

**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

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Identify the greatest common factor of two or more whole numbers less than or equal to 100. M

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## Decimals

Compute equivalent decimals, inequalities. M

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Rename decimals as fractions and fractions as decimals. M

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Change fraction to percent and percent to fraction. m

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## Round decimals:

To the nearest billionth M

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To the nearest whole number. m

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## Compare and order numbers:

Decimals. M

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Fractions. M

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Combinations of decimal, fraction, percent. M

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Comparing sets, numbers. M

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Use  $\leq, \geq$  I

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## Recognize, read, and write place value:

To the left of the decimal through nine digits. m

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To the right of the decimal, through 6 digits and beyond. m

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## Round numbers:

To ten thousand. m

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To the nearest cent. M

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## Perform operations using whole numbers and integers:

Apply and extend previous understandings of numbers to the system of rational numbers. M

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## Add.

Estimate addition. M

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Add using negative numbers. D

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Apply the commutative property of addition. m

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Apply the associative property of addition. m

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Use mental math. D

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## Subtract.

Estimate. M

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Subtract using negative numbers. I

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Use mental math. D

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## Multiply.

Estimate. M

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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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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

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*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 geometric figures by:

Comparing and ordering objects without measuring tools:

Distance, length, and height.	m
Capacity, weight.	m
Mass.	m

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Determine proper tool for measurement, i.e. ruler, thermometer, scale, protractor	M
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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

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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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Calculate elapsed time, duration:

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

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**GEOMETRY**

Describe, model, draw, and classify:

Plane elements:

Point	m
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Line:

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

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Angles:

Vertex.	M
Measurement.	D

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Identify types of angles:

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

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Identify, draw and classify:

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

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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

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Identify, draw and classify solid figures:

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

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Investigate and predict the result of:

Slide, turn, flip.	D
Changing shapes.	m

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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

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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
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Organize and construct data.

Identify, draw, label, and analyze:

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

Identify or calculate mean, median, mode, range (average).	M
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Calculate the probability of:

Single event.	D
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Permutations, combinations.	D
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Format Questions.

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

Draw conclusion.	D
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Communicate results.	D
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Make decisions, 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
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