DIOCESE OF ROCKFORD, ILLINOIS

MATHEMATICS CURRICULUM GUIDELINES

2014

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PreSchool

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

NUMBER SENSE AND NUMERATION

		DATE COMPLETED
Whole Numbers		
Count, recognize, read, and write numbers 0-20.	M	
Count, recognize, read, and write numbers 0-100.	I	
Demonstrate one-to-one correspondence 0-20.	I/D	
Count backwards from 10.	I/D	
Fractions		
Recognize and illustrate one-half, whole.	I	
Money		
Identify penny, nickel, dime, quarter, and dollar.	I	
Skip Counting		
Count by 2's to 20.	I	
Count by 5's to 50.	I	
Count by 10's to 100.	I	
Compare Sets, Numbers		
More than.	I	
Less than.	I	
Equal to.	I	
Perform operations using whole numbers		
Compute sums to 9 using manipulatives.	I/D	
Compute differences from 9 using manipulatives.	I/D	
Problem solving		
Use charts, graphs, and tables .	I	
Sort, classify, and use patterns .	I	
Predicting patterns.	I	
Measurement		
Know months, days of the week.	I	
Sequence of events and timelines.	I	
Compare and order objects (i.e. length, height, weight).	I	
Geometry and Spatial Sense		
To identify objects by location		
Above, below, before, after, between.	I/D	
Inside, outside, nearest, farthest.	I/D	

PreSchool

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

Left, right.	I

Identify and name plane figures

Triangles.	M
Squares, rectangles.	M
Pentagon, octogon.	I
Circle.	M
Half-circle.	I/D
Oval.	I

Teaching Points

Counting on from any number 0-20
Estimate reasonable quantities
Identify morning, afternoon, night
Ask how and why questions
Identify top/bottom, front/back
Discuss yesterday, today, tomorrow

Kindergarten

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

NUMBERS AND OPERATIONS

		DATE COMPLETED
Sequence numbers to 100.*	M	
Recognize, read and write numbers to 100.*	M	
Recognize number words, zero to ten.	M	
Recognize, read and write numbers to 1000.*	I	
Skip count by 10's.	M	
Skip count by twos and fives.	I	
Use decade words.	I	
Count on from any number to 100.*	I	
Use ordinal numbers to identify location.*	M	
Use 1:1 correspondence.*	I	
Identify a specific object in a collection - to count on.*	I	
Count backward from 10.	M	
Connect ordinal number to cardinal number - first through tenth.	M	
Connect ordinal number to cardinal number - eleventh through twentieth.	I	
Recognize, read and write place value: to the left of the decimal point - by one digit.	M	
Recognize, read and write place value: to the left of the decimal point - by two digits.	I	
Estimate - adding and subtracting.	I	
Apply Commutative property of addition.	I	
Use mental math - addition and subtraction.	I	

Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

Identify 'more than',' less than' and 'equal to'.*	M	
Equalize sets.*	I	
Use signs of equality and inequality, $<$, $>$, $\neq$ =.*	I	
Identify "Set."	I	
Compute sums to 10 using manipulatives - adding and subtracting.*	M	

Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions or equations.

Represent addition and subtraction using the number line.	I	

Kindergarten

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Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem*	I
Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5=2+3 and 5=4+1).	I
Master facts to 5 - addition and subtraction.*	M
Compute sums to 19 using manipulatives - adding and subtracting.*	I
Introduce facts to 12 - addition and subtraction.	I

Fractions

Demonstrate knowledge of 1/2, 1/3, 1/4.	I
Calculate equal parts of a whole.	I

ALBEBRA

Use algebraic and analytical methods to understand patterns and relationships:

By observing, describing, comparing and creating.	I
By sorting and classifying by characteristics.	I
By predicting what comes next, identifying the missing element.	I
By distinguishing between growing and repeating patterns.	I
By representing information numerically, graphically and verbally.	I
By discussing and analyzing change.	I
By measuring and comparing quantities.	I
By using tables and graphs	I

MEASUREMENT AND DATA

Describe and compare measurable attributes:

Measure geometric figures by: comparing, ordering objects without measuring tools.*	D
Describe and compare length and height.*	D
Describe and compare weight.*	D
Describe and compare distance, capacity, mass.	D
Compare objects using nonstandard units (i.e. length, weight, capacity, etc.).	M

Kindergarten

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Time

Recognize, read and write: months, days of the week.	I
Recognize, read and write: hour, half hour.	I
Recognize and read digital, analog time.	I
Create and interpret sequence of events, timelines.	I
Recognize elapsed time without changing units.	I
Recognize, tell, and count money: penny nickel, dime, dollar.	I
To determine proper tool use of measurement: ruler, thermometer.	I

Money

Read, write, and count money in dollars and cents.	I

GEOMETRY

Identify and describe shapes.

Identify objects by location:

Above, below, before, after, between.	M
Inside, outside, nearest, farthest.	M
Left, right, north, south, east, west.	I
Investigate and predict the result of: slide, turn, flip.	I
Changing shapes.	I
Describe, model, draw, and classify: point.	I

Describe, model, draw and classify:

Triangles.	M
Squares, rectangles.	M
Pentagons, hexagons, octagons.	I
Ellipse (oval).	M
Circle.	M
Semi-circle.	M

Analyze, compare, create, and compose shapes:*

Cube, cylinder, sphere, cone.	I
Describe symmetry, congruency.	I

Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

Kindergarten

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Compose simple shapes to form larger shapes, For example, "Can you join these two triangles with full sides touching to make a rectangle?"

Construct convincing arguments and proofs to solve problems using geometric figures and shapes.	I

STATISTICS AND PROBABILITY

Collect and describe data.	I
Organize and construct data.	I

Identify, draw, label and analyze:

Real graph (using actual objects).	I
Picture graph, bar graph.	I
Venn diagram.	I
Probability - single event.	I
Format questions; conduct experiments, surveys.	I
Demonstrate data collection methods.	I
Classify objects into given categories; count the number of objects in each category and sort the categories by count.	I

PROBLEM SOLVING

Analyze and plan the problem determining the appropriate strategy by:

Drawing a picture.	I
Creating original problems.	I
Determining if information is sufficient to solve.	I
Using tables, charts, graphs and diagrams.	I
Trial and error.	I
Working backwards.	I
Sorting, classifying and using patterns.	I
Using estimation.	I
Choosing correct operation.	I
Checking reasonableness.	I
Draw logical conclusions and communicate reasoning: using simple materials.	I
Use technology to draw conclusions and solve problems.	I

Grade 1

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

Date Completed

NUMBERS AND OPERATIONS

Extend the counting sequence.

Recognize, read, and write numbers 120.*	m
Recognize, read, and write numbers to 1000.	D
Understand natural counting.	D

Recognize, read, and write numbers in fractions:

One half, one third, one fourth.	D
Fifths through tenths.	I
Inequalities.	I

Recognize, read, and write decimals:

Money in dollars and cents.	D
Number words zero to ten.	D
Number words zero to twenty.	I
Decade words.	D

Sequence numbers (counting skills):

Count by ones:	
to 100	m
to 1000.	I
Count from any given number to 100.	M
Count backward from 10.	m
Count backward from 20.	I
Count backward from any given number up to 100.	I

Skip count from any given number:

By tens.	M
By twos and fives.	D
By hundreds.	I
Use ordinal numbers to identify location.	m

Identify a specific object in a collection

Connect ordinal number to cardinal number:	
First through tenth.	m
Eleventh through twentieth.	M
Count on.	M

Grade 1

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Date Completed

Compare sets, numbers:

Using 1:1 correspondence.	M
To identify "more than," "less than," and "equal to".	M
To equalize sets.	M

Use signs of equality and inequality:

=	D
<, >, not =	I
Comparing and ordering odd and even numbers.	I

Understand place value

Recognize, read, understand and write place value*:

To the left of the decimal point:

One digit.	m
Two digits.	M
Three digits.	I
comparisons with the symbols >, =, and <	I

Use place value understanding and properties of operations to add and subtract.

Perform operations using whole numbers and integers.

Add.

Estimate.	D

Find sums (of whole numbers):

Compute sums to 9 using manipulative.	m
Compute sums to 18 using manipulatives.	M
Master facts to 5.	m
Master facts to 12.	M
Develop facts to 18.	D
Define addend and sum.	I

Compute, no regrouping:

3 addends, 1 digit numbers.	D
4 or more addends, 1 digit numbers.	I

Compute with regrouping:

2 or more 2 digit numbers.	I
Dollar and cents.	I
Using the number line.	M
Using commutative property.	D
Using mental math.	D

Grade 1

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

Date Completed

Subtract.

Estimate.	D

Find differences (of whole numbers):

Compute differences from 9 using manipulative.	m
Compute differences from 18 using manipulatives.	M
Master facts to 5.	m
Master facts to 12.	M
Master facts to 18.	D
Define subtrahend, minuend, difference.	I
Compute multi-digit numbers with no regrouping.*	D
Using the number line.	M
Using mental math.	D

Recognize, read, and write Fractions

Equal parts of a whole.	D

ALGEBRA

Draw logical conclusions and communicate reasoning:

Using simple materials.	D
Using technology.	D

Understand patterns and relations:

By observing, describing, comparing, and creating.	D
By sorting and classifying by characteristics.	D
By predicting what comes next and identifying the missing element.	D
By distinguishing between growing and repeating patterns.	D
By representing information numerically, graphically, and verbally.	D
By discussing/analyzing change.	D
To identify patterns.	D

MEASUREMENT

Measure lengths indirectly and by iterating length units.

Use manipulative materials to model concepts of measurement.	D

Measure geometric figures*:

Compare, order objects without measuring tools.	M
Measure distance, length, and height.	M
Measure capacity, weight.	M

Grade 1

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		Date Completed
Measure mass.	M	
Compare objects using nonstandard units (i.e.. Length, weight, capacity, etc.).	m	

Compare and/or order objects using appropriate units:

U.S. customary system.

Length: inch, 1/2 inch, 1/4 inch.	I	
Length: foot, yard.	M	
Capacity (cup, pint, quart, gallon).	I	
Weight (ounce, pound, ton).	I	
Conversions within system.	I	
Temperature Fahrenheit.	I	

Metric system

Length: millimeter, centimeter, decimeter, meter.	I	
Temperature Celsius.	I	

Determine proper tool for use of measurement:

Ruler.	M	
Thermometer.	M	

Time

Recognize, read, and write time:

Months, days of the week.	M	
Hour, half hour.*	M	
Half past, quarter past, quarter to.	I	
Five minute intervals.	I	
Digital, analog time.	D	
Sequence of events, timelines.	D	
Elapsed time, duration without changing units.	D	

Money

Recognize, tell, and count money:

Penny, nickel, dime, dollar.	M	
Quarter, half dollar.	I	
Five and ten dollar bill.	I	
Make change.	I	

Grade 1

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Date Completed

GEOMETRY

Identify and describe shapes*

Identify objects by name and location:*

Above, below, before, after, between.	M	
Inside, outside, nearest, farthest.	M	
Left, right, North, South, East, West.	D	

Investigate and predict the result of:

Slide, turn.	D	
Changing shapes.	M	
Flip.	D	
Describe, model, draw, and classify point.	D	

Describe, model, draw, and classify plane figures*

Triangles.	m	
Quadrilaterals	I	
square, rectangles.	m	
Pentagons, hexagons, octagons.	D	
Ellipse (oval).	m	
Circles.	M	
Identify semicircle (half circle).	m	

Identify solid figures:

Cube, cylinder, sphere, cone.	D	
Symmetry, congruency.	D	

Construct convincing arguments and proofs to solve problems using geometric figures and patterns.

STATISTICS AND PROBABILITY

Discuss and analyze change:

By measuring and comparing quantities.	D	
By using tables and graphs.	D	
Collect and describe data.	D	

Organize and construct data.

Identify, draw, label, and analyze:

Real graph (using actual objects).	D	
Picture graph, bar graph.	D	
Venn Diagram.	D	

Grade 1

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

Date Completed

Determine the probability of:

Single event.	D	
Permutations, combinations.	I	

Format Questions.

Conduct experiments, surveys.	D	
Demonstrate data collection methods.	D	

PROBLEM SOLVING

Analyze and plan the problem determining the appropriate strategy by:

Drawing pictures.	D	
Creating original problems.	D	
Determining if sufficient information present to solve.	D	
Using tables, charts, graphs, and diagrams.*	D	
Using Trial and error.	D	
Working backwards.	D	
Sorting, classifying, and using patterns.	D	
Estimation.	D	
Choosing correct operation.	D	
Checking reasonableness.	D	

Grade 2

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

NUMBERS AND OPERATIONS

Recognize, read, and write whole numbers to 1000.*	M	
Recognize, read, and write natural numbers.	D	
Recognize, read, and write number words, zero to twenty.	M	
Recongnize, read, and write decade words.	M	
Recognize, read, and write Roman Numerals.	I	
Recognize, read and write numbers to describe "set".	D	
Connect ordinal number to cardinal number, eleventh through twentieth.	m	
Count on from any given number to 100.	m	
Count backward from 20.*	M	
Count backward from any given number up to 100.	D	
Skip count from any given number by 10's.*	m	
Skip count from any given number by 5's.*	M	
Skip count from any given number by 100's.*	M	
Skip count from any given number by 1000's.	I	
Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	I	

Represent and solve problems involving addition and subtraction.

Add using the number line.	m	
Subtract using the number line.	M	

Add and subtract within 20.

Estimate addition using whole numbers.	D	
Compute sums to 9 using manipulatives.	m	
Compute sums to 18 using manipulatives.	m	
Master addition facts to 12.	m	
Master addition facts to 18.*	M	
Define addend and sum.	M	
Compute, no regrouping, 3 or more addends, 1 digit.	D	
Estimate subtraction using whole numbers.	D	
Compute differences from 18 using manipulatives.	m	
Master subtraction facts to 12.	m	
Master subtraction facts to 18.*	M	
Define subtrahend, minuend, difference.	D	

Grade 2

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

Recognize, read, and write place value:

To the left of the decimal point:

By two digits.*	m	
By three digits.*	M	

Use place value understanding and properties of operations to add and subtract.

Compute with regrouping, 2 or more 2 digit numbers.*	M	
Add with regrouping, 2 or more 3 digit numbers.*	I/D	
Add with regrouping, 2 or more 4 digit numbers.*	I/D	
Subtract multi-digit numbers with no regrouping.*	M	
Subtract with regrouping, two 2-digit numbers.*	M	
Subtract with regrouping, two 3-digit numbers.	I	
Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900,*	D	
Explain why addition and subtraction strategies work, using place value and the identity, commutative, and associative properties of addition.*	D	

Work with equal groups of objects to gain foundations for multiplication.

Estimate multiplication.	I	
Compute products with factors up to 5x5, with or without manipulatives.*	I	

Multiply.

Master multiplication facts through 12.	I	
Multiply 2-digit by 1-digit numbers.	I	
Commutative Property of Multiplication.	I	
Multiply using mental math.	I	

Divide.

Master division facts through 12.	I	

Fractions

halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths.

Recognize and demonstrate 1/2, 1/3, 1/4	M	
Recognize and demonstrate fifths through tenths.	D	
Recongize and demonstrate Inequalities.	D	
Calculate: Equal parts of a whole.	D	

Grade 2

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

Understand inequalities.

Determine inequalities.	D
Identify more than, less than, equal to.	m
Equalize sets.	m

Use signs of inequality:

=	M
≠, <, >	D
Compare and order odd and even numbers.	D

ALGEBRA

Draw logical conclusions and communicate reasoning:

Using simple materials.	D
Using technology.	D

Understand patterns and relations:

By observing, describing, comparing, and creating.	D
By sorting and classifying by characteristics.	D
By predicting what comes next and identifying the missing element.	D
By distinguishing between growing and repeating patterns.	D
By representing information numerically, graphically, and verbally.	D
By discussing/analyzing change.	D
To identify patterns.	D
Solve simple equations informally.	I

MEASUREMENT

Use manipulative materials to model concepts of measurement.	D

Measure (or estimate), compare, and/or order objects using appropriate units:

Length: inch, 1/2 inch, 1/4 inch.	D
Length: 1/8 inch, 1/16 inch.	I
Length: foot, yard.	M
Length: mile.	I
Length: millimeter, centimeter, decimeter, meter.	D
Capacity: cup, pint, quart, gallon.	M

Grade 2

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		DATE COMPLETED
Weight: ounce, pound, ton.	M	
Make conversions within English system.	D	
Temperature: Fahrenheit.	M	
Temperature: Celsius.	D	
Measure an object twice, using different appropriate units for the two measurements; describe how the two measurements relate to the size of the unit chosen.*	I/D	

Recognize, read, and write time:*

Months, days of the week.	m	
Hour, half hour.	m	
Half past, quarter past, quarter to.	M	
Five minute intervals.	D	
Minutes before and after.	I	
AM and PM.	I	
Digital, analog time.	D	
Sequence of events, timelines.	D	
Elapsed time, duration, without changing units.	D	

Solve problems involving time:

Sequence of events, timelines.	D	
Elapsed time, duration, without changing units.	D	

Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and c symbols appropriately*:

Recognize, read, and write numbers to describe dollars and cents.	M	
Add with dollars and cents.	M	
Recognize and count penny, nickel, dime, dollar.	m	
Recognize and count quarter, half-dollar.	M	
Recognize and count five and ten dollar bills.	M	
Recognize and count $20, $50, and $100 bills.	I	
Make change.	D	

Grade 2

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DATE COMPLETED

GEOMETRY

Reason with shapes and their attributes.

Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.*

Triangles.	m
Quadrilaterals.	m
Squares, rectangles.	m
Pentagons, hexagons, octagons.	D
Irregular shapes.	I
Solid figures: cube.	D

Define, compare, demonstrate, and calculate:

Perimeter.	I
Area (Square, Rectangle).	I
Circumference.	I
Volume.	I

Identify objects by location:

Above, below, before, after, between.	m
Inside, outside, nearest, farthest.	m
Left, right, North, South, East, West.	M

Investigate and predict the result of:

Slide, turn.	D
Changing shapes.	m
Flip.	D

Describe, model, draw, and classify:

Plane elements: point.	D
Ellipse (oval).	m
Circles, semicircles.	m

Describe, model, and classify solid figures:

Cylinder, sphere, cone.	D
Prisms (triangular, rectangular).	I
Pyramid.	I
Determine symmetry, congruency.	D

Construct convincing arguments and proofs to solve problems using geometric figures and patterns:

Using simple materials.	D
Using diagrams.	I

Grade 2 | I=Introduce | D=Develop | I/D=Intro/Dev | M=Mastery | m=maintain | **DATE COMPLETED**

Using technology.	D

STATISTICS AND PROBABILITY

Represent and interpret data*.

Discuss and analyze change:

By measuring and comparing quantities.	D
By using tables and graphs.	D
By collecting and describing data.	D

Organize and construct data:

Read and create a real graph (using actual objects).	M
Interpret and create picture graph, bar graph, line plot.	D
Interpret and create Venn diagram.	D

Format Questions.

Conduct experiments, surveys.	D
Demonstrate data collection methods.	D

Determine the probability of:

Single event.	D
Permutations, combinations.	D

PROBLEM SOLVING

Analyze and plan the problem determining the appropriate strategy by:

Drawing pictures.	D
Creating original problems.	D
Determining if sufficient information present to solve.	D
Using tables, charts, graphs, and diagrams.*	D
Using Trial and error.	D
Working backwards.	D
Sorting, classifying, and using patterns.	D
Estimation.	D
Choosing correct operation.	D
Checking reasonableness.	D

Grade 3

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

NUMBERS AND OPERATIONS

Recognize, read, and write numbers to describe:

Decimals to tenths, hundredths.	I	
Money in dollars and cents.	m	
Number words zero to twenty.	m	
Decade words.	m	
Roman numerals.	D	
"Set."	D	

Recognize, read, and write numbers to describe:

Whole numbers to 999.	m	
Whole numbers to six digits.	M	
Natural, counting numbers.	M	

Sequence numbers (counting skills):

Count by ones to 999.	m	
Count backward from 20.	m	
Count backward from any given number, up to 100.	M	
Use skip counting from any given number by 2's, 5's, 10's, and 100's.	m	
Use skip counting from any given number by thousands.	M	

Recognize, read, and write place value:

To the left of the decimal point by one, two, and three digits.	m	
To the left of the decimal point through six digits.	I	
To the right of the decimal point by one digit.	I	

Round numbers:

To the nearest ten, hundred.	M	
To the nearest thousand.	I	
To the nearest dollar.	I	

Compare sets, numbers:

Use signs of equality and inequality:

use =	m	
use ≠, >, <	M	

Grade 3

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DATE COMPLETED

Compare and order:

Numbers beyond 1000.	I	
Odd and even numbers.	M	

Add.

Estimate.	D	
Master facts to 18.	m	
Define addend and sum.	m	
Compute, no regrouping (4 or more one digit addends).	M	

Compute, with regrouping:

2 or more 2-digit numbers.	m	
2 or more 3-digit and 4-digit numbers.	M	
Apply Commutative property of addition.	M	
Apply Associative property of addition.	D	
Add using mental math.	D	

Subtract.

Estimate.	D	
Master facts to 18.	m	
Define subtrahend, minuend, difference.	M	
Compute multi-digit numbers with no regrouping.	m	
Compute with regrouping two 3-digit numbers.	M	
Compute with regrouping, any two numbers.	I	
Subtract with dollars and cents.	I	
Subtract using a number line.	m	
Subtract using mental math.	D	

Represent and solve problems involving multiplication and division.*

Interpret products of whole numbers within 100, e.g., interpret 5x7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5X7.**	M	
Interpret whole-number quotients of whole numbers, e.g., interpret 56/8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56/8.**	M	

Grade 3

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.*	D

Understand properties of multiplication and the relationship between multiplication and division*.

Apply Associative property of multiplication. *3x5x2 can be found by 3x5=15, then 15x2=30.* *	D
Apply Commutative Property of Multiplication. *5x3=15 and 3x5=15.**	M
Apply Distributive Property. *Knowing that 8x5=40 and 8x2=16, one can find 8x7 as 8x(5+2) = (8x5)+(8x2)=40+16=56.* *	I

Multiply and divide within 100*.

Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 25x2=50, one knows 50/2=25) or properties of operations.*	M
Compute products with factors up to 5x5.	M
Define multiplier, multiplicand, product, factor.	M
Know from memory facts through 10.*	M
Compute with no regrouping, 2-digit x 1-digit.	M
Compute with no regrouping, 2-digit x 2-digit, 3-digit x 2-digit.	I
Compute with regrouping, 2x1-digit, 2-x2-digit, 3-x2-digit.	I
Write numbers using expanded notation	I
Define divisor, dividend, quotient, remainder.	I
Master division facts through 12.	D
Compute with no remainder, 2-x1-digit, 3-x1-digit.	I

Recognize, read, write, and apply numbers to describe:

Fractions:

One-half, one-third, one-fourth.	m
Fifths through tenths.	M
2/3, 2/4, 3/4, and tenths.	I
Denominators and numerators, like fractions.	I
Calculate fractions as equal parts of a whole.	D
Compare and solve inequalities involving fractions.	D

Use estimation skills appropriately:

Estimate and use mental math with addition, subtraction, multiplication.	D
Estimate and use mental math with division.	I

Grade 3

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

ALGEBRA

Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8x?= 48, 5=_/3, 6x6=?**	I

Use algebraic and analytical methods:

To understand patterns and relationships.	D
To identify unknown quantities, algebraic phrases.	D
To identify patterns.	D
To solve simple equations informally.	D

Measurement & Data

Comparing and Ordering objects using appropriate units:

Length:

Inch, 1/2 inch, 1/4 inch.	M
1/8 inch, 1/16 inch.	D
Capacity (Volume) using milliliter, liter, kiloliter.	I/D
Weight/Mass using gram, kilogram.	I/D

Compare and/or order objects using appropriate units:

Length: Foot/yard.	m
Length: Mile.	M
Length: Millimeter, centimeter, decimeter, meter.	D
Length: Kilometer.	I
Capacity: cup, pint, quart, gallon.	m
Weight: ounce, pound, ton.	m
Temperature: Fahrenheit.	m
Temperature: Celsius.	D

Recognize, read, and write time (including solving word problems)*:

Five minute intervals.	M
Minutes before and after.	D
AM and PM.	D
Digital, analog time.	M
Elapsed time, duration, without changing units.	D

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		DATE COMPLETED
Elapsed time, duration, with changing units.	I	
Sequence of events, timelines.	D	
Schedules.	I	

Recognize, tell, and count money:

All coins.	m	
One-, five-, and ten-dollar bills.	m	
$20, $50, and $100's.	M	
Make change.	D	

GEOMETRY

Describe, model, draw, and classify:

Point.	M	
Right angles.	I	
Squares, rectangles.	m	
Cube, cylinder, sphere, cone.	D	
Prisms, triangular and rectangular.	D	
Pyramid.	D	
Symmetry, congruency.	D	
Pentagons, hexagons, octagons.	D	

Define, compare, demonstrate, and calculate:

Area of a square, rectangle.	D	
Circumference.	D	
Perimeter.	D	
Volume.	D	

Identify objects by location:

Left, right, North, South, East, West.	m	

Investigate and predict the result of:

Slide, turn, flip.	D	

Construct convincing arguments and proofs to solve problems using geometric figures and patterns.

Draw conclusions and communicate reasoning using simple materials, diagrams, technology.	D	

Grade 3

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STATISTICS AND PROBABILITY

Format Questions.

Conduct experiments, surveys.	D	
Demonstrate data collection methods.	D	
Design data collection methods.	I	

Organize and construct data.

Identify, draw, label, analyze real graph.	m	
Identify, draw, label, analyze picture graph, bar graph, Venn Diagram.	D	
Identify, draw, label, analyze tables, circle graph, solid line graph.	I	

Discuss and analyze change:

By measuring and comparing quantities.	D	
By using tables and graphs.	D	

PROBLEM SOLVING

Analyze and plan the problem determining the appropriate strategy by:

Drawing pictures, creating original problems, determining if information is sufficient to solve.	D	
Using tables, charts, graphs, and diagrams, trial and error, working backwards, using patterns.	D	
Estimating, and choosing the correct operation.	D	
Check reasonableness.	D	

Grade 4

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NUMBERS AND OPERATIONS

Use signs of equality and inequality - not equal, <, >.	m
Compare and order whole numbers to 6 digits.	m
Compare and order whole numbers to 9 digits.	I
Use Natural counting.	m
Compare and order decimals.	D

Use place falue understanding to round multi-digit whole numbers to any place:

Round numbers to the nearest ten, hundred, thousand.	M
Round numbers to the nearest thousand.	I
Recognize, read and write place value 6 digits to the left of the decimal point.	M
Recognize, read and write place value 9 digits to the left of the decimal point.	I
Recognize, read and write place value to the right of the decimal point by one digit.	M
Recognize, read and write place value to the right of the decimal point by two digits, three digits.	I

Use place value understanding and properties of operations to perform multi-digit arithmetic.

Add.

Compute, no regrouping 3 addends, 1 digit.	m
Compute, no regrouping 4 or more addends, 1 digit.	m
Compute with regrouping 2 or more 3 digit numbers.	m
Compute with regrouping 2 or more 4 digit numbers.	m
Add with negative numbers.	I
Apply commutative property.	D
Apply associative property.	D
Add using mental Math.	D

Subtract.

Estimate.	D
Define subtrahend, minuend, difference.	m
Compute with regrouping two 3 digit numbers.	m
Compute with regrouping any 2 numbers.	M
Subtract using mental Math.	D

Multiply.

Estimate.	D
Compute products with factors up to 5X5.	m
Define multiplier, multiplicand, product, factor.	m
Master facts through 12.	M

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		DATE COMPLETED
Multiply by 10, 100, 1000.	I	
Compute with no regrouping - 2X1 digits.	m	
Compute with no regrouping - 2X2 digits, 3X2 digits.	M	
Compute with regrouping - 2X1 digit, 2x2 digits/3x2 digits.	M	
Multiply 4x3 digits, more digits.	I	
Check by division.	I	
Identify common multiple, least common mulitple of two or more numbers.	I	
Apply commutative property.	D	
Apply associative property.	I	
Use mental math.	D	

Divide.

Estimate.	D	
Define divisor, divident, quotient, remainder.	M	
Master facts through 12.	M	
Compute with no remainder - 2X1 digit, 3X1 digit.	M	
Compute with no remainder - 3X2 digits, more digits.	M	
Divide by 10, 100, 1000.	I	

Compute with whole numbers, decimals, fractions, remainders

2X1 digit, 3X1 digit.	D	
4X2 digits, 5X2 digits.	I	
6X3 digits, more digits.	I	
Check with multiplication.	I	
Divide using mental math.	D	
Divide using expanded notation.	D	

Fractions

Understand a fraction a/b with a >1 as a sum of fractions 1/b

Understand addition and subtraction of fractions as joining and separating parts referrning to the same whole.

Fractions - calculate equal parts of a whole.	D	
Identify unlike fractions.	I	
Recognize, read and write mixed numbers.	M	
Rewrite franctions in simplest form.	I	
Identify proper and improper fractions.	M	
Solve fraction inequalities.	D	
Compare and order fractions.	D	

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		DATE COMPLETED
Calculate equivalent fractions, simplest form.	I	
Identify the least common denominator.	I	
Identify the greatest common factor.	I	
Add fractions with like denominators.	I	
Add fractions with unlike denominators.	I	
Add mixed numbers.	I	
Add improper fractions.	I	
Add and subtract decimals, aligning decimal points.	I	
Add fractions using mental math.	I	
Subtract fractions with like denominators.	I	
Subtract fractions with unlike denominators.	I	
Subtract with mixed numbers.	I	
Subtract with improper fractions, proper fractions.	I	
Subtract using mental math.	I	
Multiply with fractions - Fraction X fraction.	I	
Multiply with fractions - Fraction X whole number.	I	
Multiply using mental math.	I	

Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g. by using a visual fraction model. Examples: 3/8=1/8+1/8+1/8; 3/8=1/8+2/8; 2 1/8= 1+1+1/8= 8/8+8/8+1/8
Add and suntract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction..
Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5x(1/4), recording the conclusion by the equation 5/4=5x(1/4).
Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3x(2/5) as 6x(1/5), recognizing this product as 6/5. (in general, nx(a/b)=(nxa/b).
Solve word problems involving multiplcation of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party with 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

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Decimals

Round to the nearest whole number.	I
Convert decimal to percent and percent to decimal.	I
Convert fractions to decimals and decimals to fractions.	I
Convert fraction to percent and perent to fraction.	I
Understand decimal notation for fractions, and compare and order decimal fractions.*	M

ALGEBRA

Using algebraic and analytical methods to understand patterns and relationships:

By observing, describing, comparing and creating.	D
By sorting and classifying by characteristics.	D
By predicting what comes next and the missing element.	D
By distinguising between growing and repeating patterns.	D
By representing information numerically, graphically and verbally.	D
By discussing, analyzing change.	D
To idenfity unknown quantities, algebraic phrases.	D
To identify patterns.	D
To solve simple equations.	M
Using a variable as a place holder.	I
By discussing/analyzing change by measuring and comparing quantitites.	D
By discussing/analyzing change by using tables and graphs.	D
Recognize, read, and write ratios.	I
Solve word problems using the Distance formula: Distance = Rate X Time.	I
Solve word problems involving unit pricing.	I

MEASUREMENT AND DATA

Solve problems involving measurement and conversion of measurements.

Compare and/or ordering objects using appropriate units of:

Length: 1 inch, 1/2 inch, 1/4 inch.	m
Length: 1/8, 1/16.	D
Length: Mile.	m
Make conversions within systems.	D
Length: Metric system, Length - millimeter, centimeter, decimeter, meter.	D
Length: Dekameter, hectometer.	I
Length: Kilometer.	D

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Capacity: milliliter, liter, kiloleter.	D
Weight, mass.	D
Make conversions within systems.	I
Temperature: Celcius.	D

Money and Time

Subtract dollars and cents.	M
Multiply dollars and cents.	I
Divide dollars and cents.	I
Round numbers to the nearest dollar.	M
Recognize, tell and count money - $20, $50 and $100.	m
Make change.	M
Use manipulative materials to model concepts of measurement.	D
Recognize, read and write time in 5 minute intervals.	m
Recognize, read, and write minutes before and after.	M
Identify AM and PM.	M
Recognize, read, and write digital, analog time	m
Recognize, read, and write sequence of events, timelines.	M
Compute elapsed time, duration - without changing units.	D
Compute elapsed time, duration - with changing units.	D
Read and create schedules.	D
Recognize time zones.	I

GEOMETRY

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Determine proper tool for measurement - protractor.	I
Use compass properly.	I
Define, compare, demonstrate and calculate perimeter of square, rectangle.	D
Define, compare, and calculate Circumference.	D
Define, compare, and calculate Volume of a rectangular prism.	D
Explain scale drawings.	I
Construct scale drawings.	I
Use geometry and spatial sense to investigate and predict the result of slide, turn, flip.	D

Describe, model, draw, and classify:

Point.	m
Straight line.	I

Grade 4 | I=Introduce | D=Develop | I/D=Intro/Dev | M=Mastery | m=maintain | **DATE COMPLETED**

Intersecting line.	I
Ray, segment.	I
Angle measurement.	I
Right angle.	D
Acute, obtuse, straight angles.	I
Quadrilaterals.	I
Parallelograms, rhombuses, trapezoids.	I
Pentagons, hexagons, octagons.	D
Center, chord, diameter, Pi, radius.	I
Irregular shapes.	D
Cube, cylinder, spehere, cone.	M
Triangular, rectangular prisms.	D
Pyramid.	D
Analyze symmetry, congruency.	D

Construct convincing arguments and proofs to solve geometric figures and patterns.

Using simple materials.	D
Using diagrams.	D
Using technology.	D

STATISTICS AND PROBABILITY

Collect and describe data.	D
Interpret, and create picture graph, bar graph.	M
Interpret and create tables.	D
Interpret and create circle graph.	D
Interpret and create Line graph solid.	D
Interpret and create Line graph broken.	I
Interpret and create Venn diagram.	D
Identify or compute Mean, medium, mode, range.	I
Compute probability - single event.	D
Compute probability - permutations, combinations.	D
Format questions - conduct experiments, surveys.	D
Format questions - demonstrate data collection methods.	D
Fomat questions - design date collection methods.	D
Draw conclusions.	I
Communicate results.	I

Grade 4

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		DATE COMPLETED
Make decisions, predictions.	I	

PROBLEM SOLVING

Analyze and plan the problem, determining the appropriate strategy by:

Drawing pictures.	D	
Creating original problems.	D	
Determining if information is sufficient to solve.	D	
Relating to an easier problem.	I	
Using tables, charts, graphs and diagrams.	D	
Using trial and error.	D	
Working backwards.	D	
Sorting, classifying and using patterns.	D	
Estimating.	D	
Choosing correct operation.	D	
Solve problems involving percents less than, greater than 100%.	I	
Solve fraction and decimal word problems.	I	
Solve word problems with two statements of equality.	I	
Solve problems to check reasonableness.	D	
Formulate, develop and communicate logical arguments.	I	

Grade 5

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

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NUMBERS AND OPERATIONS

Understand the place value system.

Recognize, read, and write numbers to describe whole numbers to nine digits.	M
Recognize, read, and write numbers to describe whole numbers to twelve digits.	I
Explain patterns when multiplying and/or dividing a number by powers of 10*. When you multiply 8X10=80 and 8x1,000=8,000.	I

Compare and order numbers:

Numbers beyond one thousand.	m
Decimals.	D
Fractions.	D

Round numbers:

To the nearest ten, hundred, and thousand.	m
To the nearest ten thousand.	M
To the nearest cent.	I
To the nearest dollar.	m

Fractions.

Recognize, read, and write fractions of 2/3, 2/4, 3/4, and Tenths.	m
Identify denominators and numerators.	m
Identify like fractions.	m
Identify mixed numbers.	m
Identify unlike fractions.	M
Identify and compute equivalent fractions.	M
Compute the simplest form of a fraction.	M
Identify the reciprocal of a number or fraction.	M
Know equal parts of a whole.	D
Identify and compute with mixed numbers, proper and improper fractions.	D
Identify inequalities.	D
Identify the Least Common Denominator of two or more fractions.	D
Identify the Greatest Common Factor of two or more numbers.	D

Decimals

Recognize, read, and write numbers to describe decimals to tenths, to hundredths, and thousandths.	m
Recognize, read, and write decimals to thousandths and beyond using base-ten numerals, number names, and expanded form*.	D
Recognize, read, and write numbers to compare and order decimals.	D

Grade 5

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		DATE COMPLETED
Round decimals to any place value.	M	
Recognize, read, and write repeating decimals.	I	
Rename decimals as fractions and fractions as decimals.	I	
Change decimals to percent and percent to decimals.	M	
Change fractions to decimals and decimals to fractions.	M	
Change fractions to percents and percents to fractions.	M	
Recognize, read, and write numbers to the left of the decimal point through six digits.	m	
Recognize, read, and write numbers to the left of the decimal point through nine digits.	M	
Recognize, read, and write numbers to the right of the decimal point by one digit.	m	
Recognize, read, and write numbers to the right of the decimal point by two and three digits.	M	
Recognize, read, and write numbers to the right of the decimal point through six digits and beyond.	I	
Recognize, read, and write Roman numerals.	D	
Recognize, read, and write real numbers.	I	
Identify prime and composite numbers.	I	

Perform operations with multi-digit whole numbers and with decimals to hundredths.

Master facts through 12.	m	
Multiply by ten, one hundred, and one thousand.	M	
Compute, with or without regrouping - 2 X 2 digits and 2 X 3 digits.	m	
Compute, using regrouping - 4 X 3 and higher digits.	M	
Use mental math.	D	
Identify products of prime numbers.	I	
Identify and apply distributive property.	D	
Identify and apply associative property.	D	
Identify and apply commutative property.	M	
Identify common multiples and least common multiples.	M	
Check multiplication by dividing.	M	
Multiply using dollars and cents.	M	
Divide whole numbers, decimals, fractions, and remainders using 6 or more digit numbers by 3 digits.	M	
Divide with dollars and cents.	D	
Divide a decimal by a whole number.	I	

Use equivalent fractions as a strategy to add and subtract fractions

Add and subtract fractions with unlike denominators, including mixed numbers*.	M	
Estimate and solve word problems using addition and subtraction of fractions and mixed numbers.	D	

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Apply and extend previous understandings of multiplication and division.

Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ b). Solve word

Multiply a fraction by a fraction.	D	
Multiply a fraction by a whole number.	D	
Multiply, using whole and mixed numbers.	I	
Multiply fractions using the canceling method.	I	
Multiply fractions using mental math.	D	
Interpret multiplication as scaling (resizing), using whole numbers, fractions, and mixed numbers *.	I	

Perform operations using whole numbers and integers.

Estimate in addition.	D	
Add with negative numbers.	D	
Apply the commutative property of addition.	M	
Apply the associative property of addition.	M	
Add using mental math.	D	
Estimate in subtraction.	D	
Subtract any two numbers.	m	
Subtract with dollars and cents.	m	
Subtract using mental math.	D	
Estimate in multiplication.	D	
Estimate in division.	D	
Define divisor, dividend, quotient, and remainder.	m	
Master division facts through 12.	m	
Compute with no remainder.	m	
Divide by ten, one hundred, one thousand.	M	
Use mental math.	D	
Read and writer numbers using expanded notation.	D	

Fractions an Decimals

Estimate addition and subtraction of fractions.	I	
Add and subtract fractions with like denominators.	M	
Add and subtract mixed numbers.	D	
Add and subtract improper fraction and proper fractions.	D	
Use correct decimal alignment when adding and subtracting decimals.	D	
Add and subtract decimals using mental math.	D	
Estimate multiplication of fractions.	D	
Divide a fraction by a fraction.	I	

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		DATE COMPLETED
Divide using whole and mixed numbers.	I	
Multiply fractions using the canceling method.	I	
Multiply and divide using mental math.	I	

Write and interpret numerical expressions.

Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols*.	D	
Correctly apply order of operations.	I	
Solve fraction and decimal word problems.	D	

ALGEBRA

Recognize, explain, and compute ratios.	D	
Recognize, explain, and compute proportions.	I	
Identify unknown quantities, algebraic phrases.	M	
Use a variable as a place holder.	D	
Solve simple equations and expressions informally.	m	

Analyze patterns and relationships.

Identify and form ordered pairs consisting of corresponding terms and graph the ordered pairs on a coordinate plane*.	I/D	
Understand patterns and relationships by observing, describing, comparing, and creating.	D	
Sort and classify by characteristics.	D	
Predict what comes next and looking at missing elements.	D	
Distinguish between growing and repeating patterns.	D	
Represent information numerically, graphically, and verbally.	D	
Discuss and analyze change.	D	
Identify and compute ratios and proportions.	I	
Identify inequalities.	M	
Define "Set."	D	
Solve word problems with two statements of equality.	D	
Solve word problems by applying the Distance formula: Distance = rate X time.	D	
Solve word problems involving unit pricing.	D	

MEASUREMENT AND DATA

Make conversions of measurment units within a system.	D	
Determine length using 1/8, 1/6 inch.	D	

Grade 5

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		DATE COMPLETED
Determine length using millimeter, centimeter, decimeter, meter, decameter, hectometer, kilometer.	D	
Determine capacity using milliliter, liter, kiloliter.	D	
Determine weight, mass using gram,kilogram.	D	
Determine temperature using Celsius.	D	

Time

Recognize, read, and write minutes before and after the hour.	m	
Recognize, read, and write AM and PM.	m	
Recognize, read, interpret, and create a sequence of events/timelines.	m	
Solve problems involving elapsed time with and without changing units.	M	
Recognize, read, interpret, and create schedules.	D	
Recognize, read, and interpret time zones.	D	

Money

Make change.	m	

Explain and construct scale drawings.	M	

GEOMETRY

Use a protractor to correctly measure and create angles.	m	
Use a compass correctly.	m	
Compute the circumference of a circle.	M	
Compute the surface area of a prism.	I	
Define, compare, measure, and calculate volume of a triangular and rectangular prism in various units.	M	
Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.*	I	
Define, compare, measure, and calculate perimeter and area of a square, rectangle, triangle, parallelogram, trapezoid.	M	
Investigate and predict the results of slide, turn, and flip.	D	
Recognize and create straight, intersecting, parallel, and perpendicular lines.	D	
Identify the angle vertex.	I	
Determine angle measurement.	D	
Identify a right angle.	M	
Identify acute, obtuse, and straight angles.	D	
Identify congruent angles.	D	

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		DATE COMPLETED
Identify adjacent angles.	I	
Identify types of triangles - isosceles, scalene, acute, obtuse, equilateral, and right.	I	
Identify the base and height of a triangle.	D	
Identify quadrilaterals, parallelograms, rhombuses, trapezoids.	D	
Identify pentagons, hexagons, octagons.	D	
Identify the center, chord, diameter, Pi, and radius of a circle.	D	
Identify and measure the degrees and arc of a circle.	I	
Identify irregular shapes.	D	
Identify solid figures - cubes, cylinders, sphere, cones.	m	
Identify pyramids.	D	
Determine symmetry.	D	

Construct convincing arguments and proofs to solve problems using geometric figures and patterns:

Using simple materials.	M	
Using diagrams.	D	
Using technology.	D	
Develop, formulate, and communicate logical arguments.	D	

STATISTICS AND PROBABILITY

Collect and describe data.	D	
Interpret and create picture and bar graphs.	m	
Interpret and create tables.	D	
Interpret and create circle graphs.	D	
Interpret and create Venn diagrams.	D	
Identify and label dependent and independent variables.	I	
Determine or compute mean, median, mode, range.	D	
Compute probability: permutations, combinations, single events.	D	
Conduct surveys, experiments, demonstrate and design data collections methods.	D	
Make inferences by drawing conclusions, communicating results, and making decisions/predictions.	D	
Discuss and analyze change by measuring and comparing quantities.	D	
Discuss and analyze change by using tables and graphs.	D	

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Represent and interpret data

Create a line plot to display a data set.*	D	

Graph points on the coordinate plane to solve real-world and mathematical problems.

Read and create solid line graphs.	M	
Read and create broken line graphs.	M	
Use a coordinate system to represent real world and mathematical problems using the first quadrant.	I/D	

PROBLEM SOLVING

Analyze and plan the problem determining the appropriate strategy by:

Drawing pictures.	D	
Creating original problems.	D	
Determining if information is sufficient to solve.	D	
Relating to an easier problem.	D	
Using tables, graphs, and diagrams.	D	
Relating to an easier problem.	D	
Using tables, charts, graphs, and diagrams.	D	
Using trial and error.	D	
Working backwards.	D	
Sorting, classifying, and using patterns.	D	
Using estimation.	D	
Choosing the correct operation.	D	
Solve problems involving percents both less than and greater than 100%.	D	
Check reasonableness of solutions.	D	

Grade 6

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

DATE COMPLETED

NUMBERS AND OPERATIONS

Recognize, read, and write numbers to describe:

Whole numbers to nine digits.	m	
Whole numbers to twelve digits.	M	
Natural counting numbers.	m	
Integers.	I	
Rational numbers.	D	
Write, interpret, and explain a rational number as a point on the number line.	m	
Write, interpret, and explain ordering and absolute value of rational numbers.	D	
Decimals to tenths, to hundredths.	M	
Decimals to thousandths, and beyond.	M	
Repeating decimals.	M	
Roman Numerals.	D	
Identify irrational numbers.	I	
Identify real numbers.	D	
Identify prime and composite numbers.	M	
Use positive and negative numbers together to describe quantities having opposite directions or values .	M	
Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line.	M	
Identify inequalities.	M	
Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram in a real-world context.	D	

Fractions

Identify denominators and numerators.	m	
Identify and compute like fractions.	m	
Identify unlike fractions.	m	
Identify and compute equivalent fractions.	m	
Identify mixed numbers.	m	
Compute the simplest form of a fraction.	m	
Identify proper and improper fractions.	m	
Solve inequalities with fractions.	m	
Identify reciprocals.	m	
Identify the least common denominator of two or more fractions.	M	

Grade 6

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		DATE COMPLETED
Identify the greatest common factor of two or more whole numbers less than or equal to 100.	M	
Decimals		
Compute equivalent decimals, inequalities.	M	
Rename decimals as fractions and fractions as decimals.	M	
Change fraction to percent and percent to fraction.	m	
Round decimals:		
To the nearest billionth	M	
To the nearest whole number.	m	
Compare and order numbers:		
Decimals.	M	
Fractions.	M	
Combinations of decimal, fraction, percent.	M	
Comparing sets, numbers.	M	
Use ≤ , ≥	I	
Recognize, read, and write place value:		
To the left of the decimal through nine digits.	m	
To the right of the decimal, through 6 digits and beyond.	m	
Round numbers:		
To ten thousand.	m	
To the nearest cent.	M	
Perform operations using whole numbers and integers:		
Apply and extend previous understandings of numbers to the system of rational numbers.	M	
Add.		
Estimate addition.	M	
Add using negative numbers.	D	
Apply the communative property of addition.	m	
Apply the associative property of addition.	m	
Use mental math.	D	
Subtract.		
Estimate.	M	
Subtract using negative numbers.	I	
Use mental math.	D	
Multiply.		
Estimate.	M	

Grade 6

I=Introduce | D=Develop | I/D=Intro/Dev | M=Mastery | m=maintain

		DATE COMPLETED
Multiply by 10, 100, 1000.	m	
Compute with regrouping 4 times 3 digits, more digits.	m	
Check with division.	m	
Multiply with dollars and cents.	m	
Identify common multiple, least common multiple of two or more numbers.	m	
Apply commutative property of multiplication.	m	
Apply associative property of multiplication.	M	
Apply distributive property of multiplication.	D	
Identify the factors of prime numbers.	M	
Use mental math.	D	
Compute using exponents and roots.	I	
Recognize, read, and write numbers using expanded notation.	M	

Divide.

Estimate.	M	
Find quotients (of whole numbers).	D	
Divide by ten, one hundred, one thousand.	m	
Compute whole numbers, decimals, fractions with remainders.	m	
Divide 2 by 1 digit, 3 by 1 digit.	m	
Divide 4 by 2 digits, 5 by 2 digits.	m	
Fluently divide multi-digit numbers.	M	
Divide 6 by 3 digits, more digits.	D	
Check by multiplication.	m	
Divide using dollars and cents.	M	
Use mental math.	D	

Compute with fractions and decimals.

Compute fluently with multi-digit numbers and find common factors and multiples.	M	
Calculate using mixed numbers, proper and improper fractions.	M	
Fluently add, subtract, multiply, and divide multi-digit decimals.	M	

ALGEBRA

Identify numbers in a "Set."	D	
Calculate ratios.	M	
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.*	I	

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		DATE COMPLETED
Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.*	I	
Recognize, read, and write ratios and use language to describe a ratio relationship between two quantities.	D	
Calculate proportions.	I	
Write, interpret, and explain signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane.	M	

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

MEASUREMENT AND DATA

Measure geometrice figures by:

Comparing and ordering objects without measuring tools:

Distance, length, and height.	m	
Capacity, weight.	m	
Mass.	m	
Determine proper tool for measurement, i.e. ruler, thermometer, scale, protractor	M	

Comparing and/or ordering objects using appropriate units:

U.S. customary system

Length using inch, half inch, quarter inch, foot, yard, mile.	m	
Length using 1/8, 1/ 16 inch.	M	
Capacity using cup, pint, quart, gallon.	m	
Weight using ounce, pound, ton.	m	
Temperature using Fahrenheit.	m	
Make conversions within system.	M	

Metric system

Length using millimeter, centimeter, decimeter, meter, dekameter, hectometer, kilometer.		
Capacity using milliliter, liter, kiloliter.	D	
Weight, mass using gram, kilogram.	D	
Temperature using Celsius.	D	
Make conversions within system.	D	

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DATE COMPLETED

Calculate elapsed time, duration:

Without changing units.	m	
With changing units.	m	
Interpret and creat schedules.	D	
Interpret time zones.	M	

GEOMETRY

Describe, model, draw, and classify:

Plane elements:

Point	m	

Line:

1) Straight	M	
2) Intersecting, parallel, perpendicular	I	
Ray, segment (sides)	M	

Angles:

Vertex.	M	
Measurement.	D	

Identify types of angles:

Right.	m	
Acute, obtuse, straight.	M	
Congruent.	M	
Adjacent.	D	
Supplementary, complementary.	I	

Identify, draw and classify:

Triangles.	m	
Isosceles, scalene, acute, obtuse, equilateral, right triangles.	D	
Identify base/ height (altitude) of a triagnle.	I	

Identify, draw, and classify quadrilaterals:

Squares, rectangles, pentagons, hexagons, octagons.	M	
Parallelograms, rhombuses, trapezoids.	m	
Heptagons and beyond.	I	
Identify convex, concave polygons.	I	

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Identify, draw and classify:

Ellipse (oval), circles, semicircle (half-circle).	m	
Center, chord, diameter, Pi, radius.	M	
Degrees of a circle.	D	

Identify, draw and classify solid figures:

Cube, cylinder, sphere, cone.	m	
Triangular, rectangular, multi-sided, prisms.	M	
Pyramid.	M	
Explain symmetry, congruency.	M	

Investigate and predict the result of:

Slide, turn, flip.	D	
Changing shapes.	m	

Define, compare, demonstrate, and calculate:

Perimeter and area of a square, rectangle.	M	
Perimeter and area of a triangle.	M	
Perimeter and area of a parallelogram, trapezoid.	M	
Circumference of a circle.	I	
Volume of a rectangular prism.	M	
Surface area of a rectangular prism.	I	
Explain and construct scale drawings.	M	
Find the area of triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes.	D	
Find the volume of a triangular and/or rectangular prism with fractional lengths.	M	
Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.	D	
Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures.	I	

Construct convincing arguments and proofs to solve problems using geometric figures and patterns:

Using simple materials.	m	
Using diagrams.	M	
Using technology.	I	
Using geometric relationships.	I	
Using models.	I	

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STATISTICS AND PROBABILITY

Collect and describe data.	D	

Organize and construct data.

Identify, draw, label, and anyalyze:

Real graph (using actual objects).	m	
Picture graph, bar graph.	m	
Tables.	D	
Circle graph.	D	
Line graph, solid or broken.	m	
Venn Diagram.	D	
Identify and label dependent and independent variables.	M	

Read, calculate, and interpret data.

Identify or calculate mean, median, mode, range (average).	M	

Calculate the probability of:

Single event.	D	
Permutations, combinations.	D	

Format Questions.

Conduct experiments, surveys.	D	
Demonstrate data collection methods.	D	
Design data collection methods.	D	

Make inferences.

Draw conclusion.	D	
Communicate results.	D	
Make decisions, predictions.	D	

PROBLEM SOLVING

Analyze and plan a problem determining the appropriate strategy by: drawing pictures, creating original problems, determining if information is sufficient to solve, relating to an easier problem, using tables, charts, graphs, and diagrams, trial and error, working backwards, sorting classifying and using patterns, estimation, choosing correct operation.	D	

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NUMBERS AND OPERATIONS

Describe situations in which opposite quantities combine to make 0.
Apply properties of operations as strategies to add and subtract rational numbers.
Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then –(p/q) = (–p)/q = p/(–q). Interpret quotients of rational numbers by describing real-world contexts.

Recognize, read, and write numbers to twelve digits.	m	
Recognize, read, and write integers.	D	
Recognize, read, and write rational numbers.	M	
Identify least common denominators, greatest common factor of two or more numbers.	m	
Recognize, read, and write decimals to thousandths and beyond.	m	
Identify equivalent decimals and inequalities.	m	
Rename decimals as fractions and fractions as decimals.	m	
Round numbers to nearest billionth, round repeating decimals.	m	
Recognize, read, and write Roman numerals.	D	
Recognize, read, and write Irrational numbers.	D	
Recongize, read, and write Real Numbers.	M	
Identify prime and composite numbers.	m	

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		DATE COMPLETED
Identify opposites of any number.	M	
Identify a "Set."	D	
Use signs of equality and inequality, =, ≠ ,< , > .	M	
Use signs of equality and inequality ≤, ≥ .	I	
Compare and order decimals, fractions, combinations of decimals and fractions, percentages.	m	
In terms of set notation, identify elements.	M	
In terms of set notation: identify subsets, domain and range.	I	
Recognize, read, and write place value to the right of the decimal place through six digits and beyond.	m	
Round numbers to the nearest cent.	m	
Perform operations using whole numbers and integers: estimating addition, subtraction, multiplication,	m	
Add: Compute with regrouping: negative numbers.	M	
Add: Compute with regrouping: using mental math.	D	
Subtract: Compute with regrouping: with negative numbers and using mental math.	D	
Multiply: check by division with negative numbers.	I	
Multiply: check by division with associative property, and product of prime numbers.	m	
Multiply: check by division with distributive property.	M	
Multiply: check by division with mental math.	D	
Divide: check by multiplication with dollars and cents.	m	
Divide: check by multiplication with negative numbers.	I	
Divide: check by multiplication using mental math.	D	
Calculate using exponents/roots.	D	
Recognize, read, and write numbers using expanded notation.	m	
Fractions, decimals, percents: calculate equal parts of a whole, equivalent fractions, simplest form, mixed numbers, proper and improper fractions, ratios, inequalities, reciprocals, least common denominator, and greatest common factor.	m	
Fractions, decimals, percents: addition by estimation, unlike denominators, mixed numbers, improper/proper fractions, decimal alignment.	m	
Add fractions, decimals, percents by combining fractions, decimals and/or whole numbers.	M	
Add,subtract, multiply, divide fractions, decimals, percents with negative numbers.	I	
Add, subtract, multiply, divide fractions, decimals, percents using mental math.	D	
Subtract fractions, decimals, percents using estimation, unlike denominators, mixed numbers,	m	
Multiply fractions, decimals, percents: using estimation, with fractions: fraction times fraction, whole	m	
Multiply: decimal placement, decimal times decimal.	M	
Multiply: combinations of fractions, decimals and/or whole numbers.	M	
Divide fractions, decimals, percents: estimation, with dollars and cents, with fractions (fraction/fraction),	m	

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		DATE COMPLETED
Recognize division by zero as impossible.	I	
Divide: combination of fractions, decimals, and/or whole numbers.	M	
Apply the correct order of operations.	M	
Solve problems involving: percent less than, greater than 100%.	M	
Solve problems involving percent of increase or decrease.	D	
Solve problems involving simple interest.	M	
Solve problems involving compound interest.	I	
Solve problems involving mark up/down, commission/profit.	M	
Solve problems involving unit pricing.	m	

ALGEBRA

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
Represent proportional relationships by equations.
Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1,r) where r is the unit rate.

EXPRESSIONS AND EQUATIONS

Use properties of operations to generate equivalent expressions.
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

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Solve word problems leading to equations of the form px + q= r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	
Solve word problems leading to inequalities of the form px +q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	
Rename numbers using Base Conversion.	I
Recognize, read, calculate, and write ratios and proportions.	M
Identify and apply symbols of inclusion parentheses ( ) during computation.	m
Identify and apply symbols of inclusion brackets [ ], braces { }, insertion of symbols during computing.	M
Apply opposite and multiple signs to numbers, within and outside of grouping symbols.	I
Recognize, read, write, and calculate using exponential notation.	M
Recognize, read, write, and calculate using negative exponents.	I
Recognize the result of an exponent of "0".	M
Multiply exponential expressions.	I
Calculate exponents with negative bases.	M
Calculate Roots: square roots-rational.	D
Recognize irrational square roots: estimate, other roots (cubed root, fourth root, etc.), products of Square Root Theorem, signed roots.	I
Estimate irrational square roots: with calculator.	M
Recognize, read, and write numbers using Scientific notation.	M
Perform operations with scientific notation.	D
Identify like terms and polynomials.	I
Identify unknown quantities, algebraic phrases and patterns.	D
Evaluate algebraic expressions using order of operations with integers, rational numbers, irrational numbers, with zero exponents and in function form.	I
Evaluate algebraic expressions using order of operations with positive exponents.	D
Simplify expressions: combine like terms, use distributive property, with exponents.	I
Simplify rational expressions, radical expressions, and polynomials.	I
Solve simple equations using a variable as a place holder.	m
Solve simple equations using a variable as a changing quantity.	D
Solve more complicated equations with: fractional parts, mixed numbers, decimal part, percentage; using substitution; with variables in the denominator; using systems of equations involving graphic solutions with and without technology.	I

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		DATE COMPLETED
Read, write, and solve algebraic word problems.	I	
Solve inequalities using: additive property of inequality; multiplicative property of inequality, absolute value of inequality.	I	
Factor polynomials using greatest common factor.	I	
Explore linear relationships with and without technology by identifying coordinates and graphing.	M	
Solve problems by graphing three points or identifying the slope intercept.	I	
Explore linear relationships symbolically by using the distance formula.	I	
Discuss/analyze change by measuring and comparing quantities; using tables and graphs; using equations with constant rate of change and nonlinear relationships	D	

MEASUREMENT & DATA

Use manipulatives materials to model concepts of measurement.	D	
Compare and/or order objects using appropriate units of U.S. customary system with length: 1/8, 1/16.	m	
Make conversions within U.S. customary system.	m	
Compare and/or order objects using appropriate units of the metric system: millimeter, centimeter, decimeter, meter; dekameter, hectometer; kilometer; milliliter, liter, kiloleter; gram, kilogram; conversions within system; temperature in Celsius.	M	
Recognize, read, and write time schedules.	D	
Recognize, read, and write time zones.	m	

GEOMETRY

Draw construct, and describe geometrical figures and describe the relationships between them.		
Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.		
Define, compare, demonstrate, and calculate: perimeter, area (of square, rectangle, triangle, parallelogram, trapezoid), circumference, volume.	m	
Calculate the area of a circle.	M	
Calculate the surface area of a prism.	D	
Explain and construct scale drawings.	m	
Investigate and predict the result of slide and turn.	M	
Investigate and predict the result of flip.	D	

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		DATE COMPLETED
Describe, model, draw and classify lines that are straight, intersecting, parallel, perpendicular; rays and segments; angle vertex; acute, obtuse, straight and congruent angles.	m	
Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	M	
Identify corresponding, alternate interior/exterior, vertical and bisector angles.	I	
Identify triangles: isosceles, scalene, acute, obtuse, equilateral and right.	M	
Identify right Triangle parts: hypotenuse and leg, Pythagorean Theorem, 30-60-90, 45-45-90.	I	
Identify triangles: base/height (altitude).	m	
Identify quadrilaterals: parallelograms, rhombuses, trapezoids; pentagons, hexagons, octagons.	m	
Identify quadrilaterals: heptagons, nine-sided and beyond convex, concave.	D	
Identify parts of circles: center, chord, diameter, Pi, radius.	m	
Identify degrees, arc of a circle, inscribed circles.	M	
Identify irregular shapes.	M	
Identify solid figures: prisms (triangular, rectangular); pyramid; symmetry, congruencey.	m	
Identify complex prisms (with multi-sided bases).	D	
Construct convincing arguments and proofs to solve problems using geometric figures and patterns using diagrams.	m	
Draw logical conclusions and communicate reasoning: using technology; formulate, develop, and communicate logical arguments; develop and solve problems using geometric relationships, using models and using technology.	D	

STATISTICS AND PROBABILITY

Collect and describe data using random samplings*.	D	
Organize and construct data by identifying, drawing, labeling and analyzing tables.	D	
Analyze data via circle graph.	M	
Analyze and create Venn diagram.	D	
Identify and label dependent and independent variables.	m	
Read, calculate, and interpret data: mean, median, mode, range.	m	
Read, calculate, and interpret data: quartiles.	I	
Calculate probability: single event; permutations, combinations.	D	
Calculate probability: independent events, dependent events.	I	
Format questions: Conduct experiments/surveys.	D	
Demonstrate data collection methods.	D	
Design data collection methods.	D	
Make inferences: draw conclusions, communicate results, make predictions.	D	

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PROBLEM SOLVING

Analyze and plan a problem determining the appropriate strategy by: drawing pictures, creating original problems, determining if information is sufficient to solve, relating to an easier problem, using tables, charts, graphs, and diagrams, trial and error, working backwards, sorting classifying and using patterns, estimation, choosing correct operation.	D	
Solve fraction and decimal word problems, word problems with two statements of equality, distance=rate X time.	D	
Check reasonableness of solution.	*D*	
Understand patterns and relationships by observing, comparing and creating; sorting and classifying by characteristics; predicting what comes next and identifying the missing element; distinguishing between growing and repeating patterns; representing information numerically, graphically, and verbally; discussing analyzing change.	D	

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NUMBERS AND OPERATIONS

Recognize, read, write integers.	M	
Recognize, read, write rational numbers: ratios and proportions.	m	
Recognize, read, write Roman numerals.	D	
Recognize, read, write irrational numbers.	M	
Identify Real numbers, opposites.	m	
Identify members of a "Set."	D	
Use signs of equality and inequality =, <, >.	m	
Use signs of equality and inequality ≤ ≥ ≠.	M	
Recognize, read, and write, in terms of notation: elements.	m	
Identify subsets.	D	
Identify domain and range.	M	
Add using negative numbers.	m	
Add, subtract, multiply, divide using mental math.	D	
Subtract, multiply, divide using negative numbers.	M	
Multiply using distributive property.	m	
Identify consecutive odd, even integers.	I	
Solve fraction/decimal word problems.	M	
Add fraction combinations, decimals, and/or whole numbers.	m	
Add,subtract,multiply, divide with negative fractions and decimals.	M	
Add,subtract, multiply, divide fractions and decimals using mental math.	D	
Understand fraction/decimal division by zero is irrational.	D	

ALGEBRA

Recognize, read, write, and calculate numbers using exponential notation.	m	
Recognize, read, write, and calculate using negative exponents.	D	
Recognize the result of a zero exponent.	m	
Multiply exponential expressions.	M	
Recognize, read, write, and calculate exponential numbers with negative bases.	m	
Calculate Exponents/roots; base conversion.	D	
Calculate rational square roots.	M	
Estimate irrational square roots.	D	
Calculate estimations of irrational square roots with a calculator.	m	
Calculate other roots (cubed root, fourth root, etc.); products of Square Root Theorem; signed roots (radical expressions).	M	

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		DATE COMPLETED
Recognize, read, and write numbers using scientific notation.	m	
Perform operations with numbers in scientific notation.	D	
Calculate proportions.	m	
Solve problems involving: percent of increase/decrease.	M	
Solve problems involving compound interest.	D	
Calculate by applying Order of operations, symbols of inclusion [ ], { }, insertion of symbols.	m	
Apply opposite and multiple signs, within and outside symbols of inclusion.	M	
Solve word problems with two statements of equality.	D	
Solve word problems using the distance formula: Distance= rate x time.	M	
Check reasonableness of solution.	D	
Understand patterns and relationships by observing, describing, comparing and creating; sorting and classifying by characteristics; predicting what comes next and identifying the missing element; distinguishing between growing and repeating patterns; representing information numerically, graphically, and verbally; discussing/analyzing change.	D	
Identify greatest common factor of algebraic expressions and least common multiple of algebraic expressions.	I	
Identify like terms, polynomials, unknown quantities, algebraic phrases, and patterns.	D	
Evaluate algebraic expressions using order of operations with integers, rational and irrational numbers.	D	
Evaluate algebraic expressions using order of operations with positive exponents.	M	
Evaluate algebraic expressions using order of operations with zero exponents.	D	
Evaluate algebraic expressions using order of operations with negative and variable exponents.	I	
Simplify expressions: combine like terms; using distributive property; with exponents.	D	
Simplify rational expressions; radical expressions; polynomials.	D	
Solve simple equations using a variable as a changing quantity.	D	
Solve more complicated equations with fractional parts, mixed numbers, a decimal part, and percentage.	M	
Solve more complicated equations using substitution, and with variables in the denominator.	D	
Solve more complicated equations with variables on both sides, by factoring, by isolating a variable in terms of other variables.	I	
Solve problems using systems of equations involving graphic solutions with and without technology.	D	
Read, write and solve algebraic word problems.	D	
Solve inequalities using additive property of inequality; multiplicative property of inequality; absolute value of inequality.	M	

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Use graphing technology.	I
Factor polynomials using greatest common factor.	D
Factor polynomials using grouping, FOIL.	I
Explore linear relationships with and without technology by identifying coordinates.	m
Explore linear relationships with and without technology by identifying and calculating slope; by identifying intercepts.	I
Explore linear relationships by solving and graphing three points.	M
Explore linear equations by solving and graphing using slope intercept.	D
Solve linear equations by graphing point-slope, parallel and perpendicular, horizontal and vertical.	I
Explore linear relationship symbolically by writing equations of lines given two points; the graph; slope and y-intercept; point and slope; x and y intercept.	I
Explore linear relationships symbolically by using distance formula.	D
Discuss/analyze change by measuring and comparing quantities; by using tables and graphs; by using equations with: a constant rate of change and non-linear relationships.	D
Analyze and plan the problem determining the appropriate strategy by: drawing pictures; creating original problems; determining if information is sufficient to solve; relating to an easier problem; using tables graphs and diagrams; trial and error; working backwards; sorting, classifying, and using patterns; estimation; choosing correct operation.	D
Analyze and solve pairs of simultaneous linear equations.*	D
Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	
Define, evaluate, and compare functions.	
Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. [1]	
Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
Evaluate algebraic expressions using order of operations in function form.	D

MEASUREMENT AND DATA

Use manipulative materials to model concepts of measurement.	D
Recognize, read, write time schedules.	M
Measure using the Metric system: millimeter, centimeter, decimeter, meter; dekameter, hectometer; kilometer; milliliter, liter, kiloliter; gram, kilogram; conversions within system; temperature: Celsius.	m

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GEOMETRY

Define, compare, demonstrate, and calculate area of a circle.	m	
Calculate surface area of a prism.	M	
Investigate and predict result of slide, turn.	m	
Investigate and predict result of flip.	D	
Describe, model, draw and classify angle measurement.	m	
Identify adjacent, supplementary, and complementary angles.	m	
Identify corresponding, alternate interior, alternate exterior and vertical angels; angle bisectors.	M	
Identify Polygons: isosceles, scalene, acute, obtuse, equilateral and right triangles.	m	
Identify parts of a right triangle: hypotenuse, leg; pythagorean theorem; 30-60-90, 45-45-90.	M	
Identify quadrilaterals: heptagons, nine-sided and beyond; convex, concave.	M	
Identify and measure circles: degrees, arc, inscribed circles.	m	
Identify irregular shapes.	m	
Identify solid figures: multi sided prism.	M	
Identify sine, cosine, tangent.	I	
Construct convincing arguments and proofs to solve problems using geometric figures and patterns using technology; formulate, develop and communicate logical arguments; develop and solve problems using geometric relationships, using models and using technology.	D	

STATISTICS AND PROBABILITY

Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

Collect and describe data.	D	
Organize and construct data using tables.	D	
Organize and construct data using a circle graph.	m	
Analyze and create a Venn Diagram.	D	
Read, calculate and interpret data quartiles.	D	
Calculate probability of a single event, permutations, and combinations.	D	
Calculate probability of independent events, dependent events.	M	
Format questions: Conduct experiments and surveys.	D	
Demonstrate data collecting methods.	D	
Design data collection methods.	D	

Make inferences: Draw conclusions.	D
Communicate results.	D
Make decisions, predictions.	D

PROBLEM SOLVING

Analyze and plan a problem determining the appropriate strategy by: drawing pictures, creating original problems, determining if information is sufficient to solve, relating to an easier problem, using tables, charts, graphs, and diagrams, trial and error, working backwards, sorting classifying and using patterns, estimation, choosing correct operation.	D
Solve fraction and decimal word problems, word problems with two statements of equality, distance=rate X time.	D
Check reasonableness of solution.	*D*
Understand patterns and relationships by observing, comparing and creating; sorting and classifying by characteristics; predicting what comes next and identifying the missing element; distinguishing between growing and repeating patterns; representing information numerically, graphically, and verbally; discussing analyzing change.	D

Introduction to Algebra

I=Introduce	D=Develop	I/D=Intro/Dev	M=Mastery	m=maintain

		DATE COMPLETED
Translate verbal expressions into mathematics expressions.	M	
Write an expression containing identical factors as an expression using exponents.	M	
Understand and apply the rules for order of operations to evaluate expressions.	M	
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.*	M	
Solve open sentences by performing arithmetic operations.	M	
Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	M	
Solve multi-step mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals). Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.*	M	
Recognize and use the distributive property, commutative, and associative properties to simplify expressions.	M	
Translate verbal expressions into equations and formulas.	M	
Explore problem situations by asking and answering questions.	M	
Represent mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.*	D	
Graph integers on a number line.	M	
Add and subtract integers with and/or without using a number line.	M	
Multiply and divide integers.	M	
Find the absolute value of a number.	M	
Compare, order, and understand absolute value of rational numbers.	M	
Write inequalities for graphs on number lines.	M	
Graph inequalities.	D	
Identify rational and irrational numbers.	M	
Find a number between two rational numbers.	D	
Add, subtract, multiply and divide rational numbers.	D	
Solve multi-step mathematical problems that contain rational numbers.	D	
Simplify expressions that contain rational numbers.	D	
Define variables and write equations and inequalities for problems that contain rational numbers	D	
Write verbal problems from equations.	D	

Introduction to Algebra

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DATE COMPLETED

Equations

Solve linear equations by using addition, subtraction, multiplication and division.	M	
Solve problems working backwards.	D	
Solve equations involving more than one operation.	M	
Solve equations with the variable on both sides.	M	
Solve equations containing grouping symbols, fractions, or decimals, more that one variable.	D	

Applications of Rational Numbers

Solve proportions.	M	
Solve percent problems and mixture problems.	D	
Solve problems involving simple interest, percent of increase or decrease, discount or sales tax.	M	
Solve problems by making a table or chart.	M	
Solve problems involving uniform motion by using the formula d=rt.	D	
Solve problems involving direct and inverse variations.	D	

Inequalities

Solve inequalities by using addition, subtractions, multiplication, and division.	M	
Solve inequalities involving more than one operation.	M	
Solve problems by making a diagram.	D	
Solve compound inequalities and graph their solution sets.	D	
Solve problems that involve compound inequalities.	D	
Solve open sentences involving absolute value and graph the solutions.	D	
Create equations and inequalities in one variable and use them to solve problems.*	D	
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.*	D	
Explain each step in solving a simple equation. Construct a viable argument to justify a solution method.*	D	

Polynomials

Solve problems by looking for a pattern.	D	
Multiply monomials.	M	
Simplify expression involving powers of monomials.	I	
Simplify expressions containing negative exponents.	D	
Express numbers in scientific and decimal notation.	D	
Find products and quotients of numbers expressed in scientific notation.	I	
Find the degree of a polynomial.	M	
Interpret parts of an expression, such as terms, factors, and coefficients.*	M	

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		DATE COMPLETED
Arrange the terms of polynomials so that the powers of a certain variable are in ascending or descending order.	D	
Add and subtract polynomials.	M	
Simplify expressions involving polynomials.	M	
Identify and use the FOIL method of multiply two binomials.	M	
Multiply any two polynomials by using the distributive property.	M	
Know and apply the patterns for $(a+b)^2$,$(a-b)^2$, and (a+b)(a-b).	M	

Factoring

Find the prime factorization of an integer.	M	
Find the greatest common factor (GCF) for a set of monomials.	M	
Use the GCF and the distributive property to factor polynomials.	M	
Use grouping techniques for factor polynomials with four or more terms.	I	
Solve problems by using guess and check.	I	
Factor quadratic trinomials.	I	
Identify and factor polynomials that are the differences of squares.	I	
Identify and factor perfect square trinomials.	I	
Factor polynomials by applying the various methods of factoring.	I	
Use the zero product property to solve equations.	I	

Rational Numbers and Expressions

Simplify, multiply, divide rational expressions.	M	
Divide polynomials by binomials.	I	
Add and subtract rational expressions with like and unlike denominators.	M	
Solve problems by making an organized list of the possibilities.	I	
Simplify mixed expressions and complex fractions.	M	
Solve rational and radical equations in one variable.*	I	
Solve problems involving work and uniform motion.	I	
Solve formulas for a specified variable and those that involve rational expressions.	I	

Functions and Graphs

Graph ordered pairs on a coordinate plane.	M	
Identify the domain, range, and inverse of a relation.	I	
Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse.	I	
Show relations as sets of ordered pairs and mappings.	D	
Solve linear equations for a specific variable, a given domain.	D	

Introduction to Algebra

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		DATE COMPLETED
Graph linear equations and inequalities on a coordinate plane.	M	
Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.*	I	
Know and understand the definition of a function and determine whether a given relation is a function.	I	
Calculate functional values for a given function.	I	
Write an equation to represent a relation, given a chart of values.	I	
Solve problems by using bar and line graphs.	M	
For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features.*.	D	
Understand the correspondence between algebra and coordinate geometry (i.e. graph).	M	

Graphing Linear Equations

Find the slope of a line, given the coordinates of two points on the line.	M	
Write a linear equation in standard form given the coordinates of a point on the line and the slope of the line; given the coordinates of two points on the line.	M	
Write an equation in slope-intercept form given the slope and y-intercept.	M	
Determine the x and y intercept of a graph.	M	
Graph linear equations using the x and y intercept of the slope and the y-intercept.	M	
Graph linear and quadratic functions and show intercepts, maxima, and minima.	I	
Write a linear equation in slope intercept form given the slope of a line and the coordinates of a point of the line, given the coordinates of two point on the line.	M	
Write an equation of a line that passes through a given point and is parallel or perpendicular to the graph of a given equation.	I	
Find the coordinates of a midpoint of a line segment in the coordinate plane given the coordinates of the end points.	I	
Solve problems by using pictograph, circle graphs, and comparative graphs.	D	

System of Open Sentences

Solve problems after checking for hidden assumptions.	I	
Solve simple rational and radical equations in one variable.*	M	
Solve system of equations by graphing, the substitution method, elimination method using addition and subtraction, elimination method using multiplication and addition.	M	
Solve system of equations of inequalities by graphing.	I	
Determine whether a system of equations has one solution, no solution, or infinitely many solutions by graphing.	I	

Radical Numbers and Expressions

Solve problems by using a table.	D	

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		DATE COMPLETED
Simplify rational square roots and cube roots.	M	
Find the approximate values for square roots.	D	
Use the Pythagorean Theorem.	D	
Identify irrational numbers.	D	
Rewrite expressions involving radicals and rational exponents using the properties of exponents.*	D	
Simplify rational expressions involving addition and subtraction.	M	
Solve radical equations.	M	
Find the distance between two points in the coordinate plane.	I	

Quadratics

Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the quadratic function.	I	
Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	I	
Graph quadratic functions.	I	
Find the roots of a quadratic equation by graphing.	I	
Solve problems by identifying subgoals.	I	
Solve quadratic equations by completing the square, using the quadratic formula.	I	
Evaluate the discriminant of a quadratic equation to determine the nature other roots of the equation.	I	
Solve problems that can be represented by quadratic equations.	I	
Find the sum and product of the roots of a quadratic equation.	I	
Write a quadratic equation given its roots.	I	

STATISTICS AND PROBABILITY

Interpret numerical data from a table.	M	
Represent and interpret statistical data on a line plot, on a stem-and-leaf plot.	M	
Calculate and interpret the mean, median, mode, range, quartiles, and interquartile range of a set of data.	M	
Represent and interpret statistical data on a box-and-whisker plot.	M	
Graph and interpret pairs of numbers on a scatter plot.	M	
Find the probability and/or odds of a simple event.	M	
Conduct and interpret probability experiments.	D	
Solve problems by first solving a simpler but related problem.	D	
Find the probability of a compound event.B14	D	

Addition
sum
addend
more than
regrouping

Subtraction
difference
subtrahend
less than
minuend
regrouping

Multiplication
product
factor
of

Division
remainder
quoitient
divisor
dividend

Fractions
numerator
denominator
improper
proper
mixed number
ratio
percent
decimal
simplify

Rational numbers
Irrational numbers

Equal
equivalent
less than
more than
same
greater than
is
congruent
similar