introduce** comparing the capacity of cups, pints, and quarts
 - **Introduce** comparing the weight of objects to a pound
 - **Introduce** using logical reasoning to solve problems
 - **Introduce** measuring length in centimeters
 - **Introduce** comparing the mass of objects to a kilogram
 - **Introduce** comparing the capacity of containers to a liter
 - **Reinforce** reading Fahrenheit thermometers
 - **Introduce** choosing the appropriate measurement tool

Measurement

SECOND GRADE

- **Time (2.M.1-2.M.2)**
 - **Reinforce** telling time using hours, days, weeks, months, or years
 - **Introduce** telling time using seconds, and minutes
 - **Introduce** telling time using digital and analog clocks for hour, half-hour, quarter-hour, and 5 minute intervals
 - **Reinforce** using a clock to act it out
 - **Introduce** telling elapsed time in hours
 - **Reinforce** reading a calendar, telling the days, weeks, and months
 - **Introduce** practicing and using a schedule
- **Measurement (2.M.3-2.M.5)**
 - **Introduce** which of three objects is largest, smallest, longest, shortest
 - **Introduce** an appropriate metric unit for measuring length; using millimeter, meter, or kilometer
 - **Reinforce** determining an appropriate metric unit for measuring length, using centimeter
 - **Introduce** determining an appropriate unit for measuring length; using inch, foot, or mile
 - **Introduce** determining an appropriate unit for measuring liquid using pint, quart, or gallon
 - **Introduce** determining an appropriate unit for measuring mass (weight) using, ounces, or pounds
 - **Introduce** measuring length using informal units
 - **Reinforce** measuring length using inches
 - **Introduce** measuring length using fractions of inches
 - **Reinforce** choosing the best measuring tool

Measurement

THIRD GRADE

- **Reinforce** developing an understanding of length and weight,
- **Introduce** an understanding of area and volume (4.M.1)
- **Introduce** identifying time to the minute on analog and digital clocks using a.m. and p.m. (4.M.3)
- **Reinforce** finding the elapsed time using a clock (e.g. hours) and **Introduce** finding the elapsed time using a clock (e.g. minutes since)
- **Introduce** finding the elapsed time using calendar (e.g. days since) (4.M.3)
- **Reinforce** finding area and perimeter of a rectangle and triangle using models and grids by measuring (4.M.4)
- **Introduce** finding area and perimeter of a irregular shape using models and grids by measuring
- **Reinforce** identifying and using **customary** unit and tools to estimate, measure, and solve problems (4.M.5)
- **Reinforce** reading a calendar and identifying ordinal numbers
- **Reinforce** calculating change **using money**
- **Introduce** measuring temperature in Celsius and Fahrenheit degrees
- **Reinforce determining an appropriate unit for measuring mass using ounces or pounds**

Measurement

FOURTH GRADE

- **Units of Measurement**
 - **Reinforce** telling time using hours, days, weeks, months, or years
 - **Reinforce** telling time using minutes
 - **Reinforce** identifying time to the minute on analog and digital clocks using a.m. and p.m. (4.M.3)
 - **Reinforce** determining an appropriate unit for measuring length using inch or foot
 - **Introduce** determining an appropriate unit for measuring length using mile
 - **Reinforce** developing an understanding of length, area, weight, and
 - **Introduce** an understanding of volume (4.M.1)
 - **Reinforce** determining an appropriate unit for measuring mass using ounces or pounds
 - **Master** reading a calendar and identify ordinal numbers
- **Measures Items**
 - **Measures length using informal units (remove)**
 - **Reinforce** measuring temperature in Celsius and Fahrenheit degrees
 - **Introduce** measuring length using centimeters
 - **Reinforce** measuring length using or inches
 - **Reinforce** finding the elapsed time using a clock (e.g. hours and minutes since) and using a calendar (e.g. days since) (4.M.3)
 - **Reinforce** identifying and using **customary** units and tools to estimate, measure, and solve problems (4.M.5)
- **Calculates Measurement**
 - **Reinforce** finding area and perimeter to a rectangle, triangle, or irregular shape using models and grids by measuring (4.M.4)
 - **Reinforce** calculating elapsed time
 - **Reinforce** calculating change using money

Measurement

FIFTH GRADE

- **Reinforce** problem solving involving conversion of units of same system measurement- Customary and Metric (6.M.3)
- **Reinforce** applying concepts and formulas for the perimeter and area (6.M.1)
- **Introduce** classifying, measuring and constructing angles, triangles, and quadrilaterals (6.M.2)
- **Reinforce** finding area of triangles and quadrilaterals (6.M.4)
- **Introduce** applying concepts and formulas for the circumference and area of circles (6.M.5)
- **Reinforce** calculating estimated time, elapsed time and time zones
- **Reinforce finding perimeter of triangles and quadrilaterals**

Measurement

SIXTH GRADE

- **Master** problem Solving involving conversion of units of same system measurement- Customary and Metric (6.M.3)
- **Master** applying concepts and formulas for the perimeter and area (6.M.1)
- **Reinforce** classifying, measuring and constructing angles, triangles, and quadrilaterals (6.M.2)
- **Master** finding **perimeter** area of triangles and quadrilaterals (6.M.4)
- **Reinforce** applying concepts and formulas for the circumference and area of circles (6.M.5)
- **Reinforce** finding circumference and area of circles (6.M.5)
- **Introduce** applying concepts and formulas for the volume and surface area of rectangular prisms (6.M.6)
- **Master** calculating estimated time, elapsed time and time zones

Measurement

SEVENTH GRADE

- **Reinforce** using appropriate scale and formula to convert units of customary and metric measurement within the same system (8.M.1)
- **Reinforce** calculating to find area and perimeter of polygons (**regular and irregular shaped**), and circumference and area of circles when the formulas are given and concepts are understood (8.M.3)
- **Reinforce** calculating to find the volume of rectangular prisms, cylinders and spheres when formulas are given and concepts are understood.
- **Reinforce** problem solving using ratio and proportion on like figures and indirect measurement (8.M.4)
- **Reinforce** solving rates, velocity, density by using models, graphs and formulas

Measurement

EIGHTH GRADE

- **Master** using appropriate scale and formula to convert units of customary and metric measurement within the same system (8.M.1)
- **Reinforce** calculating and finding area and perimeter of polygons, and circumference and area of circles when the formulas are given and concepts are understood (8.M.3)
- **Reinforce** calculating to find surface area and volume of rectangular prisms, cylinders and spheres when the formulas are given and concepts are understood (8.M.3)
- **Reinforce** problem solving using ratio and proportion on like figures and indirect measurement (8.M.4)
- **Reinforce** solving rates, velocity, density by using models, graphs and formulas (8.M.5)
- **Introduce** converting from one system of measurement to the other when the formulas are given (8.M.2)

Data Analysis, Statistics and Probability

KINDERGARTEN

- **Data and Graphs (K.D.1)**
 - **Introduce** making and interpreting a real graph
 - **Introduce** making and interpreting a picture graph
 - **Introduce** using words or pictures to draw conclusions from a story
 - **Introduce** collecting, sorting, organizing and drawing conclusions about data using pictures, numbers and graphs
 - **Math terminology must be consistently used and practiced**

Data Analysis, Statistics and Probability

FIRST GRADE

- **Data and Graphs (2.D.2)**
 - **Reinforce** making and interpreting a real graph
 - **Reinforce** making and interpreting a picture graph
 - **Reinforce** using words or pictures to draw conclusions from a story
 - **Introduce** comparing data by interpreting a tally table
 - **Introduce** using the "make a table" strategy to solve problems
 - **Introduce** reading and interpreting a bar graph (**although drew conclusions in K did not know if included a bar graph**)

Data Analysis, Statistics and Probability

SECOND GRADE

- **Data Analysis (2.D.1-2.D.4)**
 - **Reinforce** reading and interpreting pictographs
 - **Reinforce** using tally marks to complete and make a chart
 - **Introduce** making and interpreting bar graphs
 - **Introduce** interpreting and draw conclusions using Venn diagrams
 - **Introduce** constructing a graph from given data
 - **Introduce** constructing a graph, table or chart
 - **Introduce** sorting and recording data

Data Analysis, Statistics and Probability

THIRD GRADE

- **Introduce** collecting and organizing data using observations, measurements (4.D.1)
- **Reinforce** collecting and organizing data using surveys
- **Reinforce** using data to create lists, tables and graphs (4.D.2)
- **Reinforce** constructing, drawing conclusions, and making predictions from tables, bar graphs, pictographs, line graphs, line plots, and tallies (4.D.3)
- **Introduce** representing the possible outcomes for a simple probability solutions, e.g. the probability of drawing a red marble from a bag containing three red marbles and four green marbles (4.D.4)
- **Introduce** classifying outcomes as certain, likely, unlikely, or impossible by designing and conducting experiments using concrete objects such as counters, number cubes, spinners or coins (4.D.6)

Data Analysis, Statistics and Probability

FOURTH GRADE

- **Graphs**
 - **Reinforce** collecting and organizing data using observations, measurements, or surveys (4.D.1)
 - **Reinforce** using data to create lists, tables and graphs (4.D.2)
 - **Reinforce** constructing, drawing conclusions and making predictions from tables, bar graphs, pictographs, line graphs, line plots, and tallies (4.D.3)
 - **Reinforce** representing the possible outcomes for a simple probability solution, (e.g. the probability of drawing a red marble from a bag containing three red marbles and four green marbles) (4.D.4)
 - **Reinforce** listing and counting the number of possible combinations of objects from three sets (4.D.5)
 - **Reinforce** classifying outcomes as certain, likely, unlikely, or impossible by designing and conducting experiments using concrete objects such as counters, number cubes, spinners or coins (4.D.6)

Data Analysis, Statistics and Probability

FIFTH GRADE

- **Introduce** applying, comparing and calculating- mean, median, mode, range (6.D.1)
- **Reinforce** concept of probability, equally likely outcomes, probability and predictions, fair and unfair games, mathematical and experimental probabilities (6.D.4)
- **Reinforce** constructing and interpreting bar, line, circle, double bar, and multiple line graphs (6.D.2)
- **Reinforce** models represent outcomes and analyzing outcomes (6.D.4)

Data Analysis, Statistics and Probability

SIXTH GRADE

- **Reinforce** applying, comparing, and calculating- mean, median, mode, range (6.D.1)
- **Reinforce** concept of probability, equally likely outcomes, probability and predictions, fair and unfair games, mathematical and experimental probabilities (6.D.4)
- **Master** constructing and interpreting bar, line, circle, double bar, and multiple line graphs (6.D.2)
- **Reinforce** models representing outcomes and analyzing outcomes (6.D.4)

Data Analysis, Statistics and Probability

SEVENTH GRADE

- **Reinforce** identifying effective means of collecting and analyzing data (8.D.1)
- **Reinforce** identifying data and choosing effective presentation through the use of tabular and graphical representation (8.D.2)
- **Reinforce** using tree diagrams, tables, organized lists to compute probability of simple compound events (8.D.4)

Data Analysis, Statistics and Probability

EIGHTH GRADE

- **Master** identifying effective means of collecting and analyzing data (8.D.1)
- **Master** identifying data and choosing effective presentation through the use of tabular and graphical representation (8.D.2)
- **Introduce** identifying the central tendency and spread of data to compare different sets of data (8.D.3)
- **Reinforce** using tree diagrams, tables, organized lists to compute probability of simple compound events (8.D.4)

Calculator Skills

FIFTH GRADE

- **Introduce** Counting
- **Introduce** Whole numbers
- **Introduce** Decimals
- **Introduce** Fractions
- **Introduce** Order of operations
- **Introduce** Constant key
- **Introduce** Memory Key
- **Introduce** Power and roots (remove)
- **Introduce** Patterns

Calculator Skills

SIXTH GRADE

- Reinforce Counting
- Reinforce Whole numbers
- Reinforce Decimals
- Reinforce Fractions
- Reinforce Order of operations
- Reinforce Constant key
- Reinforce Memory key
- Reinforce Powers and roots (**remove**)
- Reinforce Patterns

Calculator Skills

SEVENTH GRADE

- **Reinforce** Decimals
- **Reinforce** Fraction
- **Reinforce** Integers
- **Reinforce** Order of operations
- **Reinforce** Constant key
- **Reinforce** Memory key
- **Reinforce** Error message
- **Reinforce** Ratio, proportion, percent
- **Reinforce** Powers
- **Introduce** roots
- **Reinforce** Patterns

Calculator Skills

EIGHTH GRADE

- **Reinforce** Decimals
- **Reinforce** Fractions
- **Reinforce** Integers
- **Reinforce** Order of operations
- **Reinforce** Constant key
- **Reinforce** Memory key
- **Reinforce** Error message
- **Reinforce** Ratio, proportion, percent
- **Reinforce** Powers and roots
- **Reinforce** Patterns