

# MAYWOOD PUBLIC SCHOOL

## Mathematics Curriculum

### Mathematics Philosophy

Mathematics is essential in developing basic computation skills, problem solving strategies, higher level thinking processes, and keeping current with technological advancements, which are mandatory in order to succeed and contribute to our ever-changing society.

### Mathematics Exit Outcomes

By the end of the twelfth grade, students at Maywood Public School will be able to....

1. Develop and apply the skills used for basic math concepts.
2. Develop, decipher, and apply the skills used in basic geometry.
3. Develop and apply the skills and tools used for measurement.
4. Develop and apply algebraic concepts for use with problem solving.
5. Develop, decipher, and apply skills for statistical analysis.
6. Apply the skills essential for understanding probability.

### Mathematics Strands

1. Number Sense
  - A. Number System
  - B. Operations
  - C. Computation
  - D. Estimation
2. Geometry/Measurement
  - A. Characteristics
  - B. Geometry
  - C. Transformations
  - D. Spatial Modeling
  - E. Measurement
3. Algebra
  - A. Relationships
  - B. Modeling in Context
  - C. Procedures

- 4. Data Analysis / Probability
  - A. Display and Analysis
  - B. Predictions and Inferences
  - C. Probability

## **Nebraska State Mathematics Standards**

### **Kindergarten**

#### Number Sense

- 0.1.1.a Count, read, and write numbers 0 - 20.
- 0.1.1.b Count objects using one-to-one correspondence 0 - 20.
- 0.1.1.c Sequence objects using ordinal numbers (e.g., first through fifth).
- 0.1.1.d Match numerals to the quantities they represent 0 - 20, using a variety of models and representations.
- 0.1.1.e Demonstrate and identify multiple equivalent representations for numbers 1 - 10 (e.g., 10 is 1 and 9, 10 is 6 and 4).
- 0.1.1.f Demonstrate relative position of whole numbers 0 - 10 (e.g., 5 is between 2 and 10, 7 is greater than 3).
- 0.1.2.a Use objects and words to explain the meaning of addition as a joining action (e.g., Two girls are sitting at a table. Two more girls join them. How many girls are sitting at the table?).
- 0.1.2.b Use objects and words to explain the meaning of addition as parts of a whole (e.g., Three boys and two girls are going to the zoo. How many children are going to the zoo?).
- 0.1.2.c Use objects and words to explain the meaning of subtraction as a separation action (e.g., Five girls are sitting at a table. Two girls leave. How many girls are left sitting at the table?).
- 0.1.2.d Use objects and words to explain the meaning of subtraction as finding part of a whole (e.g., Jacob has 5 pencils. Three are blue and the rest are red. How many red pencils does Jacob have?).

#### Geometry/Measurement

- 0.2.1.a Sort and name two-dimensional shapes (e.g., square, circle, rectangle, triangle).
- 0.2.4.a Demonstrate positional words (e.g., above/below, near/far, over/under, in/out, down/up, around/through).
- 0.2.5.a Identify the name and amount of a penny, nickel, dime, and quarter.
- 0.2.5.b Identify time to the hour.
- 0.2.5.c Measure using non-standard units.
- 0.2.5.d Compare objects according to length.

## Algebra

- 0.3.1.a Sort by color, shape, or size.
- 0.3.1.b Create own rule for sorting other than color, shape, and size.
- 0.3.2.a Model situations that involve addition and subtraction of whole numbers 0 - 10 using objects.
- 0.3.3.a Use objects to solve addition and subtraction of whole numbers 0 - 10.

## Data Analysis/Probability

- 0.4.1.a Sort and classify objects according to an attribution (e.g., size, color, shape).
- 0.4.1.b Identify the attributes of sorted data.
- 0.4.1.c Compare the attributes of the data (e.g., most, least, same).

## 1st Grade

### Number Sense

- 1.1.1.a Count, read, and write numbers 0 - 100.
- 1.1.1.b Count by multiples of 2 up to 50.
- 1.1.1.c Count by multiples of 5 up to 100.
- 1.1.1.d Count by multiples of 10 up to 100.
- 1.1.1.e Sequence objects using ordinal numbers (e.g., first through tenth).
- 1.1.1.f Count backwards from 10 - 0.
- 1.1.1.g Connect number words to the quantities they represent 0 - 20.
- 1.1.1.h Demonstrate and identify multiple equivalent representations for numbers 1 - 100 (e.g., 23 is 2 tens and 3 ones, 23 is 1 ten and 13 ones, 23 is 23 ones).
- 1.1.1.i Compare and order whole numbers 0 - 100.
- 1.1.1.j Demonstrate relative position of whole numbers 0 - 100 (e.g., 52 is between 50 and 60, 83 is greater than 77).
- 1.1.2.a Use objects, drawings, words, and symbols to explain addition as a joining action.
- 1.1.2.b Use objects, drawings, words, and symbols to explain addition as parts of a whole.
- 1.1.2.c Use objects, drawings, words, and symbols to explain subtraction as a separation action.
- 1.1.2.d Use objects, drawings, words, and symbols to explain subtraction as finding part of a whole.
- 1.1.2.e Use objects, drawings, words, and symbols to explain subtraction as a comparison (e.g., Nancy has 8 hair ribbons. Jane has 5 hair ribbons. How many more hair ribbons does Nancy have than Jane?).
- 1.1.3.a Fluently add whole number sums up to 10.
- 1.1.3.b Fluently subtract whole number differences from 10.
- 1.1.3.c Add and subtract two-digit numbers without regrouping.
- 1.1.3.d Use a variety of methods and tools to compute sums and differences (e.g., models, mental computation, paper-pencil).

## Geometry/Measurement

- 1.2.1.a Compare two-dimensional shapes (e.g., square, circle, rectangle, triangle).
- 1.2.1.b Describe attributes of two-dimensional shapes (e.g., square circle, rectangle, triangle).
- 1.2.2.a Identify the position of a whole number on a horizontal number line.
- 1.2.3.a Identify one line of symmetry in two-dimensional shapes (e.g., circle, square, rectangle, triangle).
- 1.2.4.a Demonstrate positional words (e.g., left/right).
- 1.2.4.b Sketch two-dimensional shapes (e.g., square, circle, rectangle, triangle).
- 1.2.5.a Count like coins to \$1.00.
- 1.2.5.b Identify time to the half hour.
- 1.2.5.c Identify past, present, and future as orientation in time.
- 1.2.5.d Select an appropriate tool for the attribute being measured (e.g., clock, calendar, thermometer, scale, ruler).
- 1.2.5.e Measure length using inches.
- 1.2.5.f Compare and order objects according to length.

## Algebra

- 1.3.1.a Sort or order objects by their attributes (e.g., color, shape, size, number) then identify the classifying attribute.
- 1.3.1.b Create multiple rules for sorting beyond color, shape, and size.
- 1.3.1.c Identify, describe, and extend patterns (e.g., patterns with a repeating core).
- 1.3.1.d Use  $<$ ,  $=$ ,  $>$  to compare quantities.
- 1.3.2.a Model situations that involve the addition and subtraction of whole numbers 0 - 20, using objects and pictures.
- 1.3.2.b Describe and model quantitative change (e.g., a student is growing taller).
- 1.3.3.a Write number sentences to represent fact families.
- 1.3.3.b Use concrete, pictorial, and verbal representations of the commutative property of addition.

## Data Analysis/Probability

- 1.4.1.a Sort and classify objects by more than one attribute.
- 1.4.1.b Organize data by using concrete objects.
- 1.4.1.c Represent data by using tally marks.
- 1.4.1.d Compare and interpret information from displayed data (e.g., more, less, fewer).

## 2nd Grade

### Number Sense

- 2.1.1.a Read and write whole numbers 0 - 1,000 (e.g., count numbers from 400 - 500, write whole numbers from 400 - 500).
- 2.1.1.b Count by multiples of 2 up to 100.

- 2.1.1.c Count backwards from 20 - 0.
- 2.1.1.d Connect number words to the quantities they represent 0 - 100.
- 2.1.1.e Demonstrate multiple equivalent representations for numbers 1 - 1,000 (e.g., 423 is 4 hundreds, 2 tens, and three ones; 423 is three hundreds, 12 tens, and 3 ones).
- 2.1.1.f Compare and order whole numbers 0 - 1,000.
- 2.1.1.g Demonstrate relative position of whole numbers 0 - 1,000 (e.g., 624 is between 600 and 700; 593 is greater than 539).
- 2.1.1.h Use visual models to represent fractions of one-half as a part of a whole.
- 2.1.2.a Use objects, drawings, words, and symbols to explain the relationship between addition and subtraction (e.g., if  $2 + 3 = 5$ , then  $5 - 3 = 2$ ).
- 2.1.2.b Use objects, drawings, words, and symbols to explain the use of subtraction to find a missing addend (e.g., if  $3 + \underline{\quad} = 7$ , then  $7 - 3 = \underline{\quad}$ ).
- 2.1.3.a Fluently add numbers facts with sums to 20.
- 2.1.3.b Fluently subtract whole numbers facts with differences from 20.
- 2.1.3.c Add and subtract three-digit whole numbers with regrouping.
- 2.1.3.d Use a variety of methods and tools to compute sums and differences (e.g., models, mental computation, paper-pencil).
- 2.1.4.a Estimate the results of two-digit whole number sums and differences and check the reasonableness of such results.
- 2.1.4.b Estimate the number of objects in a group.

#### Geometry/Measurement

- 2.2.1.a Describe attributes of two-dimensional shapes (e.g., trapezoid, parallelogram).
- 2.2.1.b Determine if two shapes are congruent.
- 2.2.1.c Compare two-dimensional shapes (e.g., trapezoid, parallelogram).
- 2.2.1.d Identify solid shapes (e.g., triangle prism, rectangle prism, cones, cylinders, pyramids).
- 2.2.2.a Identify numbers using location on a vertical number line.
- 2.2.2.b Compare whole numbers using location on a horizontal number line.
- 2.2.2.c Identify the direction moved to adding and subtracting using a horizontal number line.
- 2.2.3.a Identify lines of symmetry in two-dimensional shapes.
- 2.2.3.b Draw a line of symmetry in two dimensional shapes.
- 2.2.4.a Sketch two-dimensional shapes (e.g., trapezoid, parallelogram).
- 2.2.5.a Count mixed coins to \$1.00.
- 2.2.5.b Identify time to 5 minute intervals.
- 2.2.5.c Identify and use appropriate tools for the attribute being measured (e.g., clock, calendar, thermometer, scale, ruler).
- 2.2.5.d Measure length using feet and yards.
- 2.2.5.e Compare and order objects using inches, feet, and yards.

#### Algebra

- 2.3.1.a Create and describe patterns using concrete and pictorial representations.
- 2.3.2.a Model situations that involve the addition and subtraction of whole numbers 0 - 100, using objects and number lines.
- 2.3.2.b Describe and model quantitative change involving addition (e.g., a student grew 2 inches).

2.3.3.a Use symbolic representations of commutative property of addition (e.g.,  $2 + 3 = ? + 2$ ).

#### Data Analysis/Probability

2.4.1.a Represent data using pictographs.

2.4.1.b Interpret data using pictographs (e.g., 7 more, 2 less, 12 all together).

#### 3rd Grade

##### Number Sense

3.1.1.a Read and write numbers to one-hundred thousand (e.g., 4,623 is the same as four thousand six hundred twenty-three).

3.1.1.b Count by multiples of 5 to 200.

3.1.1.c Count by multiples of 10 to 400.

3.1.1.d Count by multiples of 100 to 1,000.

3.1.1.e Demonstrate multiple equivalent representations for numbers up to 10,000 (e.g., 10 tens is 1 hundred; 10 ten thousands is 1 hundred thousand; 2,350 is 235 tens; 2,350 is  $200 + 300 + 50$ ; 2,350 is 23 hundred and 5 tens).

3.1.1.f Demonstrate multiple equivalent representations for decimal numbers through the tenths place (e.g., 3 and 6 tenths is 3.6; 7.4 is  $7 + .4$ ).

3.1.1.g Compare and order whole numbers through the thousands.

3.1.1.h Find parts of whole and parts of a set for  $\frac{1}{2}$ ,  $\frac{1}{3}$ , or  $\frac{1}{4}$ .

3.1.1.i Round a given number to tens, hundreds, or thousands.

3.1.2.a Represent multiplication as repeated addition using objects, drawings, words, or symbols (e.g.,  $3 \times 4 = 4 + 4 + 4$ ).

3.1.2.b Use objects, drawings, words, and symbols to explain the relationship between multiplication and division (e.g., if  $3 \times 4 = 12$  then  $12 \div 3 = 4$ ).

3.1.2.c Use drawings, words, and symbols to explain the meaning of the factors and product in a multiplication sentence (e.g., in  $3 \times 4 = 12$ . 3 and 4 are factors and 12 is the total or product. The first factor (3) tells how many sets while the second factor tells how many are in each set. Another way to say this is that 3 groups of 4 equals 12 total).

3.1.2.d Use drawings, words, and symbols to explain the meaning of multiplication using an array (e.g., an array with 3 rows and 4 columns represents the multiplication sentence  $3 \times 4 = 12$ ).

3.1.3.a Compute whole number multiplication facts 0 - 10 fluently.

3.1.3.b Add and subtract through four-digit whole numbers with regrouping.

3.1.3.c Select and apply the appropriate methods of computation when problem solving with four-digit whole numbers through the thousands (e.g., models, mental computation, paper-pencil).

3.1.4.a Estimate the two-digit product of whole number multiplication and check the reasonableness.

##### Geometry/Measurement

3.2.1.a Identify the number of sides, angles, and vertices of two-dimensional shapes.

3.2.1.b Identify congruent two-dimensional figures given multiple two-dimensional shapes.

3.2.1.c Identify lines, line segments, rays, and angles.

- 3.2.1.d Describe attributes of solid shapes (e.g., triangular prism, rectangular prisms, cones, cylinders, pyramids, spheres).
- 3.2.2.a Draw a number line and plot points.
- 3.2.2.b Determine the distance between two whole number points on a number line.
- 3.2.3.a Draw all possible lines of symmetry in two-dimensional shapes.
- 3.2.4.a Sketch and label lines, rays, line segments, and angles.
- 3.2.4.b Build three-dimensional objects (e.g., using clay for rectangular prisms, cones, cylinders).
- 3.2.5.a Select and use appropriate tools to measure perimeter of simple two-dimensional shapes (e.g., triangle, square, rectangle).
- 3.2.5.b Count mixed coins and bills greater than \$1.00.
- 3.2.5.c Identify time of day (e.g., a.m., p.m., noon, midnight).
- 3.2.5.d State multiple ways for the same time using 15 minute intervals (e.g., 2:15, or quarter past 2; 2:45 or a quarter until 3).
- 3.2.5.e Identify the appropriate customary unit for measuring length, weight, and capacity/volume.
- 3.2.5.f Measure length to the nearest  $\frac{1}{2}$  inch and centimeter (e.g., requires rounding).
- 3.2.5.g Compare and order objects according to length using centimeters and meters.

### Algebra

- 3.3.1.a Identify, describe, and extend numeric and non-numeric patterns.
- 3.3.1.b Identify patterns using words, tables, and graphs.
- 3.3.2.a Model situations that involve the addition and subtraction of whole numbers using objects, number lines, and symbols.
- 3.3.2.b Describe and model quantitative change involving subtraction (e.g., temperature dropped two degrees).
- 3.3.3.a Use symbolic representation of the identity property of addition (e.g.,  $3 = 0 + 3$ ).
- 3.3.3.b Solve simple one-step whole number equations involving addition and subtraction (e.g.,  $n + 2 = 3$ ).
- 3.3.3.c Explain the procedure(s) used in solving simple one-step whole number equations involving addition and subtraction.

### Data Analysis/Probability

- 3.4.1.a Represent data using horizontal and vertical bar graphs.
- 3.4.1.b Use comparative language to describe the data (e.g., increasing, decreasing).
- 3.4.1.c Interpret data using horizontal and vertical bar graphs.
- 3.4.3.a Perform simple experiments (e.g., flip a coin, toss a number cube, spin a spinner) and describe outcomes as possible, impossible, or certain.

### 4th Grade

#### Number Sense

- 4.1.1.a Read and write numbers through the millions (e.g., 2,347,589 is the same as 2 million three hundred forty-seven thousand five hundred eighty-nine).
- 4.1.1.b Demonstrate multiple equivalent representations for decimal numbers through the hundredths place (e.g., 2 and 5 hundredths is 2.05; 6.23 is  $6 + .2 + .03$ ).
- 4.1.1.c Compare and order whole numbers and decimals through the hundredths place (e.g., money).
- 4.1.1.d Classify a number as even or odd.

- 4.1.1.e Represent a fraction as parts of a whole and/or parts of a set.
- 4.1.1.f Use visual models to find equivalent fractions.
- 4.1.1.g Determine the size of a fraction relative to one half using equivalent forms (e.g., Is  $\frac{3}{8}$  more or less than one half?).
- 4.1.1.h Locate fractions on a number line.
- 4.1.1.i Round a whole number to millions.
- 4.1.2.a Use drawings, words, and symbols to explain the meaning of division (e.g., as repeated subtraction: Sarah has 24 candies. She put them into bags of 6 candies each. How many bags did Sarah use?; as equal sharing: Paul has 24 candies. He wants to share them equally among his 6 friends. How many candies will each friend receive?).
- 4.1.3.a Compute whole number division facts 0 - 10 fluently.
- 4.1.3.b Add and subtract decimals to the hundredths place (e.g., money).
- 4.1.3.c Multiply two-digit whole numbers.
- 4.1.3.d Divide a three-digit number with a one number divisor with and without a remainder.
- 4.1.3.e Mentally compute multiplication and division involving powers of 10.
- 4.1.3.f Select and apply the appropriate method of computation when problem solving (e.g., models, mental computation, paper-pencil).
- 4.1.4.a Estimate the three-digit product and the two-digit quotient of whole number multiplication and division and check the reasonableness.

#### Geometry/Measurement

- 4.2.1.a Identify two- and three-dimensional shapes according to their sides and angle properties.
- 4.2.1.b Classify an angle as acute, obtuse, and right.
- 4.2.1.c Identify parallel, perpendicular, and intersecting lines.
- 4.2.1.d Identify the property of congruency when dealing with plane geometric shapes.
- 4.2.2.a Identify the ordered pair of a plotted point in first quadrant by its location (e.g., (2, 3) is a point two right and three up from the origin).
- 4.2.3.a Given two congruent geometric shapes, identify the transformation (e.g., translation, rotation, reflection) applied to an original shape to create a transformed shape.
- 4.2.4.a Given a geometric model, use it to solve a problem (e.g., what shape makes a cylinder; streets run parallel and perpendicular).
- 4.2.5.a Select and use appropriate tools to measure perimeter of polygons.
- 4.2.5.b Identify time to the minute on an analog clock.
- 4.2.5.c Solve problems involving elapsed time.
- 4.2.5.d Identify the appropriate metric unit for measuring length, weight, and capacity/volume (e.g., cm, m, Km; g, Kg; mL, L).
- 4.2.5.e Estimate and measure length using customary (nearest  $\frac{1}{2}$  inch) and metric (nearest centimeter) units.
- 4.2.5.f Measure weight and temperature using customary units.
- 4.2.5.g Compute simple unit conversions for length within a system of measurement.

#### Algebra

- 4.3.1.a Describe, extend, and apply rules about numeric patterns.
- 4.3.1.b Represent and analyze a variety of patterns using words, tables, and graphs.
- 4.3.1.c Use  $\geq$ ,  $\leq$  symbols to compare quantities.



- 4.3.1.d Select appropriate operational and relational symbols to make a number sentence true.
- 4.3.2.a Model situations that involve multiplication of whole numbers using number lines and symbols.
- 4.3.2.b Describe and model quantitative change involving multiplication (e.g., money doubling).
- 4.3.3.a Represent the idea of a variable as an unknown quantity using a letter or a symbol (e.g.,  $n + 3$ ,  $b - 2$ ).
- 4.3.3.b Use symbolic representation of the identity property of multiplication (e.g.,  $5 * 1 = 5$ ).
- 4.3.3.c Use symbolic representation of the commutative property of multiplication (e.g.,  $2 * 3 = \underline{\quad} * 2$ ).
- 4.3.3.d Solve simple one-step whole number equations (e.g.,  $x + 2 = 3$ ;  $3 * y = 6$ ).
- 4.3.3.e Explain the procedure(s) used in solving simple one-step whole number equations.

#### Data Analysis/Probability

- 4.4.1.a Represent data using dot/line plots.
- 4.4.1.b Compare different representations of the same data.
- 4.4.1.c Interpret data and draw conclusions using dot/line plots.
- 4.4.1.d Find the mode and range for a whole set of numbers.
- 4.4.1.e Find the whole number mean for a set of whole numbers.
- 4.4.2.a Make predictions based on data to answer questions from tables and bar graphs.
- 4.4.3.a Perform simple experiments and compare the degree of likelihood (e.g., more likely, equally likely, or less likely).

#### 5th Grade

##### Number Sense

- 5.1.1.a Demonstrate multiple equivalent representations for whole numbers and decimals through the thousandths place (e.g., 3.125 is  $3 + .1 + .02 + .005$ ).
- 5.1.1.b Compare and order whole numbers, fractions, and decimals through the thousandths place.
- 5.1.1.c Identify and name fractions in their simplest form and find common denominators for fractions.
- 5.1.1.d Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., one-third, one-fourth, one-half, two-thirds, three-fourths)
- 5.1.1.e Classify a number as prime or composite.
- 5.1.1.f Identify factors and multiples of any whole number.
- 5.1.1.g Round whole numbers and decimals to any given place.
- 5.1.2.a Use words and symbols to explain the meaning of the identity properties for addition and multiplication.
- 5.1.2.b Use words and symbols to explain the meaning of the commutative and associative properties of addition and multiplication.
- 5.1.2.c Use words and symbols to explain the meaning of the distributive property of multiplication over addition (e.g.,  $5(y + 2) = 5y + 5x2$ ).
- 5.1.3.a Add and subtract positive rational numbers (e.g., proper and improper fractions, mixed numbers, fractions with common and uncommon denominators, decimals through the thousandths place).
- 5.1.3.b Select, apply and explain the appropriate method of computation when problem solving (e.g., models, mental computation, paper-pencil, technology).
- 5.1.3.c Multiply decimals.
- 5.1.3.d Divide a decimal by a whole number.
- 5.1.4.a Estimate the sums and differences of positive rational numbers to check the reasonableness of such results.

## Geometry/Measurement

- 5.2.1.a Identify the number of edges, faces, and vertices of triangular and rectangular prisms.
- 5.2.1.b Justify congruence of two-dimensional shapes.
- 5.2.1.c Justify the classification of two-dimensional shapes (e.g., triangles by angles and sides).
- 5.2.1.d Identify degrees on a circle (e.g., 45, 90, 180, 270, 360).
- 5.2.2.a Plot the location of an ordered pair in the first quadrant.
- 5.2.3.a Perform one-step transformations on two-dimensional shapes (e.g., translation, rotation, reflection, of 90, 180, and 270).
- 5.2.4.a Build or sketch a geometric model to solve a problem.
- 5.2.4.b Sketch congruent shapes.
- 5.2.4.c Build rectangular prisms using cubes.
- 5.2.5.a Select and use appropriate tools to measure perimeter and angles.
- 5.2.5.b Identify correct unit (customary or metric) to the measurement situation (e.g., distance from home to school; measure length of a room).
- 5.2.5.c Estimate and measure length with customary units to the nearest  $\frac{1}{4}$  inch.
- 5.2.5.d Measure capacity/volume with customary units.
- 5.2.5.e Measure weight (mass) and temperature using metric units.
- 5.2.5.f Determine the area of rectangles and squares.

## Algebra

- 5.3.1.a Describe, extend, apply rules, and make generalizations about numeric, and geometric patterns.
- 5.3.1.b Create and analyze numeric patterns using words, tables, and graphs.
- 5.3.1.c Communicate relationships using expressions and equations.
- 5.3.2.a Model situations that involve the addition, subtraction, and multiplication of positive rational numbers using words, graphs, and tables.
- 5.3.2.b Represent a variety of quantitative relationships using tables and graphs.
- 5.3.2.c Compare different models to represent mathematical situations.
- 5.3.3.a Explain the addition property of equality (e.g., if  $a = b$ , then  $a + c = b + c$ ).
- 5.3.3.b Use symbolic representations of the associative property (e.g.,  $(2 + 3) + 4 = 2 + (3 + 4)$ ,  $(2 * 3) * 4 = 2 * (3 * 4)$ ).
- 5.3.3.c Evaluate numerical expressions by using parentheses with respect to order of operations (e.g.,  $6 + (3 * 5)$ ).
- 5.3.3.d Evaluate simple algebraic expressions involving addition and subtraction.
- 5.3.3.e Solve one-step addition and subtraction equations involving common positive rational numbers.
- 5.3.3.f Identify and explain the properties of equality used in solving one-step equations involving common positive rational numbers.

## Data Analysis/Probability

- 5.4.1.a Represent data using plot lines.
- 5.4.1.b Represent the same set of data in different formats (e.g., table, pictographs, bar graphs, line plots).
- 5.4.1.c Draw conclusions based on a set of data.

- 5.4.1.d Find the mean, median, mode, and range for a set of whole numbers.
- 5.4.1.e Generate questions and answers from data sets and their graphical representations.
- 5.4.2.a Make predictions based on data to answer questions from tables, bar graphs, and line plots.
- 5.4.3.a Perform and record results of probability experiments.
- 5.4.3.b Generate a list of possible outcomes for a simple event.
- 5.4.3.c Explain that the likelihood of an event that can be represented by a number from 0 (impossible) to 1 (certain).

## 6th Grade

### Number Sense

- 6.1.1.a Show equivalence among common fractions, decimals, and percents.
- 6.1.1.b Compare and order positive and negative integers.
- 6.1.1.c Identify integers less than 0 on a number line.
- 6.1.1.d Represent large numbers using exponential notation.
- 6.1.1.e Identify the prime factorization of numbers.
- 6.1.1.f Classify numbers as natural, whole, or integer.
- 6.1.2.a Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions.
- 6.1.2.b Use drawings, words, and symbols to explain the meaning of addition and subtraction of decimals.
- 6.1.3.a Multiply and divide positive rational numbers.
- 6.1.3.b Select and apply the appropriate method of computation when problem solving (e.g., models, mental computation, paper-pencil, technology, divisibility rules).
- 6.1.4.a Use appropriate estimation methods to check the reasonableness of solutions for problems involving positive rational numbers.

### Geometry/Measurement

- 6.2.1.a Justify the classification of three-dimensional objects.
- 6.2.2.a Identify the ordered pair of a plotted point in the coordinate plane.
- 6.2.3.a Perform and describe positions and orientation of shapes under single transformations (translations, rotation, reflection) not on a coordinate plane.
- 6.2.4.a Identify two-dimensional drawings of three-dimensional objects.
- 6.2.5.a Estimate and measure length with customary and metric units to the nearest 1/16 inch and mm.
- 6.2.5.b Measure volume/capacity using the metric system.
- 6.2.5.c Convert length, weight (mass), and liquid capacity from one unit to another within the same system.
- 6.2.5.d Determine the perimeter of polygons.
- 6.2.5.e Determine the area of parallelograms and triangles.
- 6.2.5.f Determine the area of rectangular prisms.

## Algebra

- 6.3.1.a Describe and create simple algebraic expressions (e.g., one operation, one variable) from words and tables.
- 6.3.1.b Use a variable to describe a situation with an equation (e.g., one-step, one variable).
- 6.3.1.c Identify relationships as increasing, decreasing, or constant.
- 6.3.2.a Model contextualized problems using various representations (e.g., graphs, tables).
- 6.3.2.b Represent a variety of quantitative relationships using symbols and words.
- 6.3.3.a Explain the multiplication property of equality (e.g., if  $a = b$ , then  $ac = bc$ ).
- 6.3.3.b Evaluate numerical expressions containing multiple operations with respect to order of operations (e.g.,  $2 + 4 \times 5$ ).
- 6.3.3.c Evaluate simple algebraic expressions involving multiplication and division.
- 6.3.3.d Solve one-step equations involving positive rational numbers.
- 6.3.3.e Identify and explain the properties of equality used in solving one-step equations (e.g., addition, subtraction, division).

## Data Analysis/Probability

- 6.4.1.a Represent data using stem and leaf plots, histograms, and frequency plots.
- 6.4.1.b Compare and interpret data sets and the graphical representations.
- 6.4.1.c Find the mean, Median, mode, and range for a set of data.
- 6.4.1.d Compare the mean, media, mode, and range from two sets of data.
- 6.4.2.a Make predictions based on data and create questions to further investigate the quality of the predictions.
- 6.4.3.a Describe the theoretical probability of an event using a fraction, percentage, decimal, or ratio.
- 6.4.3.b Compute theoretical probabilities for independent events.
- 6.4.3.c Find experimental probability for independent events.

## 7th Grade

### Number sense

- 7.1.1.a Show equivalence among fractions, decimals, and percents.
- 7.1.1.b Compare and order rational numbers (e.g., fractions, decimals, percents).
- 7.1.1.c Represent large numbers using scientific notation.
- 7.1.1.d Classify numbers as natural, whole, integer, or rational.
- 7.1.1.e Find least common multiple and greatest common divisor given two numbers.
- 7.1.2.a Use drawings, words, and symbols to explain the meaning of multiplication and division of fractions (e.g.,  $\frac{2}{3} \times 6$  as two-thirds of six;  $6 \times \frac{2}{3}$  as 6 groups of two-thirds;  $6 \div \frac{2}{3}$  as how many two-thirds there are in six).
- 7.1.2.b Use drawings, words, and symbols to explain the meaning of multiplication and division of decimals.
- 7.1.2.c Use drawings, words, and symbols to explain the addition and division of integers.
- 7.1.3.a Compute accurately with integers.

- 7.1.3.b Select, apply, and explain the method of computation when problem solving using integers and positive rational numbers (e.g., models, mental computation, paper-pencil, technology, divisibility rules).
- 7.1.3.c Solve problems involving percent of numbers (e.g., percent of, % increase, % decrease).
- 7.1.4.a Use estimation methods to check the reasonableness of solutions for problems involving integers and positive rational numbers.

#### Geometry/Measurement

- 7.2.1.a Identify and describe similarity of two-dimensional shapes using side and angle measurements.
- 7.2.1.b Name line, line segment, ray, and angle.
- 7.2.2.a Plot the location of an ordered pair in the coordinate plane.
- 7.2.2.b Identify the quadrant of a given point in the coordinated plane.
- 7.2.2.c Find the distance between points along horizontal and vertical lines of a coordinate plane (e.g., what is the distance between (0, 3) and (0, 9)).
- 7.2.3.a Identify lines of symmetry for a reflection.
- 7.2.3.b Perform and describe positions and orientation of shapes under a single transformation (e.g., translation, rotation, reflection) on a coordinate plane.
- 7.2.4.a Identify the shapes that make up the three-dimensional object.
- 7.2.4.b Create two-dimensional representations of three-dimensional objects to visualize and solve problems (e.g., perspective drawing of surface area).
- 7.2.4.c Draw angles to given degree.
- 7.2.5.a Measure angles to the nearest degree.
- 7.2.5.b Determine the area of trapezoids and circles, and the circumference of circles.
- 7.2.5.c Recognize the inverse relationship between the size of a unit and the number of units used when measuring.

#### Algebra

- 7.3.1.a Describe and create algebraic expressions from words, tables, and graphs.
- 7.3.1.b Use a variable to describe a situation with an inequality (e.g., one-step, one variable).
- 7.3.1.c Recognize and generate equivalent forms of simple algebraic expressions.
- 7.3.2.a Model contextualized problems using various representations (e.g., one-step/variable expressions, one-step/ variable equations).
- 7.3.2.b Represent a variety of quantitative relationships using algebraic expressions and one-step equations.
- 7.3.3.a Explain additive inverse of addition (e.g.,  $7 + -7 = 0$ ).
- 7.3.3.b Use symbolic representation of the distributive property (e.g.,  $2(x + 3) = 2x + 6$ ).
- 7.3.3.c Given the value of the variable(s), evaluate algebraic expressions with respect to order of operations.
- 7.3.3.d Solve two-step equations involving integers and positive rational numbers.
- 7.3.3.e Solve one-step inequalities involving positive rational numbers.
- 7.3.3.f Identify and explain the properties used in solving two-step equations (e.g., addition, subtraction, multiplication, and division).

#### Data Analysis/Probability

- 7.4.1.a Analyze data sets and interpret their graphical representations.
- 7.4.1.b Find and interpret mean, median, mode, and range for a set of data.

- 7.4.1.c Explain the difference between a population and a sample.
- 7.4.1.d List biases that may be created by various data collection processes.
- 7.4.1.e Formulate a question about a characteristic within one population that can be answered by simulation or a survey.
- 7.4.2.a Determine if data collected from a sample can be used to make predictions about a population.
- 7.4.3.a Find the probability of independent compound events (e.g., tree diagram, organized list).
- 7.4.3.b Compare and contrast theoretical and experimental probabilities.

## 8th Grade

### Number Sense

- 8.1.1.a Compare and order real numbers.
- 8.1.1.b Demonstrate relative position of real numbers on the number line (e.g., square root of 2 is left of 1.5).
- 8.1.1.c Represent small numbers using scientific notation.
- 8.1.1.d Classify numbers as natural, whole, integer, rational, irrational, or real.
- 8.1.2.a Use drawings, words, and symbols to explain the meaning of addition, subtraction, multiplication, and division of integers.
- 8.1.2.b Use words and symbols to explain the zero property of multiplication (e.g., if  $ab = 0$  the  $a$  or  $b$  or both must be zero).
- 8.1.2.c Use words and symbols to explain why division by zero is undefined.
- 8.1.3.a Compute accurately with rational numbers.
- 8.1.3.b Evaluate expressions involving absolute value of integers.
- 8.1.3.c Calculate squares of integers, the square root of perfect squares, and the square roots of whole numbers using technology.
- 8.1.3.d Select, apply, and explain the method of computation when problem solving using rational numbers (e.g., models, mental computation, paper-pencil, technology, divisibility rules).
- 8.1.3.e Solve problems involving ratios and proportions.
- 8.1.4.a Use estimation methods to check the reasonableness of solutions for problems involving rational numbers.

### Geometry/Measurement

- 8.2.1.a Identify and describe similarity of three-dimensional objects.
- 8.2.1.b Compare and contrast relationships between similar and congruent objects.
- 8.2.1.c Identify geometric properties of parallel lines cut by transversal and related angles (e.g., perpendicular and parallel lines with transversals) and angles (e.g., corresponding, alternate interior, alternate exterior).
- 8.2.1.d Identify pairs of angles (e.g., adjacent, complementary, supplementary, vertical).
- 8.2.1.e Examine the relationships of the interior angles of a triangle (e.g., the sum of the angles is 180 degrees).
- 8.2.2.a Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments.
- 8.2.3.a Identify the similarity of dilated shapes.
- 8.2.3.b Perform and describe positions and sizes of shapes under dilations (e.g., scale factor, ratios).
- 8.2.4.a Draw geometric objects with specified properties (e.g., parallel sides, number of sides, angle measures, number of faces).
- 8.2.5.a Use strategies to find the perimeter and area of complex shapes.

- 8.2.5.b Determine surface area and volume of three-dimensional objects (e.g., rectangular prisms, cylinders).
- 8.2.5.c Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems.
- 8.2.5.d Use scale factors to find missing lengths in similar shapes.
- 8.2.5.e Convert between metric and standard units of measurement, given conversion factors (e.g., meters to yards).

## Algebra

- 8.3.1.a Represent and analyze a variety of patterns with tables, graphs, words, and algebraic equations.
- 8.3.1.b Describe relationships using algebraic expressions, equations, and inequalities (e.g., two-step, one variable).
- 8.3.1.c Identify constant slope from tables and graphs.
- 8.3.2.a Model contextualized problems using various representations (e.g., two-step/one variable equations).
- 8.3.2.b Represent a variety of quantitative relationships using algebraic expressions and two-step/one variable equations.
- 8.3.3.a Explain the multiplicative inverse (e.g.,  $4 * 1/4 = 1$ ).
- 8.3.3.b Evaluate numerical expressions containing whole number exponents.
- 8.3.3.c Solve multi-step equations involving rational numbers.
- 8.3.3.d Solve two-step inequalities involving rational numbers.
- 8.3.3.e Identify and explain the properties used in solving two-step inequalities and multi-step equations.

## Data Analysis/Probability

- 8.4.1.a Represent data using circle graphs and box plots with and without the use of technology.
- 8.4.1.b Compare characteristics between sets of data or within a given set of data.
- 8.4.1.c Find, interpret, and compare measures of central tendency (mean, median, mode) and quartiles for sets of data.
- 8.4.1.d Select the most appropriate unit of central tendency for sets of data.
- 8.4.1.e Identify misrepresentations and misinterpretation of data represented in circle graphs and box plots.
- 8.4.2.a Evaluate predictions to formulate new questions and plan new studies.
- 8.4.2.b Compare and contrast two sets of data to make inferences.
- 8.4.3.a Identify complementary events and calculate their probabilities.
- 8.4.3.b Compute probabilities for independent compound events.

## 12th Grade

### Number Sense

- 12.1.1.a Demonstrate multiple equivalent forms of irrational numbers.
- 12.1.1.b Compare, contrast, and apply properties of numbers and the real number system, including rational, irrational, imaginary, and complex numbers.
- 12.1.2.a Use drawings, words, and symbols to explain the effects of such operations as multiplication and division, and computing positive powers and roots on the magnitude of quantities (e.g., if you take the square root of a number, will the result always be smaller than the original number?).
- 12.1.2.b Use drawings, words, and symbols to explain that the difference between two numbers on the number line is the absolute value of their difference.

- 12.1.3.a Compute accurately with real numbers.
- 12.1.3.b Simplify exponential expressions.
- 12.1.3.c Multiply and divide numbers using scientific notation.
- 12.1.3.d Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, or technology).
- 12.1.4.a Use estimation methods to check for reasonableness of real number computations and decide if the problem calls for an approximation or an exact number.
- 12.1.4.b Distinguish relevant from irrelevant information, identify missing information and either find what is needed or make appropriate estimates.

## Geometry/Measurement

- 12.2.1.a Identify and explain the necessity of and give examples of definitions and theorems.
- 12.2.1.b Analyze properties and relationships among classes of two- and three-dimensional geometric objects using inductive reasoning and counterexamples.
- 12.2.1.c State and prove geometric theorems using deductive reasoning (e.g., parallel lines with transversals, congruent triangles, proportions).
- 12.2.1.d Apply geometric properties to solve problems (e.g., parallel lines, line transversals, similar triangles, congruent triangles, proportions).
- 12.2.1.e Identify and apply right triangle relationships (e.g., sine, cosine, tangent, special right triangle, converse of Pythagorean theorem).
- 12.2.1.f Recognize that there are geometries, other than Euclidean geometry, in which the parallel postulate is not true.
- 12.2.1.g Know the definitions and basic properties of a circle and use them to prove basic theorems and solve problems.
- 12.2.2.a Use coordinate geometry to analyze geometric situations (e.g., parallel lines, perpendicular lines, circle equations).
- 12.2.2.b Apply the midpoint formula.
- 12.2.2.c Apply the distance formula.
- 12.2.2.d Prove special types of triangles and quadrilaterals (e.g., right triangles, isosceles trapezoid, parallelogram, rectangle, square).
- 12.2.3.a Explain and justify the effects of simple transformations on the ordered pairs of two-dimensional shapes.
- 12.2.3.b Perform and describe multiple transformations.
- 12.2.4.a Sketch and draw appropriate representations of geometric objects using ruler, protractor, or technology.
- 12.2.4.b Use geometric models to visualize, describe, and solve problems (e.g., find the height of a tree; find the amount of paint needed for a room; scale model).
- 12.2.5.a Use strategies to find surface area and volume of complex objects.
- 12.2.5.b Apply appropriate units and scales to solve problems involving measurement.
- 12.2.5.c Convert between various units of area and volume, such as square feet to square yards.
- 12.2.5.d Convert equivalent rates (e.g., feet/second to miles/hour).
- 12.2.5.e Find arc length and area sectors of a circle.
- 12.2.5.f Determine surface area and volume of three-dimensional objects (e.g., spheres, cones, pyramids).
- 12.2.5.g Know that the effect of a scale factor  $k$  on length, area, and volume is to multiply each by  $k$ ,  $k$  squared, and  $k$  cubed, respectively.

## Algebra

- 12.3.1.a Represent, interpret, and analyze functions with graphs, tables, and algebraic notation and convert among these representations (e.g., linear, non-linear).
- 12.3.1.b Identify domain and range of functions represented in either symbolic or graphical form (e.g., linear, non-linear).
- 12.3.1.c Identify the slope and intercepts of a linear relationship from an equation or graph.
- 12.3.1.d Identify characteristics of linear and non-linear functions.



- 12.3.1.e Graph linear and non-linear functions.
- 12.3.1.f Compare and analyze the rate of change by using ordered pairs, tables, graphs, and equations.
- 12.3.1.g Graph and interpret linear inequalities.
- 12.3.1.h Represent, interpret, and analyze functions and their inverses.
- 12.3.1.i Determine if a relation is a function.
- 12.3.2.a Model contextualized problems using various representations (e.g., graphs, tables, one variable equalities, one variable inequalities, linear equations in slope intercept form, inequalities in slope intercept form, system of linear equations with two variables).
- 12.3.2.b Represent a variety of quantitative relationships using linear equations and one variable inequalities.
- 12.3.2.c Analyze situations to determine the type of algebraic relationship (e.g., linear, non-linear).
- 12.3.2.d Model contextualized problems using various representations for non-linear functions (e.g., quadratic, exponential, square root, and absolute value).
- 12.3.3.a Explain/apply the reflexive, symmetric, and transitive properties of equality.
- 12.3.3.b Simplify algebraic expressions involving exponents.
- 12.3.3.c Add and subtract polynomials.
- 12.3.3.d Multiply and divide polynomials.
- 12.3.3.e Factor polynomials.
- 12.3.3.f Identify and generate equivalent forms of linear equations.
- 12.3.3.g Solve linear equations and inequalities including absolute value.
- 12.3.3.h Identify and explain the properties used in solving equations and inequalities.
- 12.3.3.i Solve quadratic equations (e.g., factoring, graphing, quadratic formula).
- 12.3.3.j Add, subtract, and simplify rational expressions.
- 12.3.3.k Multiply, divide, and simplify rational expressions.
- 12.3.3.l Evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified values of their variables.
- 12.3.3.m Derive and use the formulas for the general term and summation of finite arithmetic and geometric series.
- 12.3.3.n Combine functions by composition, as well as by addition, subtraction, multiplication, and division.
- 12.3.3.o Solve an equation involving several variables for one variable in terms of the others.
- 12.3.3.p Analyze and solve systems of two linear equations in two variables algebraically and graphically.

#### Data Analysis/Probability

- 12.4.1.a Interpret data represented by the normal distribution and formulate conclusions.
- 12.4.1.b Compute, identify, and interpret measures of central tendency (mean, median, mode) when provided a graph or data set.
- 12.4.1.c Explain how sample size and transformations of data effect measures of central tendency.
- 12.4.1.d Describe the shape and determine spread (variance, standard deviation) and outliers of a data set.
- 12.4.1.e Explain how statistics are used or misused in the world.
- 12.4.1.f Create scatter plots, analyze patterns, and describe relationships in paired data.
- 12.4.1.g Explain the impact of sampling methods, bias, and the phrasing of questions asked during data collection and the conclusions that can be rightfully made.
- 12.4.1.h Explain the differences between randomized experiment and observational studies.
- 12.4.2.a Compare data sets and evaluate conclusions using graphs and summary statistics.
- 12.4.2.b Support inferences with valid arguments.

- 12.4.2.c Develop linear equations for linear models to predict unobserved outcomes using regression line and correlational coefficient.
- 12.4.2.d Recognize when arguments based on data confuse correlation with causation.
- 12.4.3.a Construct a sample space and a probability distribution.
- 12.4.3.b Identify dependent and independent events and calculate their probabilities.
- 12.4.3.c Use the appropriate counting techniques to determine the probability of an event (e.g., combinations, permutations).
- 12.4.3.d Analyze events to determine if they are mutually exclusive.
- 12.4.3.e Determine the relative frequency of a specified outcome of an event to estimate the probability of the outcome.

## Mathematics Curriculum Matrix

By the end of the twelfth grade, students at Maywood Public School will be able to....

### 1. Number Sense

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
1.1	Count, read, and write numbers 0 - 100. (0.1.1.a; 1.1.1.a)	<i>I</i>	<i>M</i>														
1.2	Count objects using one-to-one correspondence 0 - 20. (0.1.1.b)	<i>I, M</i>															
1.3	Sequence objects using ordinal numbers (e.g., first through fifth). (0.1.1.c; 1.1.1.e)	<i>I</i>	<i>D</i>	<i>M</i>													
1.4	Match numerals to the quantities they represent 0 - 20, using a variety of models and representations. (0.1.1.e)	<i>I, M</i>															
1.5	Demonstrate and identify multiple equivalent representations for numbers 1 - 10 (e.g., 10 is 1 and 9, 10 is 6 and 4). (0.1.1.e)		<i>I, M</i>														
1.6	Demonstrate relative position of whole numbers 0 - 1,000 (e.g., 5 is between 2 and 10, 7 is greater than 3). (0.1.1.f; 1.1.1.j; 2.1.1.g)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>												
1.7	Use objects and words to explain the meaning of addition as parts of a whole (e.g., Three boys and two girls are going to the zoo. How many children are going to the zoo?). (0.1.2.a; 0.1.2.b)	<i>I</i>	<i>D</i>	<i>M</i>													

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
1.8	Use objects and words to explain the meaning of subtraction as finding part of a whole (e.g., Jacob has 5 pencils. Three are blue and the rest are red. How many red pencils does Jacob have?). (0.1.2.c; 0.1.2.d)	<i>I</i>	<i>D</i>	<i>M</i>													
1.9	Count by multiples of 2 up to 100. (1.1.1.b; 2.1.1.b)	<i>I</i>	<i>D</i>	<i>M</i>													
1.10	Count by multiples of 5 up to 200. (1.1.1.c; 3.1.1.b)	<i>I</i>	<i>D</i>	<i>M</i>													
1.11	Count by multiples of 10 up to 400. (1.1.1.d; 3.1.1.c)	<i>I</i>	<i>D</i>	<i>M</i>													
1.12	Count backwards from 20 - 0. (1.1.1.f; 2.1.1.c)	<i>I</i>	<i>M</i>														
1.13	Connect number words to the quantities they represent 0 - 100. (1.1.1.g; 2.1.1.d)		<i>I</i>	<i>D</i>	<i>M</i>												
1.14	Demonstrate and identify multiple equivalent representations for numbers 1 - 1,000 (e.g., 23 is 2 tens and 3 ones, 23 is 1 ten and 13 ones, 23 is 23 ones). (1.1.1.h; 2.1.1.e)		<i>I</i>	<i>D</i>	<i>M</i>												
1.15	Use objects, drawings, words, and symbols to explain addition as parts of a whole. (1.1.2.a; 1.1.2.b)	<i>I</i>	<i>D</i>	<i>M</i>													
1.16	Use objects, drawings, words, and symbols to explain subtraction as finding part of a whole. (1.1.2.c; 1.1.2.d)	<i>I</i>	<i>D</i>	<i>M</i>													
1.17	Use objects, drawings, words, and symbols to explain subtraction as a comparison (e.g., Nancy has 8 hair ribbons. Jane has 5 hair ribbons. How many more hair ribbons does Nancy have than Jane?). (1.1.2.e)		<i>I</i>	<i>D</i>	<i>M</i>												
1.18	Fluently add whole number sums up to 20. (1.1.3.a; 2.1.3.a)		<i>I</i>	<i>M</i>													
1.19	Fluently subtract whole number differences from 20. (1.1.3.b; 2.1.3.b)		<i>I</i>	<i>M</i>													
1.20	Add and subtract two-digit numbers without regrouping. (1.1.3.c)		<i>I</i>	<i>M</i>													

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.21	Use a variety of methods and tools to compute sums and differences (e.g., models, mental computation, paper-pencil). (1.1.3.d; 2.1.3.d)	<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.22	Read and write whole numbers 100 - 1,000 (e.g., count numbers from 400 - 500, write whole numbers from 400 - 500). (2.1.1.a)			<i>I</i>	<i>M</i>											
1.23	Use visual models to represent fractions of one-half as a part of a whole. (2.1.1.h)		<i>I</i>	<i>M</i>												
1.24	Use objects, drawings, words, and symbols to explain the relationship between addition and subtraction (e.g., if $2 + 3 = 5$ , then $5 - 3 = 2$ ). (2.1.2.a)		<i>I</i>	<i>M</i>												
1.25	Use objects, drawings, words, and symbols to explain the use of subtraction to find a missing addend (e.g., if $3 + \underline{\quad} = 7$ , then $7 - 3 = \underline{\quad}$ ). (2.1.2.b)		<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
1.26	Estimate the results of two-digit whole number sums and differences and check the reasonableness of such results. (2.1.4.a)			<i>I, M</i>												
1.27	Estimate the number of objects in a group. (2.1.4.b)	<i>I</i>	<i>D</i>	<i>M</i>												
1.28	Count by multiples of 100 to 1,000. (3.1.1.d)		<i>I</i>	<i>M</i>												
1.29	Demonstrate multiple equivalent representations for numbers up to 10,000 (e.g., 10 tens is 1 hundred; 10 ten thousands is 1 hundred thousand; 2,350 is 235 tens; 2,350 is $200 + 300 + 50$ ; 2,350 is 23 hundred and 5 tens). (3.1.1.e)			<i>I</i>	<i>M</i>											
1.30	Compare and order whole numbers through the thousands. (1.1.1.i; 2.1.1.f; 3.1.1.g)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
1.31	Find parts of whole and parts of a set for $1/2$ , $1/3$ , or $1/4$ . (3.1.1.h)		<i>I</i>	<i>D</i>	<i>M</i>											

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.32	Round a given number to tens, hundreds, or thousands. (3.1.1.i)		<i>I</i>	<i>D</i>	<i>M</i>											
1.33	Represent multiplication as repeated addition using objects, drawings, words, or symbols (e.g., $3 \times 4 = 4 + 4 + 4$ ). (3.1.2.a)			<i>I</i>	<i>M</i>											
1.34	Use objects, drawings, words, and symbols to explain the relationship between multiplication and division (e.g., if $3 \times 4 = 12$ then $12 / 3 = 4$ ). (3.1.2.b)				<i>I, M</i>											
1.35	Use drawings, words, and symbols to explain the meaning of the factors and product in a multiplication sentence (e.g., in $3 \times 4 = 12$ , 3 and 4 are factors and 12 is the total or product. The first factor (3) tells how many sets while the second factor tells how many are in each set. Another way to say this is that 3 groups of 4 equals 12 total). (3.1.2.c)			<i>I</i>	<i>M</i>											
1.36	Use drawings, words, and symbols to explain the meaning of multiplication using an array (e.g., an array with 3 rows and 4 columns represents the multiplication sentence $3 \times 4 = 12$ ). (3.1.2.d)			<i>I</i>	<i>M</i>											
1.37	Compute whole number multiplication facts 0 - 10 fluently. (3.1.3.a)			<i>I</i>	<i>M</i>											
1.38	Add and subtract through four-digit whole numbers with regrouping. (2.1.3.c; 3.1.3.b)			<i>I</i>	<i>M</i>											
1.39	Select and apply the appropriate methods of computation when problem solving with four-digit whole numbers through the thousands (e.g., models, mental computation, paper-pencil). (3.1.3.c)			<i>I</i>	<i>M</i>											

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.40	Estimate the two-digit product of whole number multiplication and check the reasonableness. (3.1.4.a)				<i>I, M</i>											
1.41	Read and write numbers through the millions (e.g., 2,347,589 is the same as 2 million three hundred forty-seven thousand five hundred eighty-nine). (3.1.1.a; 4.1.1.a)			<i>I</i>	<i>D</i>	<i>M</i>										
1.42	Compare and order whole numbers and decimals through the hundredths place (e.g., money). (4.1.1.c)				<i>I</i>	<i>M</i>										
1.43	Classify a number as even or odd. (4.1.1.d)		<i>I</i>	<i>D</i>	<i>M</i>											
1.44	Represent a fraction as parts of a whole and/or parts of a set. (4.1.1.e)		<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
1.45	Use visual models to find equivalent fractions. (4.1.1.f)			<i>I</i>	<i>D</i>	<i>M</i>										
1.46	Determine the size of a fraction relative to one half using equivalent forms (e.g., Is $\frac{3}{8}$ more or less than one half?). (4.1.1.g)				<i>I</i>	<i>M</i>										
1.47	Locate fractions on a number line. (4.1.1.h)			<i>I</i>	<i>D</i>	<i>M</i>										
1.48	Round a whole number to millions. (4.1.1.i)		<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
1.49	Use drawings, words, and symbols to explain the meaning of division (e.g., as repeated subtraction: Sarah has 24 candies. She put them into bags of 6 candies each. How many bags did Sarah use?; as equal sharing: Paul has 24 candies. He wants to share them equally among his 6 friends. How many candies will each friend receive?). (4.1.2.a)			<i>I</i>	<i>D</i>	<i>M</i>										
1.50	Compute whole number division facts 0 - 10 fluently. (4.1.3.a)				<i>I</i>	<i>M</i>										
1.51	Add and subtract decimals to the hundredths place (e.g., money). (4.1.3.b)			<i>I</i>	<i>D</i>	<i>M</i>										
1.52	Multiply two-digit whole numbers. (4.1.3.c)				<i>I</i>	<i>M</i>										

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.53	Divide a three-digit number with a one number divisor with and without a remainder. (4.1.3.d)			<i>I</i>	<i>D</i>	<i>M</i>										
1.54	Mentally compute multiplication and division involving powers of 10. (4.1.3.e)					<i>I, M</i>										
1.55	Estimate the three-digit product and the two-digit quotient of whole number multiplication and division and check the reasonableness. (4.1.4.a)				<i>I</i>	<i>M</i>										
1.56	Demonstrate multiple equivalent representations for whole numbers and decimals through the thousandths place (e.g., 3.125 is 3 + .1 + .02 + .005). (3.1.1.f; 4.1.1.b; 5.1.1.a)				<i>I</i>	<i>M</i>										
1.57	Compare and order whole numbers, fractions, and decimals through the thousandths place. (5.1.1.b)					<i>I</i>	<i>M</i>									
1.58	Identify and name fractions in their simplest form and find common denominators for fractions. (5.1.1.c)				<i>I</i>	<i>D</i>	<i>M</i>									
1.59	Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., one-third, one-fourth, one-half, two-thirds, three-fourths). (5.1.1.d)				<i>I</i>	<i>D</i>	<i>M</i>									
1.60	Classify a number as prime or composite. (5.1.1.e)				<i>I</i>	<i>D</i>	<i>M</i>									
1.61	Identify factors and multiples of any whole number. (5.1.1.f)				<i>I</i>	<i>D</i>	<i>M</i>									
1.62	Round whole numbers and decimals to any given place. (5.1.1.g)				<i>I</i>	<i>D</i>	<i>M</i>									
1.63	Use words and symbols to explain the meaning of the identity properties for addition and multiplication. (5.1.2.a)				<i>I</i>	<i>D</i>	<i>M</i>									

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
1.64	Use words and symbols to explain the meaning of the commutative and associative properties of addition and multiplication. (5.1.2.b)			I	D	D	M										
1.65	Use words and symbols to explain the meaning of the distributive property of multiplication over addition (e.g., $5(y + 2) = 5y + 5 \times 2$ ). (5.1.2.c)					I	D	M									
1.66	Add and subtract positive rational numbers (e.g., proper and improper fractions, mixed numbers, fractions with common and uncommon denominators, decimals through the thousandths place). (5.1.3.a)				I	D	M										
1.67	Multiply decimals. (5.1.3.c)					I	M										
1.68	Divide a decimal by a whole number. (5.1.3.d)					I	M										
1.69	Estimate the sums and differences of positive rational numbers to check the reasonableness of such results. (5.1.4.a)				I	D	M										
1.70	Compare and order positive and negative integers. (6.1.1.b)				I	D	D	M									
1.71	Identify integers less than 0 on a number line. (6.1.1.c)				I	D	D	M									
1.72	Represent large numbers using exponential notation. (6.1.1.d)					I	D	M									
1.73	Identify the prime factorization of numbers. (6.1.1.e)				I	D	D	M									
1.74	Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions. (6.1.2.a)				I	D	D	M									
1.75	Use drawings, words, and symbols to explain the meaning of addition and subtraction of decimals. (6.1.2.b)			I	D	D	D	M									



Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.76	Multiply and divide positive rational numbers. (6.1.3.a)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.77	Select and apply the appropriate method of computation when problem solving (e.g., models, mental computation, paper-pencil, technology, divisibility rules). (4.1.3.f; 5.1.3.b; 6.1.3.b)		<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.78	Use appropriate estimation methods to check the reasonableness of solutions for problems involving positive rational numbers. (6.1.4.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.79	Show equivalence among fractions, decimals, and percents. (6.1.1.a; 7.1.1.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.80	Compare and order rational numbers (e.g., fractions, decimals, percents). (7.1.1.b)				<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>							
1.81	Represent large numbers using scientific notation. (7.1.1.c)							<i>I</i>	<i>D</i>	<i>M</i>						
1.82	Classify numbers as natural, whole, integer, or rational. (6.1.1.f; 7.1.1.d)							<i>I</i>	<i>M</i>							
1.83	Find least common multiple and greatest common divisor given two numbers. (7.1.1.e)							<i>I</i>	<i>D</i>	<i>M</i>						
1.84	Use drawings, words, and symbols to explain the meaning of multiplication and division of fractions (e.g., $\frac{2}{3} \times 6$ as two-thirds of six; $6 \times \frac{2}{3}$ as 6 groups of two-thirds; $6 \div \frac{2}{3}$ as how many two-thirds there are in six). (7.1.2.a)				<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>							
1.85	Use drawings, words, and symbols to explain the meaning of multiplication and division of decimals. (7.1.2.b)							<i>I</i>	<i>D</i>	<i>M</i>						
1.86	Compute accurately with integers. (7.1.3.a)								<i>I</i>	<i>M</i>						

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
1.87	Select, apply, and explain the method of computation when problem solving using integers and positive rational numbers (e.g., models, mental computation, paper-pencil, technology, divisibility rules). (7.1.3.b)								<i>I</i>	<i>M</i>							
1.88	Solve problems involving percent of numbers (e.g., percent of, % increase, % decrease). (7.1.3.c)					<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>								
1.89	Use estimation methods to check the reasonableness of solutions for problems involving integers and positive rational numbers. (7.1.4.a)								<i>I</i>	<i>M</i>							
1.90	Compare and order real numbers. (8.1.1.a)								<i>I</i>	<i>M</i>							
1.91	Demonstrate relative position of real numbers on the number line (e.g., square root of 2 is left of 1.5). (8.1.1.b)									<i>I</i>	<i>M</i>						
1.92	Represent small numbers using scientific notation. (8.1.1.c)								<i>I</i>	<i>M</i>							
1.93	Classify numbers as natural, whole, integer, rational, irrational, or real. (8.1.1.d)									<i>I</i>	<i>M</i>						
1.94	Use drawings, words, and symbols to explain the meaning of addition, subtraction, multiplication, and division of integers. (7.1.2.c; 8.1.2.a)							<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>						
1.95	Use words and symbols to explain the zero property of multiplication (e.g., if $ab = 0$ then $a$ or $b$ or both must be zero). (8.1.2.b)					<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>							
1.96	Use words and symbols to explain why division by zero is undefined. (8.1.2.c)										<i>I, M</i>						
1.97	Compute accurately with rational numbers. (8.1.3.a)								<i>I</i>	<i>M</i>							
1.98	Evaluate expressions involving absolute value of integers. (8.1.3.b)								<i>I</i>	<i>D</i>	<i>M</i>						

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.99	Calculate squares of integers, the square root of perfect squares, and the square roots of whole numbers using technology. (8.1.3.c)								<i>I, M</i>							
1.100	Select, apply, and explain the method of computation when problem solving using rational numbers (e.g., models, mental computation, paper-pencil, technology, divisibility rules). (8.1.3.d)						<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>						
1.101	Solve problems involving ratios and proportions. (8.1.3.e)							<i>I</i>	<i>D</i>	<i>M</i>						
1.102	Use estimation methods to check the reasonableness of solutions for problems involving rational numbers. (8.1.4.a)							<i>I</i>	<i>M</i>							
1.103	Demonstrate multiple equivalent forms of irrational numbers. (12.1.1.a)									<i>I, M</i>						
1.104	Compare, contrast, and apply properties of numbers and the real number system, including rational, irrational, imaginary, and complex numbers. (12.1.1.b)								<i>I</i>	<i>D</i>		<i>D</i>			<i>M</i>	
1.105	Use drawings, words, and symbols to explain the effects of such operations as multiplication and division, and computing positive powers and roots on the magnitude of quantities (e.g., if you take the square root of a number, will the result always be smaller than the original number?). (12.1.2.a)											<i>I</i>			<i>M</i>	
1.106	Use drawings, words, and symbols to explain that the difference between two numbers on the number line is the absolute value of their difference. (12.1.2.b)									<i>I</i>		<i>M</i>				
1.107	Compute accurately with real numbers. (12.1.3.a)								<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>				
1.108	Simplify exponential expressions. (12.1.3.b)							<i>I</i>	<i>D</i>	<i>D</i>		<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
1.109	Multiply and divide numbers using scientific notation. (12.1.3.c)											I		M		
1.110	Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, or technology). (12.1.3.d)								I	D	D	D	D	D	D	M
1.111	Use estimation methods to check for reasonableness of real number computations and decide if the problem calls for an approximation or an exact number. (12.1.4.a)								I	D	D	D	D	D	D	M
1.112	Distinguish relevant from irrational information, identify missing information and either find what is needed or make appropriate estimates. (12.1.4.b)			I	D	D	D	D	D	D	D	D	D	D	D	M

## 2. Geometry/Measurement

2.1	Sort and name two-dimensional shapes (e.g., square, circle, rectangle, triangle). (0.2.1.a)	I, M														
2.2	Demonstrate positional words (e.g., above/below, near/far, over/under, in/out, down/up, around/through). (0.2.4.a; 1.2.4.a)	I, M														
2.3	Identify the name and amount of a penny, nickel, dime, and quarter. (0.2.5.a)	I, M														
2.4	Measure using non-standard units. (0.2.5.c)	I, M														
2.5	Compare objects according to length. (0.2.5.d)	I, M														
2.6	Compare two-dimensional shapes (e.g., square, circle, rectangle, triangle). (1.2.1.a)	I, M														
2.7	Describe attributes of two-dimensional shapes (e.g., square, circle, rectangle, triangle). (1.2.1.b)	I, M														

Identifier	Objective															
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.8	Identify the position of a whole number on a horizontal number line. (1.2.2.a)	<i>I</i>	<i>M</i>													
2.9	Identify one line of symmetry in two-dimensional shapes (e.g., circle, square, rectangle, triangle). (1.2.3.a)	<i>I</i>	<i>M</i>													
2.10	Sketch two-dimensional shapes (e.g., square, circle, rectangle, triangle). (1.2.4.b)	<i>I, M</i>														
2.11	Count like coins to \$1.00. (1.2.5.a)	<i>I</i>	<i>M</i>													
2.12	Identify past, present, and future as orientation in time. (1.2.5.a)	<i>I</i>	<i>M</i>													
2.13	Measure length using inches. (1.2.5.e)		<i>I</i>	<i>M</i>												
2.14	Compare and order objects according to length. (1.2.5.f)	<i>I, M</i>														
2.15	Describe attributes of two-dimensional shapes (e.g., trapezoid, parallelogram). (2.2.1.a)	<i>I</i>	<i>D</i>	<i>M</i>												
2.16	Determine if two shapes are congruent. (2.2.1.b)		<i>I</i>	<i>M</i>												
2.17	Compare two-dimensional shapes (e.g., trapezoid, parallelogram). (2.2.1.c)		<i>I</i>	<i>M</i>												
2.18	Identify solid shapes (e.g., triangle prism, rectangle prism, cones, cylinders, pyramids). (2.2.1.d)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
2.19	Identify numbers using location on a vertical number line. (2.2.2.a)		<i>I</i>	<i>M</i>												
2.20	Compare whole numbers using location on a horizontal number line. (2.2.2.b)	<i>I</i>	<i>D</i>	<i>M</i>												
2.21	Identify the direction moved to adding and subtracting using a horizontal number line. (2.2.2.c)			<i>I, M</i>												
2.22	Identify/draw a line of symmetry in two dimensional shapes. (2.2.3.a; 2.2.3.b)		<i>I</i>	<i>M</i>												

Identifier	Objective															
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.23	Sketch two-dimensional shapes (e.g., trapezoid, parallelogram). (2.2.4.a)		<i>I</i>	<i>M</i>												
2.24	Count mixed coins to \$1.00. (2.2.5.a)		<i>I</i>	<i>M</i>												
2.25	Identify time to 5 minute intervals. (0.2.5.b; 1.2.5.b; 2.2.5.b)	<i>I</i>	<i>D</i>	<i>M</i>												
2.26	Identify and use appropriate tools for the attribute being measured (e.g., clock, calendar, thermometer, scale, ruler). (1.2.5.d; 2.2.5.c)	<i>I</i>	<i>D</i>	<i>M</i>												
2.27	Measure length using feet and yards. (2.2.5.d)		<i>I</i>	<i>M</i>												
2.28	Compare and order objects using inches, feet, and yards. (2.2.5.e)		<i>I</i>	<i>M</i>												
2.29	Identify the number of sides, angles, and vertices of two-dimensional shapes. (3.2.1.a)		<i>I</i>	<i>D</i>	<i>M</i>											
2.30	Identify congruent two-dimensional figures given multiple two-dimensional shapes. (3.2.1.b)		<i>I</i>	<i>D</i>	<i>M</i>											
2.31	Identify lines, line segments, rays, and angles. (3.2.1.c)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
2.32	Describe attributes of solid shapes (e.g., triangular prism, rectangular prisms, cones, cylinders, pyramids, spheres). (3.2.1.d)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
2.33	Draw a number line and plot points. (3.2.2.a)			<i>I</i>	<i>M</i>											
2.34	Determine the distance between two whole number points on a number line. (3.2.2.b)			<i>I</i>	<i>M</i>											
2.35	Draw all possible lines of symmetry in two-dimensional shapes. (3.2.3.a)				<i>I, M</i>											
2.36	Sketch and label lines, rays, line segments, and angles. (3.2.4.a)			<i>I</i>	<i>M</i>											
2.37	Build three-dimensional objects (e.g., using clay for rectangular prisms, cones, cylinders). (3.2.4.b)		<i>I</i>	<i>D</i>	<i>M</i>											

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.38	Select and use appropriate tools to measure perimeter of simple two-dimensional shapes (e.g., triangle, square, rectangle). (3.2.5.a)			<i>I</i>	<i>M</i>											
2.39	Count mixed coins and bills greater than \$1.00. (3.2.5.b)			<i>I</i>	<i>M</i>											
2.40	Identify time of day (e.g., a.m., p.m., noon, midnight). (3.2.5.c)	<i>I</i>	<i>D</i>	<i>M</i>												
2.41	State multiple ways for the same time using 15 minute intervals (e.g., 2:15, or quarter past 2; 2:45 or a quarter until 3). (3.2.5.d)			<i>I</i>	<i>M</i>											
2.42	Identify the appropriate customary unit for measuring length, weight, and capacity/volume. (3.2.5.e)			<i>I</i>	<i>M</i>											
2.43	Measure length to the nearest 1/2 inch and centimeter (e.g., requires rounding). (3.2.5.f)			<i>I, M</i>												
2.44	Compare and order objects according to length using centimeters and meters. (3.2.5.g)			<i>I</i>	<i>M</i>											
2.45	Identify two- and three-dimensional shapes according to their sides and angle properties. (4.2.1.a)	<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.46	Classify an angle as acute, obtuse, and right. (4.2.1.b)				<i>I</i>	<i>M</i>										
2.47	Identify parallel, perpendicular, and intersecting lines. (4.2.1.c)			<i>I</i>	<i>D</i>	<i>M</i>										
2.48	Identify the property of congruency when dealing with plane geometric shapes. (4.2.1.d)		<i>I</i>	<i>D</i>	<i>M</i>											
2.49	Identify the ordered pair of a plotted point in first quadrant by its location (e.g., (2, 3) is a point two right and three up from the origin). (4.2.2.a)			<i>I</i>	<i>D</i>	<i>M</i>										

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.50	Given two congruent geometric shapes, identify the transformation (e.g., translation, rotation, reflection) applied to an original shape to create a transformed shape. (4.2.3.a)			<i>I</i>	<i>D</i>	<i>M</i>										
2.51	Given a geometric model, use it to solve a problem (e.g., what shape makes a cylinder; streets run parallel and perpendicular). (4.2.4.a)	<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.52	Select and use appropriate tools to measure perimeter of polygons. (4.2.5.a)			<i>I</i>	<i>D</i>	<i>M</i>										
2.53	Identify time to the minute on an analog clock. (4.2.5.b)			<i>I</i>	<i>D</i>	<i>M</i>										
2.54	Solve problems involving elapsed time. (4.2.5.c)			<i>I</i>	<i>D</i>	<i>M</i>										
2.55	Identify the appropriate metric unit for measuring length, weight, and capacity/volume (e.g., cm, m, Km; g, Kg; mL, L). (4.2.5.d)			<i>I</i>	<i>D</i>	<i>M</i>										
2.56	Estimate and measure length using customary (nearest 1/2 inch) and metric (nearest centimeter) units. (4.2.5.e)			<i>I</i>	<i>D</i>	<i>M</i>										
2.57	Measure weight and temperature using customary units. (4.2.5.f)			<i>I</i>	<i>D</i>	<i>M</i>										
2.58	Compute simple unit conversions for length within a system of measurement. (4.2.5.g)			<i>I</i>	<i>D</i>	<i>M</i>										
2.59	Identify the number of edges, faces, and vertices of triangular and rectangular prisms. (5.2.1.a)				<i>I</i>	<i>D</i>	<i>M</i>									
2.60	Justify congruence of two-dimensional shapes. (5.2.1.b)				<i>I</i>	<i>D</i>	<i>M</i>									



Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
2.61	Justify the classification of two-dimensional shapes (e.g., triangles by angles and sides). (5.2.1.c)	<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.62	Identify degrees on a circle (e.g., 45, 90, 180, 270, 360). (5.2.1.d)					<i>I</i>	<i>M</i>										
2.63	Plot the location of an ordered pair in the first quadrant. (5.2.2.a)				<i>I</i>	<i>D</i>	<i>M</i>										
2.64	Perform one-step transformations on two-dimensional shapes (e.g., translation, rotation, reflection, of 90, 180, and 270). (5.2.3.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.65	Build or sketch a geometric model to solve a problem. (5.2.4.a)					<i>I</i>	<i>M</i>										
2.66	Sketch congruent shapes. (5.2.4.b)				<i>I</i>	<i>D</i>	<i>M</i>										
2.67	Build rectangular prisms using cubes. (5.2.4.c)					<i>I</i>	<i>M</i>										
2.68	Select and use appropriate tools to measure perimeter and angles. (5.2.5.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.69	Identify correct unit (customary or metric) to the measurement situation (e.g., distance from home to school; measure length of a room). (5.2.5.b)				<i>I</i>	<i>D</i>	<i>M</i>										
2.70	Estimate and measure length with customary units to the nearest 1/4 inch. (5.2.5.c)				<i>I</i>	<i>D</i>	<i>M</i>										
2.71	Measure capacity/volume with customary units. (5.2.5.d)			<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>										
2.72	Measure weight (mass) and temperature using metric units. (5.2.5.e)			<i>I</i>	<i>D</i>	<i>M</i>											
2.73	Determine the area of rectangles and squares. (5.2.5.f)			<i>I</i>	<i>D</i>	<i>M</i>											
2.74	Justify the classification of three-dimensional objects. (6.2.1.a)					<i>I</i>	<i>D</i>	<i>M</i>									

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
2.75	Identify the ordered pair of a plotted point in the coordinate plane. (6.2.2.a)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
2.76	Perform and describe positions and orientation of shapes under single transformations (translations, rotation, reflection) not on a coordinate plane. (6.2.3.a)			<i>I</i>	<i>D</i>	<i>M</i>											
2.77	Identify two-dimensional drawings of three-dimensional objects. (6.2.4.a)					<i>I</i>	<i>D</i>	<i>M</i>									
2.78	Estimate and measure length with customary and metric units to the nearest 1/16 inch and mm. (6.2.5.a)							<i>I</i>	<i>M</i>								
2.79	Measure volume/capacity using the metric system. (6.2.5.b)					<i>I</i>	<i>D</i>	<i>M</i>									
2.80	Convert length, weight (mass), and liquid capacity from one unit to another within the same system. (6.2.5.c)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
2.81	Determine the perimeter of polygons. (6.2.5.d)			<i>I</i>	<i>D</i>	<i>M</i>											
2.82	Determine the area of parallelograms and triangles. (6.2.5.e)							<i>I</i>	<i>M</i>								
2.83	Determine the volume of rectangular prisms. (6.2.5.f)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
2.84	Identify and describe similarity of two-dimensional shapes using side and angle measurements. (7.2.1.a)							<i>I</i>	<i>D</i>	<i>M</i>							
2.85	Name line, line segment, ray, and angle. (7.2.1.b)			<i>I</i>	<i>D</i>	<i>M</i>											
2.86	Plot the location of an ordered pair in the coordinate plane. (7.2.2.a)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
2.87	Identify the quadrant of a given point in the coordinate plane. (7.2.2.b)							<i>I</i>	<i>M</i>								

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.88	Find the distance between points along horizontal and vertical lines of a coordinate plane (e.g., what is the distance between (0, 3) and (0, 9)). (7.2.2.c)							I	M							
2.89	Identify lines of symmetry for a reflection. (7.2.3.a)								I, M							
2.90	Perform and describe positions and orientation of shapes under a single transformation (e.g., translation, rotation, reflection) on a coordinate plane. (7.2.3.b)							I	M							
2.91	Identify the shapes that make up the three-dimensional object. (7.2.4.a)							I	M							
2.92	Create two-dimensional representations of three-dimensional objects to visualize and solve problems (e.g., perspective drawing of surface area). (7.2.4.b)								I, M							
2.93	Draw angles to a given degree. (7.2.4.c)					I	D	D	M							
2.94	Measure angles to the nearest degree. (7.2.5.a)						I	D	M							
2.95	Determine the area of trapezoids and circles, and the circumference of circles. (7.2.5.b)							I	M							
2.96	Recognize the inverse relationship between the size of a unit and the number of units used when measuring. (7.2.5.c)								I, M							
2.97	Identify and describe similarity of three-dimensional objects. (8.2.1.a)			I	D	D	D	D	D	M						
2.98	Compare and contrast relationships between similar and congruent objects. (8.2.1.b)							I	M							
2.99	Identify geometric properties of parallel lines cut by transversal and related angles (e.g., perpendicular and parallel lines with transversals) and angles (e.g., corresponding, alternate interior, alternate exterior). (8.2.1.c)							I	D	M						

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
2.100	Identify pairs of angles (e.g., adjacent, complementary, supplementary, vertical). (8.2.1.d)									<i>I</i>	<i>D</i>	<i>M</i>					
2.101	Examine the relationships of the interior angles of a triangle (e.g., the sum of the angles is 180 degrees). (8.2.1.e)										<i>I</i>	<i>D</i>	<i>M</i>				
2.102	Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments. (8.2.2.a)										<i>I</i>	<i>M</i>					
2.103	Identify the similarity of dilated shapes. (8.2.3.a)											<i>I, M</i>					
2.104	Perform and describe positions and sizes of shapes under dilations (e.g., scale factor, ratios). (8.2.3.b)											<i>I, M</i>					
2.105	Draw geometric objects with specified properties (e.g., parallel sides, number of sides, angle measures, number of faces). (8.2.4.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>						
2.106	Use strategies to find the perimeter and area of complex shapes. (8.2.5.a)									<i>I</i>	<i>D</i>	<i>M</i>					
2.107	Determine surface area and volume of three-dimensional objects (e.g., rectangular prisms, cylinders). (8.2.5.b)									<i>I</i>	<i>D</i>	<i>D</i>				<i>M</i>	
2.108	Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems. (8.2.5.c)									<i>I</i>	<i>D</i>	<i>D</i>		<i>M</i>			
2.109	Use scale factors to find missing lengths in similar shapes. (8.2.5.d)									<i>I</i>	<i>D</i>	<i>D</i>		<i>M</i>			
2.110	Convert between metric and standard units of measurement, given conversion factors (e.g., meters to yards). (8.2.5.e)									<i>I</i>	<i>D</i>	<i>D</i>		<i>M</i>			

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
2.111	Identify and explain the necessity of and give examples of definitions and theorems. (12.2.1.a)													<i>I, M</i>		
2.112	Analyze properties and relationships among classes of two- and three-dimensional geometric objects using inductive reasoning and counterexamples. (12.2.1.b)									<i>I</i>				<i>M</i>		
2.113	State and prove geometric theorems using deductive reasoning (e.g., parallel lines with transversals, congruent triangles, proportions). (12.2.1.c)									<i>I</i>				<i>M</i>		
2.114	Apply geometric properties to solve problems (e.g., parallel lines, line transversals, similar triangles, congruent triangles, proportions). (12.2.1.d)													<i>I, M</i>		
2.115	Identify and apply right triangle relationships (e.g., sine, cosine, tangent, special right triangle, converse of Pythagorean theorem). (12.2.1.e)													<i>I</i>	<i>D</i>	<i>M</i>
2.116	Recognize that there are geometries, other than Euclidean geometry, in which the parallel postulate is not true. (12.2.1.f)													<i>I</i>		<i>M</i>
2.117	Know the definitions and basic properties of a circle and use them to prove basic theorems and solve problems. (12.2.1.g)													<i>I</i>		<i>M</i>
2.118	Use coordinate geometry to analyze geometric situations (e.g., parallel lines, perpendicular lines, circle equations). (12.2.2.a)											<i>I</i>		<i>M</i>		
2.119	Apply the midpoint formula. (12.2.2.b)											<i>I</i>		<i>M</i>		
2.120	Apply the distance formula. (12.2.2.c)											<i>I</i>	<i>D</i>	<i>M</i>		

Identifier	Objective																		
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math			
2.121	Prove special types of triangles and quadrilaterals (e.g., right triangles, isosceles trapezoid, parallelogram, rectangle, square). (12.2.2.d)																<i>I</i>		<i>M</i>
2.122	Explain and justify the effects of simple transformations on the ordered pairs of two-dimensional shapes. (12.2.3.a)																<i>I</i>	<i>D</i>	<i>M</i>
2.123	Perform and describe multiple transformations. (12.2.3.b)									<i>I</i>	<i>D</i>	<i>D</i>					<i>M</i>		
2.124	Sketch and draw appropriate representations of geometric objects using ruler, protractor, or technology. (12.2.4.a)									<i>I</i>	<i>D</i>	<i>D</i>					<i>M</i>		
2.125	Use geometric models to visualize, describe, and solve problems (e.g., find the height of a tree; find the amount of paint needed for a room; scale model). (12.2.4.b)											<i>I</i>					<i>D</i>	<i>M</i>	
2.126	Use strategies to find surface area and volume of complex objects. (12.2.5.a)																<i>I</i>	<i>D</i>	<i>M</i>
2.127	Apply appropriate units and scales to solve problems involving measurement. (12.2.5.b)	<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>
2.128	Convert between various units of area and volume, such as square feet to square yards. (12.2.5.c)																<i>I</i>	<i>D</i>	<i>M</i>
2.129	Convert equivalent rates (e.g., feet/second to miles/hour). (12.2.5.d)											<i>I</i>					<i>D</i>	<i>D</i>	<i>M</i>
2.130	Find arc length and area sectors of a circle. (12.2.5.e)																<i>I</i>	<i>D</i>	<i>M</i>
2.131	Determine surface area and volume of three-dimensional objects (e.g., spheres, cones, pyramids). (12.2.5.f)											<i>I</i>					<i>D</i>	<i>M</i>	

Identifier	Objective																	
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math		
2.132	Know that the effect of a scale factor $k$ on length, area, and volume is to multiply each by $k$ , $k$ squared, and $k$ cubed, respectively. (12.2.5.g)													<i>I</i>		<i>M</i>		

### 3. Algebra

3.1	Create own rule for sorting other than color, shape, and size. (0.3.1.b)	<i>I, M</i>																
3.2	Use objects to solve addition and subtraction of whole numbers 0 - 10. (0.3.3.a)	<i>I, M</i>																
3.3	Sort or order objects by their attributes (e.g., color, shape, size, number) then identify the classifying attribute. (1.3.1.a)	<i>I</i>	<i>M</i>															
3.4	Create multiple rules for sorting beyond color, shape, and size. (1.3.1.b)		<i>I, M</i>															
3.5	Identify, describe, and extend patterns (e.g., patterns with a repeating core). (1.3.1.c)	<i>I</i>	<i>M</i>															
3.6	Use $<$ , $=$ , $>$ to compare quantities. (1.3.1.d)	<i>I</i>	<i>M</i>															
3.7	Write number sentences to represent fact families. (1.3.3.a)	<i>I</i>	<i>D</i>	<i>M</i>														
3.8	Use concrete, pictorial, and verbal representations of the commutative property of addition. (1.3.3.b)	<i>I</i>	<i>D</i>	<i>M</i>														
3.9	Create and describe patterns using concrete and pictorial representations. (2.3.1.a)	<i>I</i>	<i>M</i>															
3.10	Describe and model quantitative change involving addition (e.g., a student grew 2 inches). (1.3.2.b; 2.3.2.b)	<i>I</i>	<i>D</i>	<i>M</i>														
3.11	Use symbolic representations of commutative property of addition (e.g., $2 + 3 = ? + 2$ ). (2.3.3.a)		<i>I</i>	<i>M</i>														

Identifier	Objective															
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
3.12	Identify, describe, and extend numeric and non-numeric patterns. (3.3.1.a)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
3.13	Model situations that involve the addition and subtraction of whole numbers using objects, number lines, and symbols. (0.3.2.a; 1.3.2.a; 2.3.2.a; 3.3.2.a)	<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>											
3.14	Describe and model quantitative change involving subtraction (e.g., temperature dropped two degrees). (3.3.2.b)			<i>I</i>	<i>M</i>											
3.15	Use symbolic representation of the identity property of addition (e.g., $3 = 0 + 3$ ). (3.3.3.a)			<i>I</i>	<i>M</i>											
3.16	Solve simple one-step whole number equations involving addition and subtraction (e.g., $n + 2 = 3$ ). (3.3.3.b)		<i>I</i>	<i>D</i>	<i>M</i>											
3.17	Describe, extend, and apply rules about numeric patterns. (4.3.1.a)			<i>I</i>	<i>D</i>	<i>M</i>										
3.18	Use $\geq$ , $\leq$ symbols to compare quantities. (4.3.1.c)				<i>I</i>	<i>M</i>										
3.19	Select appropriate operational and relational symbols to make a number sentence true. (4.3.1.d)			<i>I</i>	<i>M</i>											
3.20	Model situations that involve multiplication of whole numbers using number lines and symbols. (4.3.2.a)			<i>I</i>	<i>D</i>	<i>M</i>										
3.21	Describe and model quantitative change involving multiplication (e.g., money doubling). (4.3.2.b)				<i>I</i>	<i>M</i>										
3.22	Represent the idea of a variable as an unknown quantity using a letter or a symbol (e.g., $n + 3$ , $b - 2$ ). (4.3.3.a)				<i>I</i>	<i>M</i>										
3.23	Use symbolic representation of the identity property of multiplication (e.g., $5 * 1 = 5$ ). (4.3.3.b)				<i>I</i>	<i>M</i>										



Identifier	Objective															
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
3.24	Use symbolic representation of the commutative property of multiplication (e.g., $2 * 3 = \underline{\quad} * 2$ ). (4.3.3.c)				<i>I</i>	<i>M</i>										
3.25	Solve simple one-step whole number equations (e.g., $x + 2 = 3$ ; $3 * y = 6$ ). (4.3.3.d)				<i>I</i>	<i>M</i>										
3.26	Explain the procedure(s) used in solving simple one-step whole number equations. (3.3.3.c; 4.3.3.e)			<i>I</i>	<i>D</i>	<i>M</i>										
3.27	Describe, extend, apply rules, and make generalizations about numeric, and geometric patterns. (5.3.1.a)				<i>I</i>	<i>D</i>	<i>M</i>									
3.28	Create and analyze numeric patterns using words, tables, and graphs. (3.3.1.b; 4.3.1.b; 5.3.1.b)		<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>									
3.29	Communicate relationships using expressions and equations. (5.3.1.c)				<i>I</i>	<i>D</i>	<i>M</i>									
3.30	Model situations that involve the addition, subtraction, and multiplication of positive rational numbers using words, graphs, and tables. (5.3.2.a)					<i>I</i>	<i>M</i>									
3.31	Represent a variety of quantitative relationships using tables and graphs. (5.3.2.b)			<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
3.32	Compare different models to represent mathematical situations. (5.3.2.c)				<i>I</i>	<i>D</i>	<i>M</i>									
3.33	Explain the addition property of equality (e.g., if $a = b$ , then $a + c = b + c$ ). (5.3.3.a)					<i>I</i>	<i>M</i>									
3.34	Use symbolic representations of the associative property (e.g., $(2 + 3) + 4 = 2 + (3 + n)$ , $(2 * 3) * 4 = 2 * (3 * n)$ ). (5.3.3.b)					<i>I</i>	<i>M</i>									
3.35	Evaluate numerical expressions by using parentheses with respect to order of operations (e.g., $6 + (3 * 5)$ ). (5.3.3.c)				<i>I</i>	<i>D</i>	<i>M</i>									

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
3.36	Evaluate simple algebraic expressions involving addition and subtraction. (5.3.3.d)				<i>I</i>	<i>D</i>	<i>M</i>									
3.37	Solve one-step addition and subtraction equations involving common positive rational numbers. (5.3.3.e)				<i>I</i>	<i>D</i>	<i>M</i>									
3.38	Identify and explain the properties of equality used in solving one-step equations involving common positive rational numbers. (5.3.3.f)					<i>I</i>	<i>M</i>									
3.39	Describe and create simple algebraic expressions (e.g., one operation, one variable) from words and tables. (6.3.1.a)						<i>I</i>	<i>M</i>								
3.40	Use a variable to describe a situation with an equation (e.g., one-step, one variable). (6.3.1.b)					<i>I</i>	<i>D</i>	<i>M</i>								
3.41	Identify relationships as increasing, decreasing, or constant. (6.3.1.c)					<i>I</i>	<i>D</i>	<i>M</i>								
3.42	Model contextualized problems using various representations (e.g., graphs, tables). (6.3.2.a)						<i>I</i>	<i>M</i>								
3.43	Represent a variety of quantitative relationships using symbols and words. (6.3.2.b)						<i>I</i>	<i>M</i>								
3.44	Explain the multiplication property of equality (e.g., if $a = b$ , then $ac = bc$ ). (6.3.3.a)						<i>I</i>	<i>M</i>								
3.45	Evaluate numerical expressions containing multiple operations with respect to order of operations (e.g., $2 + 4 \times 5$ ) (6.3.3.b)				<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>								
3.46	Evaluate simple algebraic expressions involving multiplication and division. (6.3.3.c)					<i>I</i>	<i>D</i>	<i>M</i>								
3.47	Solve one-step equations involving positive rational numbers. (6.3.3.d)					<i>I</i>	<i>D</i>	<i>M</i>								

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
3.48	Identify and explain the properties of equality used in solving one-step equations (e.g., addition, subtraction, division). (6.3.3.e)					<i>I</i>	<i>D</i>	<i>M</i>								
3.49	Describe and create algebraic expressions from words, tables, and graphs. (7.3.1.a)						<i>I</i>	<i>D</i>	<i>M</i>							
3.50	Use a variable to describe a situation with an inequality (e.g., one-step, one variable). (7.3.1.b)								<i>I, M</i>							
3.51	Recognize and generate equivalent forms of simple algebraic expressions. (7.3.1.c)								<i>I, M</i>							
3.52	Explain additive inverse of addition (e.g., $7 + -7 = 0$ ). (7.3.3.a)								<i>I, M</i>							
3.53	Use symbolic representation of the distributive property (e.g., $2(x + 3) = 2x + 6$ ). (7.3.3.b)								<i>I</i>	<i>M</i>						
3.54	Given the value of the variable(s), evaluate algebraic expressions with respect to order of operations. (7.3.3.c)								<i>I</i>	<i>M</i>						
3.55	Solve two-step equations involving integers and positive rational numbers. (7.3.3.d)								<i>I</i>	<i>M</i>						
3.56	Solve one-step inequalities involving positive rational numbers. (7.3.3.e)								<i>I, M</i>							
3.57	Identify and explain the properties used in solving two-step equations (e.g., addition, subtraction, multiplication, and division). (7.3.3.f)								<i>I, M</i>							
3.58	Represent and analyze a variety of patterns with tables, graphs, words, and algebraic equations. (8.3.1.a)								<i>I</i>	<i>M</i>						
3.59	Describe relationships using algebraic expressions, equations, and inequalities (e.g., two-step, one variable). (8.3.1.b)								<i>I</i>	<i>M</i>						

Identifier	Objective																
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math	
3.60	Identify constant slope from tables and graphs. (8.3.1.c)									<i>I</i>	<i>M</i>						
3.61	Model contextualized problems using various representations (e.g., two-step/one variable equations). (7.3.2.a; 8.3.2.a)									<i>I</i>	<i>D</i>	<i>M</i>					
3.62	Represent a variety of quantitative relationships using algebraic expressions and two-step/one variable equations. (7.3.2.b; 8.3.2.b)									<i>I</i>	<i>D</i>	<i>M</i>					
3.63	Explain the multiplicative inverse (e.g., $4 * 1/4 = 1$ ). (8.3.3.a)									<i>I</i>	<i>M</i>						
3.64	Evaluate numerical expressions containing whole number exponents. (8.3.3.b)				<i>I</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>							
3.65	Solve multi-step equations involving rational numbers. (8.3.3.c)									<i>I</i>	<i>M</i>						
3.66	Solve two-step inequalities involving rational numbers. (8.3.3.d)									<i>I</i>	<i>M</i>						
3.67	Identify and explain the properties used in solving two-step inequalities and multi-step equations. (8.3.3.e)										<i>I, M</i>						
3.68	Represent, interpret, and analyze functions with graphs, tables, and algebraic notation and convert among these representations (e.g., linear, non-linear). (12.3.1.a)										<i>I</i>		<i>D</i>			<i>M</i>	
3.69	Identify domain and range of functions represented in either symbolic or graphical form (e.g., linear, non-linear). (12.3.1.b)												<i>I</i>			<i>M</i>	
3.70	Identify the slope and intercepts of a linear relationship from an equation or graph. (12.3.1.c)												<i>I</i>		<i>D</i>	<i>M</i>	
3.71	Identify characteristics of linear and non-linear functions. (12.3.1.d)										<i>I</i>		<i>D</i>			<i>M</i>	

Identifier	Objective											Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8							
3.72	Graph linear and non-linear functions. (12.3.1.e)										<i>I</i>		<i>D</i>			<i>M</i>	
3.73	Compare and analyze the rate of change by using ordered pairs, tables, graphs, and equations. (12.3.1.f)												<i>I</i>			<i>D</i>	<i>M</i>
3.74	Graph and interpret linear inequalities. (12.3.1.g)												<i>I</i>			<i>M</i>	
3.75	Represent, interpret, and analyze functions and their inverses. (12.3.1.h)															<i>I</i>	<i>M</i>
3.76	Determine if a relation is a function. (12.3.1.i)												<i>I</i>			<i>M</i>	
3.77	Model contextualized problems using various representations (e.g., graphs, tables, one variable equalities, one variable inequalities, linear equations in slope intercept form, inequalities in slope intercept form, system of linear equations with two variables). (12.3.2.a)										<i>I</i>	<i>D</i>	<i>D</i>		<i>D</i>	<i>D</i>	<i>M</i>
3.78	Represent a variety of quantitative relationships using linear equations and one variable inequalities. (12.3.2.b)												<i>I</i>			<i>D</i>	<i>M</i>
3.79	Analyze situations to determine the type of algebraic relationship (e.g., linear, non-linear). (12.3.2.c)												<i>I</i>			<i>M</i>	
3.80	Model contextualized problems using various representations for non-linear functions (e.g., quadratic, exponential, square root, and absolute value). (12.3.2.d)															<i>I</i>	<i>M</i>
3.81	Explain/apply the reflexive, symmetric, and transitive properties of equality. (12.3.3.a)												<i>I</i>			<i>M</i>	
3.82	Simplify algebraic expressions involving exponents. (12.3.3.b)										<i>I</i>		<i>D</i>	<i>D</i>	<i>D</i>	<i>D</i>	<i>M</i>
3.83	Add and subtract polynomials. (12.3.3.c)												<i>I</i>	<i>D</i>		<i>M</i>	
3.84	Multiply and divide polynomials. (12.3.3.d)												<i>I</i>	<i>D</i>		<i>M</i>	

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
3.85	Factor polynomials. (12.3.3.e)											I	D		D	M
3.86	Identify and generate equivalent forms of linear equations. (12.3.3.f)											I			D	M
3.87	Solve linear equations and inequalities including absolute value. (12.3.3.g)														I	M
3.88	Identify and explain the properties used in solving equations and inequalities. (12.3.3.h)											I			M	
3.89	Solve quadratic equations (e.g., factoring, graphing, quadratic formula). (12.3.3.i)											I			D	M
3.90	Add, subtract, and simplify rational expressions. (12.3.3.j)									I		D	D		M	
3.91	Multiply, divide, and simplify rational expressions. (12.3.3.k)											I	D		D	M
3.92	Evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified values of their variables. (12.3.3.l)														I	M
3.93	Derive and use the formulas for the general term and summation of finite arithmetic and geometric series. (12.3.3.m)														I	M
3.94	Combine functions by composition, as well as by addition, subtraction, multiplication, and division. (12.3.3.n)														I	M
3.95	Solve an equation involving several variables for one variable in terms of the others. (12.3.3.o)											I		D	M	
3.96	Analyze and solve systems of two linear equations in two variables algebraically and graphically. (12.3.3.p)											I			D	M

#### 4. Data Analysis/Probability

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
4.1	Sort and classify objects according to an attribution (e.g., size, color, shape). (0.3.1.a; 0.4.1.a)	<i>I, M</i>														
4.2	Identify the attributes of sorted data. (0.4.1.b)	<i>I, M</i>														
4.3	Compare the attributes of the data (e.g., most, least, same). (0.4.1.c)	<i>I, M</i>														
4.4	Sort and classify objects by more than one attribute. (1.4.1.a)	<i>I</i>	<i>M</i>													
4.5	Organize data by using concrete objects. (1.4.1.b)	<i>I</i>	<i>M</i>													
4.6	Represent data by using tally marks. (1.4.1.c)	<i>I</i>	<i>M</i>													
4.7	Compare and interpret information from displayed data (e.g., more, less, fewer). (1.4.1.d)	<i>I</i>	<i>M</i>													
4.8	Represent and interpret data using pictographs (e.g., 7 more, 2 less, 12 all together). (2.4.1.a; 2.4.1.b)	<i>I</i>	<i>D</i>	<i>M</i>												
4.9	Use comparative language to describe the data (e.g., increasing, decreasing). (3.4.1.b)			<i>I</i>	<i>M</i>											
4.10	Represent and interpret data using horizontal and vertical bar graphs. (3.4.1.a; 3.4.1.c)		<i>I</i>	<i>D</i>	<i>M</i>											
4.11	Perform simple experiments (e.g., flip a coin, toss a number cube, spin a spinner) and describe outcomes as possible, impossible, or certain. (3.4.3.a)			<i>I</i>	<i>M</i>											
4.12	Compare different representations of the same data. (4.4.1.b)				<i>I</i>	<i>M</i>										
4.13	Interpret data and draw conclusions using dot/line plots. (4.4.1.c)			<i>I</i>	<i>D</i>	<i>M</i>										

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
4.14	Perform simple experiments and compare the degree of likelihood (e.g., more likely, equally likely, or less likely). (4.4.3.a)				<i>I</i>	<i>M</i>										
4.15	Represent data using plot lines. (4.4.1.a; 5.4.1.a)			<i>I</i>	<i>D</i>	<i>D</i>	<i>M</i>									
4.16	Represent the same set of data in different formats (e.g., table, pictographs, bar graphs, line plots). (5.4.1.b)				<i>I</i>	<i>D</i>	<i>M</i>									
4.17	Draw conclusions based on a set of data. (5.4.1.c)				<i>I</i>	<i>D</i>	<i>M</i>									
4.18	Generate questions and answers from data sets and their graphical representations. (5.4.1.e)					<i>I</i>	<i>M</i>									
4.19	Make predictions based on data to answer questions from tables, bar graphs, and line plots. (4.4.2.a; 5.4.2.a)				<i>I</i>	<i>D</i>	<i>M</i>									
4.20	Perform and record results of probability experiments. (5.4.3.a)				<i>I</i>	<i>D</i>	<i>M</i>									
4.21	Generate a list of possible outcomes for a simple event. (5.4.3.b)				<i>I</i>	<i>D</i>	<i>M</i>									
4.22	Explain that the likelihood of an event that can be represented by a number from 0 (impossible) to 1 (certain). (5.4.3.c)					<i>I</i>	<i>M</i>									
4.23	Represent data using stem and leaf plots, histograms, and frequency plots. (6.4.1.a)						<i>I</i>	<i>M</i>								
4.24	Compare and interpret data sets and the graphical representations. (6.4.1.b)						<i>I</i>	<i>M</i>								
4.25	Find and compare the mean, median, mode, and range for a set of data. (4.4.1.d; 4.4.1.e; 5.4.1.d; 6.4.1.c; 6.4.1.d)					<i>I</i>	<i>D</i>	<i>M</i>								
4.26	Make predictions based on data and create questions to further investigate the quality of the predictions. (6.4.2.a)						<i>I</i>	<i>M</i>								



Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
4.27	Describe the theoretical probability of an event using a fraction, percentage, decimal, or ratio. (6.4.3.a)						<i>I</i>	<i>M</i>								
4.28	Compute theoretical probabilities for independent events. (6.4.3.b)							<i>I, M</i>								
4.29	Find experimental probability for independent events. (6.4.3.c)							<i>I, M</i>								
4.30	Analyze data sets and interpret their graphical representations. (7.4.1.a)						<i>I</i>	<i>M</i>								
4.31	Find and interpret mean, median, mode, and range for a set of data. (7.4.1.b)							<i>I</i>	<i>M</i>							
4.32	Explain the difference between a population and a sample. (7.4.1.c)								<i>I, M</i>							
4.33	List biases that may be created by various data collection processes. (7.4.1.d)							<i>I</i>	<i>M</i>							
4.34	Formulate a question about a characteristic within one population that can be answered by simulation or a survey. (7.4.1.e)								<i>I, M</i>							
4.35	Determine if data collected from a sample can be used to make predictions about a population. (7.4.2.a)								<i>I, M</i>							
4.36	Find the probability of independent compound events (e.g., tree diagram, organized list). (7.4.3.a)								<i>I, M</i>							
4.37	Compare and contrast theoretical and experimental probabilities. (7.4.3.b)							<i>I</i>	<i>M</i>							
4.38	Represent data using circle graphs and box plots with and without the use of technology. (8.4.1.a)								<i>I</i>	<i>M</i>						
4.39	Compare characteristics between sets of data or within a given set of data. (8.4.1.b)								<i>I</i>	<i>M</i>						

Identifier	Objective											Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
		K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8							
4.40	Find, interpret, and compare measures of central tendency (mean, median, mode) and quartiles for sets of data. (8.4.1.c)									<i>I</i>	<i>M</i>						
4.41	Select the most appropriate unit of central tendency for sets of data. (8.4.1.d)									<i>I</i>	<i>M</i>						
4.42	Identify misrepresentations and misinterpretation of data represented in circle graphs and box plots. (8.4.1.e)										<i>I, M</i>						
4.43	Evaluate predictions to formulate new questions and plan new studies. (8.4.2.a)										<i>I, M</i>						
4.44	Compare and contrast two sets of data to make inferences. (8.4.2.b)									<i>I</i>	<i>M</i>						
4.45	Identify complementary events and calculate their probabilities. (8.4.3.a)										<i>I, M</i>						
4.46	Compute probabilities for independent compound events. (8.4.3.b)										<i>I, M</i>						
4.47	Interpret data represented by the normal distribution and formulate conclusions. (12.4.1.a)												<i>I</i>	<i>D</i>		<i>M</i>	
4.48	Compute, identify, and interpret measures of central tendency (mean, median, mode) when provided a graph or data set. (12.4.1.b)										<i>I</i>		<i>M</i>	<i>M</i>			
4.49	Explain how sample size and transformations of data effect measures of central tendency. (12.4.1.c)												<i>I</i>			<i>M</i>	
4.50	Describe the shape and determine spread (variance, standard deviation) and outliers of a data set. (12.4.1.d)															<i>I</i>	<i>M</i>
4.51	Explain how statistics are used or misused in the world. (12.4.1.e)									<i>I</i>	<i>D</i>		<i>M</i>				
4.52	Create scatter plots, analyze patterns, and describe relationships in paired data. (12.4.1.f)										<i>I</i>		<i>M</i>	<i>M</i>			

Identifier	Objective	K	1st	2nd	3rd	4th	5th	6th	Math 7	Math 8	Business Math	Algebra I	Applied Math	Geometry	Algebra II	Advanced Math
4.53	Explain the impact of sampling methods, bias, and the phrasing of questions asked during data collection and the conclusions that can be rightfully made. (12.4.1.g)									<i>I</i>		<i>M</i>	<i>M</i>			
4.54	Explain the differences between randomized experiment and observational studies. (12.4.1.h)								<i>I</i>	<i>M</i>						
4.55	Compare data sets and evaluate conclusions using graphs and summary statistics. (12.4.2.a)											<i>I</i>	<i>D</i>		<i>M</i>	
4.56	Support inferences with valid arguments. (12.4.2.b)											<i>I</i>	<i>D</i>		<i>M</i>	
4.57	Develop linear equations for linear models to predict unobserved outcomes using regression line and correlational coefficient. (12.4.2.c)														<i>I</i>	<i>M</i>
4.58	Recognize when arguments based on data confuse correlation with causation. (12.4.2.d)														<i>I</i>	<i>M</i>
4.59	Construct a sample space and a probability distribution. (12.4.3.a)											<i>I</i>	<i>D</i>		<i>M</i>	
4.60	Identify dependent and independent events and calculate their probabilities. (12.4.3.b)									<i>I</i>		<i>M</i>	<i>M</i>			
4.61	Use the appropriate counting techniques to determine the probability of an event (e.g., combinations, permutations). (12.4.3.c)									<i>I</i>		<i>D</i>	<i>D</i>		<i>M</i>	
4.62	Analyze events to determine if they are mutually exclusive. (12.4.3.d)											<i>I</i>	<i>D</i>		<i>M</i>	
4.63	Determine the relative frequency of a specified outcome of an event to estimate the probability of the outcome. (12.4.3.e)											<i>I</i>	<i>D</i>		<i>M</i>	

Approved: August 2012