

# Catchup Math and the Common Core Standards

Fall 2011

The Catchup Math curriculum addresses nearly all the Common Core Mathematics Standards for Grades 6-8 and High School (including most of the “optional” high school mathematics standards, indicated in the Common Core Standards document with a (+) symbol).

For each standard, the table below shows the applicable Catchup Math curriculum.

Number	Related Catchup Math Topics	Covered in Subject and Chapter Programs	Related Flash Cards & Games
6.RP.1	Rates and Ratios; Proportions	Essentials; Pre-Algebra Chapter 6; Algebra 1 Chapter 3; Geometry Chapter 6	
6.RP.2	Unit Rates	Pre-Algebra Chapter 6; Pre- Algebra Chapter 11; Algebra 1 Chapter 3	
6.RP.3	Rates and Ratios; Percent; Equivalent Fractions; Unit Analysis	Essentials; Pre-Algebra Chapter 6; Algebra 1 Chapter 3	Percents: Level 1; Reducing Fractions
6.NS.1	Dividing by a Fraction	Essentials	Dividing Fractions
6.NS.2	Basic Operations	Essentials	
6.NS.3	Adding and Subtracting Decimals; Multiplying and Dividing with Decimals	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 1	Adding Decimals; Multiplying Decimals; Dividing Decimals
6.NS.4	Greatest Common Factors; Least Common Multiples	Essentials; Pre-Algebra Proficiency; Algebra 1 Proficiency; Pre-Algebra Chapter 3;	Greatest Common Factors
6.NS.5	Integers; Number Line	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 2	

6.NS.6	Opposites; Rational Numbers; Number Line; Ordered Pairs; Cartesian Plane	Pre-Algebra Proficiency; Algebra 1 Proficiency; Pre-Algebra Chapter 2; Pre-Algebra Chapter 3	Plot on the Number Line; Catch The Fly
6.NS.7	Absolute Value; Inequalities	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 2	Comparing Quantities
6.NS.8	Ordered Pair; Cartesian Plane	Essentials; Pre-Algebra Proficiency; Algebra 1 Chapter 2	Plotting Coordinates
6.EE.1	Exponents	Essentials; Pre-Algebra Proficiency; Algebra 1 Chapter 6	Exponents: Level 1
6.EE.2	Evaluating Expressions	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 1; Algebra 1 Chapter 1	Word Problems; Order of Operations
6.EE.3	Properties of Multiplication; Properties of Addition	Essentials; Pre-Algebra Proficiency	The Distributive Property
6.EE.4	Solving Equations	Essentials; Pre-Algebra Chapter 5	
6.EE.5	Solving Equations; Inequalities	Pre-Algebra Proficiency; Pre-Algebra Chapter 5	
6.EE.6	Word Problems; Variables	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 1; Algebra 1 Chapter 1	
6.EE.7	Solving One-Step Linear Equations	Pre-Algebra Proficiency; Pre-Algebra Chapter 10; Algebra 1 Chapter 1	
6.EE.8	Inequalities; Graphing Inequalities in One Variable	Pre-Algebra Chapter 8; Algebra 1 Proficiency	Graphing: Inequalities in One Variable

6.EE.9	Input-Output Tables; Functions; Rate-Time- Distance Problems; Direct Variation	Pre-Algebra Proficiency; Pre- Algebra Chapter 5; Algebra 1 Proficiency; Algebra 1 Chapter 3; Algebra 1 Chapter 9	
6.G.1	Area; Triangle; Square; Rectangle	Pre-Algebra Chapter 9	
6.G.2	Volume of a Prism	Pre-Algebra Chapter 9; Geometry Chapter 11	
6.G.3	Ordered Pairs; Cartesian Plane	Essentials; Pre-Algebra Proficiency; Algebra 1 Chapter 2	Catch The Fly
6.G.4	Nets; Surface Area	Pre-Algebra Proficiency; Pre- Algebra Chapter 9; Geometry Proficiency; Geometry Chapter 11	
6.SP.1	Statistical Questions	Pre-Algebra Chapter 12	
6.SP.2	Comparing Data Distributions	Pre-Algebra Chapter 12	
6.SP.3	Center and Variation of Data	Pre-Algebra Chapter 12	
6.SP.4	Line Plots; Box-and- Whisker Plots; Histograms	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1 Chapter 11	
6.SP.5	Mean, Median, Mode; Box-and-Whisker Plots; Interquartile; Range of Data	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1 Chapter 11	
7.RP.1	Unit Rates; Converting between Systems; Rates and Ratios	Essentials; Pre-Algebra Chapter 6; Pre-Algebra Chapter 11	
7.RP.2	Direct Variation; Proportions; Graphing Linear Equations; Unit	Pre-Algebra Proficiency; Geometry Proficiency;	

	Rates	Algebra 1 Chapter 3	
7.RP.3	Simple Interest; Rates and Ratios; Percent; Percent Increase and Decrease	Pre-Algebra Proficiency; Pre-Algebra Chapter 6; Algebra 1 Proficiency	
7.NS.1	Opposites; Absolute Value; Integers; Adding and Subtracting Negatives; Properties of Addition; Distributive Property	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 2	Negatives: Adding and Subtracting with Negatives, Fractions: Adding Like Fractions & Adding Unlike Fractions
7.NS.2	Multiplying a Fraction by a Fraction; Dividing by a Fraction; Multiplying and Dividing Negatives; Properties of Multiplication; Distributive Property	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 4	Negatives: Multiplying and Dividing with Negatives, Fractions: Multiplying a Fraction by an Integer, Multiplying Fractions, Dividing Fractions, Converting Fractions to Decimals
7.NS.3	Order of Operations; Multiplying a Fraction by a Fraction; Dividing by a Fraction; Multiplying and Dividing Negatives; Adding and Subtracting Negatives; Adding and Subtracting Fractions	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 4	
7.EE.1	Simplifying Expressions; Order of Operations; Distributive Property; Factoring	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 1	
7.EE.2	Word Problems: Equivalent Expressions	Pre-Algebra Chapter 1	
7.EE.3	Word Problems; Converting Fractions to Decimals; Converting Repeating Decimals to Fractions	Essentials	

7.EE.4	Solving Two-Step Linear Equations; Solving Linear Inequalities	Algebra 1 Proficiency; Algebra 1 Chapter 1; Algebra 1 Chapter 4	
7.G.1	Scale Factor; Proportions	Pre-Algebra Proficiency; Pre-Algebra Chapter 6; Algebra 1 Chapter 3; Geometry Proficiency; Geometry Chapter 6	
7.G.2	<i>Drawing/construction type</i>		
7.G.3	Cross Sections	Graduation Prep	
7.G.4	Circle; Area; Circumference	Pre-Algebra Chapter 7; Geometry Proficiency	
7.G.5	Supplementary Angles; Complementary Angles; Vertical Angles; Adjacent Angles	Pre-Algebra Proficiency; Pre-Algebra Chapter 7; Geometry Proficiency	
7.G.6	Area; Volume; Surface Area; Surface Area of a Cone; Surface Area of a Cylinder; Surface Area of a Prism; Surface Area of a Pyramid; Volume of a Prism; Volume of a Pyramid; Triangle; Quadrilateral; Cylinder; Cone; Pyramid; Prism; Polygons	Pre-Algebra Proficiency; Pre-Algebra Chapter 9; Geometry Proficiency	
7.SP.1	Random Sampling	Algebra 1 Chapter 11; Algebra 1 Chapter 13	
7.SP.2	Random Sampling	Algebra 1 Chapter 11; Algebra 1 Chapter 13	
7.SP.3	Comparing Data Distributions	Algebra 1 Chapter 11	
7.SP.4	Center and Variation of	Algebra 1 Chapter 11	

	Data		
7.SP.5	Probability	Algebra 1 Chapter 13	
7.SP.6	Probability; Developing a Probability Distribution from Empirical Data	Algebra 1 Chapter 13	
7.SP.7	Developing a Probability Distribution from Empirical Data	Algebra 1 Chapter 11	
7.SP.8	Probability Models; Sample Space; Fundamental Counting Principle	Algebra 1 Chapter 13	
8.NS.1	Irrational Numbers	Essentials; Pre-Algebra Chapter 8	
8.NS.2	Irrational Numbers; Square Roots; Rounding Decimals	Essentials; Pre-Algebra Proficiency; Pre-Algebra Chapter 8	
8.EE.1	Exponents; Negative Exponents	Algebra 1 Chapter 6	Exponents: Level 2, Properties of Exponents
8.EE.2	Square Roots; nth Roots; Perfect Squares	Pre-Algebra Proficiency; Pre-Algebra Chapter 8; Algebra 1 Chapter 8	
8.EE.3	Scientific Notation	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1 Chapter 6	
8.EE.4	Scientific Notation	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1 Chapter 6	
8.EE.5	Proportions; Direct Variation; Unit Rates	Algebra 1 Chapter 3; Geometry Proficiency	Graphing: Slope
8.EE.6	Slope; Similar Triangles; Slope-Intercept Form	Pre-Algebra Chapter 10; Algebra 1 Proficiency; Algebra 1 Chapter 2; Algebra	Graphing: Slope-Intercept Form

		2 Proficiency	
8.EE.7	Solving Multistep Linear Equations; Combining Like Terms	Algebra 1 Proficiency; Algebra 1 Chapter 1	
8.EE.8	Solving Systems of Linear Equations; Solving Systems of Linear Equations Using Elimination Method; Solving Systems of Linear Equations Using Graphing Method; Solving Systems of Linear Equations Using Substitution Method	Algebra 1 Proficiency; Algebra 1 Chapter 5; Algebra 2 Chapter 3	
8.F.1	Functions; Input-Output Tables	Algebra 1 Proficiency; Algebra 1 Chapter 9	
8.F.2	Comparing Functions	Algebra 1 Chapter 9	
8.F.3	Slope-Intercept Form	Algebra 1 Chapter 2	
8.F.4	Linear Models	Pre-Algebra Chapter 5; Pre-Algebra Chapter 10	
8.F.5	Functions: Describing Behavior	Algebra 1 Chapter 9	
8.G.1	Transformations of Graphs	Pre-Algebra Chapter 7; Geometry Proficiency; Geometry Chapter 8	
8.G.2	Transformations of Graphs; Congruent Segments; Congruent Angles	Pre-Algebra Chapter 7; Geometry Proficiency; Geometry Chapter 8	
8.G.3	Transformations of Graphs; Dilation	Pre-Algebra Chapter 7; Geometry Proficiency; Geometry Chapter 8	
8.G.4	Transformations of Graphs; Dilation; Similar	Pre-Algebra Chapter 7; Geometry Proficiency;	

	Figures	Geometry Chapter 8	
8.G.5	Angle Sum Theorem; Exterior Angle Theorem; Transversal; Corresponding Angles; Corresponding Angles Postulate; Alternate Exterior Angles; Alternate Exterior Angle Theorem; Alternate Interior Angles; Alternate Interior Angle Theorem; AA Similarity	Pre-Algebra Chapter 7; Geometry Proficiency; Geometry Chapter 3	
8.G.6	Pythagorean Theorem	Pre-Algebra Chapter 8; Algebra 1 Proficiency; Geometry Chapter 7	
8.G.7	Pythagorean Theorem; Pythagorean Triples	Pre-Algebra Chapter 8; Algebra 1 Proficiency	
8.G.8	Pythagorean Theorem; Distance Formula	Pre-Algebra Proficiency; Pre-Algebra Chapter 8; Algebra 1 Proficiency; Geometry Proficiency	Graphing: Distance Formula
8.G.9	Volume of a Cone; Volume of a Prism; Volume of a Cylinder; Volume of a Sphere	Pre-Algebra Chapter 9; Geometry Chapter 11	
8.SP.1	Scatter Plots	Algebra 1 Proficiency; Algebra 1 Chapter 11	
8.SP.2	Line of Best Fit (Eyeball Method)	Custom Programs	
8.SP.3	Linear Models	Pre-Algebra Chapter 5; Pre-Algebra Chapter 10	
8.SP.4	Correlation and Causal Relation; Frequency Distributions	Algebra 1 Chapter 11	
N-RN.1	Rational Exponents	Algebra 1 Chapter 8	



N-RN.2	Properties of Exponents; Properties of Square Roots; Simplifying Radical Expressions; Nth Roots	Algebra 1 Chapter 6	
N-RN.3	Rational Numbers	Pre-Algebra Chapter 4	
N-Q.1	Unit Analysis; Convert Units of Area and Volume; Convert Between Systems	Pre-Algebra Chapter 11	
N-Q.2	Choosing Appropriate Units of Measure	Pre-Algebra Chapter 11	
N-Q.3	Significant Digits	Pre-Algebra Chapter 11	
N-CN.1	Complex Numbers	Algebra 2 Proficiency; Algebra 2 Chapter 5	
N-CN.2	Operations with Complex Numbers; Adding and Subtracting Complex Numbers; Multiplying Complex Numbers	Algebra 2 Proficiency; Algebra 2 Chapter 5	
N-CN.3 (+)	Operations with Complex Numbers; Dividing Complex Numbers; Conjugates; Absolute Value of a Complex Number	Algebra 2 Proficiency; Algebra 2 Chapter 5	
N-CN.4 (+)	Polar Coordinates; Complex Numbers	Custom Programs	
N-CN.5 (+)	Operations on Complex Numbers; Adding and Subtracting Complex Numbers; Multiplying Complex Numbers; Dividing Complex Numbers; Conjugates	Custom Programs	
N-CN.6	Distance Formula; Complex Numbers;	Custom Programs	

(+)	Absolute Value of a Complex Number; Midpoint Formula		
N-CN.7	Quadratic Formula	Algebra 1 Chapter 10	
N-CN.8 (+)	Multiplying Complex Numbers	Custom Programs	
N-CN.9 (+)	Fundamental Theorem of Algebra	Custom Programs	
N-VM.1 (+)	Vectors; Magnitude and Direction of Vectors	Geometry Chapter 7	
N-VM.2 (+)	Vectors	Geometry Chapter 7	
N-VM.3 (+)	Solving Problems with Vectors	Custom Programs	
N-VM.4 (+)	Adding and Subtracting Vectors	Custom Programs	
N-VM.5 (+)	Scalar Multiplication of Vectors	Custom Programs	
N-VM.6 (+)	Matrices	Algebra 2 Proficiency; Algebra 2 Chapter 4	
N-VM.7 (+)	Scalar Multiplication of Matrices	Algebra 2 Proficiency; Algebra 2 Chapter 4	
N-VM.8 (+)	Adding and Subtracting Matrices; Compatible Matrices; Matrix Multiplication	Algebra 2 Proficiency; Algebra 2 Chapter 4	
N-VM.9 (+)	Matrix Multiplication	Algebra 2 Proficiency; Algebra 2 Chapter 4	
N-VM.10 (+)	Identity Matrix	Algebra 2 Chapter 4	
N-VM.11	Multiplying a Vector by a	Custom Programs	

(+)	Matrix		
N-VM.12 (+)	Transformations of the Plane Using Matrices	Custom Programs	
A-SSE.1	Factors; Combining Like Terms	Pre-Algebra Proficiency; Pre-Algebra Chapter 1; Algebra 1 Proficiency	
A-SSE.2	Factoring by Grouping; Difference of Squares; Perfect Squares	Algebra 1 Proficiency; Algebra 1 Chapter 6; Algebra 2 Chapter 5	
A-SSE.3	Solving Quadratic Equations by Square Roots; Completing the Square; Vertex of a Parabola; Exponential Functions	Algebra 1 Chapter 6; Algebra 2 Proficiency	
A-SSE.4	Sum of a Finite Geometric Series; Geometric Sequences	Algebra 2 Proficiency; Algebra 2 Chapter 9	
A-APR.1	Monomials, Binomials and Polynomials	Algebra 2 Proficiency	
A-APR.2	Remainder Theorem	Algebra 1 Chapter 7	
A-APR.3	Graphing Polynomial Functions	Algebra 2 Chapter 6	
A-APR.4	Monomials, Binomials and Polynomials; Square of a Binomial; Difference of Squares	Algebra 1 Proficiency; Algebra 1 Chapter 6	
A-APR.5 (+)	Binomial Theorem; Yang Hui's Triangle	Custom Programs	
A-APR.6	Dividing Polynomials; Simplifying Rational Expressions	Algebra 2 Proficiency; Algebra 2 Chapter 7	
A-APR.7	Adding and Subtracting	Custom Programs	

(+)	Rational Expressions with Unlike Denominators; Adding and Subtracting Rational Expressions with Like Denominators; Simplifying Rational Expressions		
A-CED.1	Word Problems: One-Step Linear Equations; Word Problems: Linear Models; Falling Object Model; Exponential Growth; Exponential Decay	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 2 Proficiency	
A-CED.2	Graphing Linear Equations; Graphing Linear Inequalities in Two Variables; Graphing Quadratic Equations	Algebra 1 Chapter 2; Algebra 1 Chapter 4; Algebra 1 Chapter 10	
A-CED.3	Systems of Linear Inequalities; Writing Systems of Linear Equations from Word Problems	Algebra 1 Chapter 5	
A-CED.4	Formulas	Algebra 1 Chapter 1; Algebra 2 Chapter 1	
A-REI.1	Properties of Equality; Properties of Inequality; Properties of Addition; Properties of Multiplication	Geometry Chapter 2	
A-REI.2	Solving Rational Equations; Solving Radical Equations; Extraneous Solutions	Algebra 1 Chapter 7; Algebra 1 Chapter 8	
A-REI.3	Solving One-Step Linear Equations; Solving Linear Equations; Solving One-Step Linear Inequalities;	Algebra 1 Proficiency; Algebra 1 Chapter 1; Algebra 1 Chapter 4	

	Solving Linear Inequalities		
A-REI.4	Solving Quadratic Equations by Square Roots; Completing the Square; Solving Quadratic Equations Using Factoring; Quadratic Formula	Algebra 1 Proficiency; Algebra 1 Chapter 10	
A-REI.5	Solving Systems of Linear Equations; Properties of Equality		
A-REI.6	Solving Systems of Linear Equations; Solving Systems of Linear Equations Using Graphing; Solving Systems of Linear Equations Using Substitution; Solving Systems of Linear Equations Using Elimination	Algebra 1 Proficiency; Algebra 1 Chapter 5	
A-REI.7	Solving Systems of Linear Equations	Algebra 1 Proficiency; Algebra 1 Chapter 5	
A-REI.8 (+)	Solving Matrix Equations		
A-REI.9 (+)	Solving Systems of Linear Equations Using Matrices; Inverse of a Matrix	Algebra 2 Chapter 4	
A-REI.10	Functions	Algebra 1 Proficiency	
A-REI.11	Functions; Solving Systems of Equations by Graphing	Algebra 2 Proficiency	
A-REI.12	Graphing Linear Inequalities in Two Variables; Systems of Linear Inequalities	Algebra 2 Proficiency; Algebra 2 Chapter 3	
F-IF.1	Domains; Domain and	Algebra 1 Proficiency; Algebra 1 Chapter 9; Algebra	

	Range; Functions	2 Chapter 2	
F-IF.2	Functions	Algebra 1 Chapter 9; Algebra 2 Chapter 2	
F-IF.3	Sequences; Recursive Sequences; Fibonacci Numbers	Algebra 2 Proficiency; Algebra 2 Chapter 9	
F-IF.4	Describing the Graph of a Function	Algebra 1 Chapter 9; Algebra 2 Proficiency	
F-IF.5	Domains; Domain and Range	Algebra 1 Chapter 9; Algebra 2 Chapter 2	
F-IF.6	Domains; Domain and Range	Algebra 1 Chapter 9; Algebra 2 Chapter 2	
F-IF.7	Graphing Linear Equations; Graphing Quadratic Equations; x-Intercepts; x-Intercepts of a Parabola; y-Intercepts; Graphing Square Root Functions; Vertex of a Parabola; Piecewise-Defined Functions; Graphing Polynomial Functions; Graphing Exponential and Logarithmic Functions	Algebra 1 Proficiency; Algebra 2 Proficiency; Algebra 2 Chapter 1; Algebra 2 Chapter 5; Algebra 2 Chapter 6; Algebra 2 Chapter 8	
F-IF.8	Axis of Symmetry of a Parabola; Vertex of a Parabola; x-Intercepts of a Parabola; Exponential Functions; Exponential Decay	Algebra 2 Proficiency; Algebra 2 Chapter 5; Algebra 2 Chapter 8	
F-IF.9	Functions	Algebra 1 Proficiency; Algebra 1 Chapter 9; Algebra 2 Chapter 2	
F-BF.1	Functions; Composition of Functions	Algebra 2 Proficiency; Algebra 2 Chapter 7	

F-BF.2	Geometric Sequences; Arithmetic Sequences	Algebra 2 Chapter 9	
F-BF.3	Graphing Exponential and Logarithmic Functions; Parabolas	Algebra 2 Chapter 5; Algebra 2 Chapter 8	
F-BF.4	Inverse Functions	Algebra 2 Proficiency; Algebra 2 Chapter 7	
F-BF.5 (+)	Exponential and Logarithmic Functions; Logarithmic to Exponential Form	Algebra 2 Proficiency; Algebra 2 Chapter 8	
F-LE.1	<i>Modeling Type</i>		
F-LE.2	<i>Modeling Type</i>		
F-LE.3	<i>Modeling Type</i>		
F-LE.4	<i>Modeling Type</i>		
F-LE.5	<i>Modeling Type</i>		
F-TF.1	Radian Measure of an Angle; Radian to Degree Measure	Algebra 2 Chapter 10	
F-TF.2	Trigonometric Ratios; Reference Angle	Algebra 2 Chapter 10	
F-TF.3 (+)	Trigonometric Values for Common Angles; 30-60-90 Triangles; 45-45-90 Triangles	Algebra 2 Chapter 10	
F-TF.4 (+)	Reference Angle; Even and Odd Functions; Trigonometric Functions; Co-Function and Odd/Even Identities	Custom Programs	
F-TF.5	<i>Modeling type</i>		

F-TF.6 (+)	Inverse Trigonometric Functions	Custom Programs	
F-TF.7 (+)	Inverse Trigonometric Functions	Custom Programs	
F-TF.8	Trigonometric Identities	Algebra 2 Chapter 11	
F-TF.9 (+)	Trigonometric Identities	Algebra 2 Chapter 11	
G-CO.1	Angles; Circle; Perpendicular Lines; Parallel and Perpendicular Lines; Lines, Segments, and Rays; Arcs	Geometry Chapter 1	
G-CO.2	Transformations of Graphs; Center of Rotation	Geometry Proficiency; Geometry Chapter 8	
G-CO.3	Line Symmetry	Geometry Proficiency; Geometry Chapter 8	
G-CO.4	Transformations of Graphs	Geometry Proficiency; Geometry Chapter 8	
G-CO.5	Transformations of Graphs	Geometry Proficiency; Geometry Chapter 8	
G-CO.6	Transformations of Graphs	Geometry Proficiency; Geometry Chapter 8	
G-CO.7	Congruent Triangles	Geometry Proficiency	
G-CO.8	Congruent Triangles; AAS Postulate; ASA Postulate; SAS Postulate; SSS Postulate	Geometry Proficiency; Geometry Chapter 4	
G-CO.9	Vertical Angles; Alternate Interior Angles Theorem; Alternate Exterior Angles Theorem; Alternate Interior Angles; Alternate Exterior Angles; Corresponding Angles;	Geometry Proficiency; Geometry Chapter 3	



	Corresponding Angles Postulate; Perpendicular Transversal Theorem; Perpendicular Bisector		
G-CO.10	Angle Sum Theorem; Isosceles Triangle Theorem; Converse of the Isosceles Triangle Theorem; Medians of a Triangle; Triangle Midsegment Theorem; Triangle Inequality Theorem; Triangle Angle Bisector Theorem	Geometry Proficiency; Geometry Chapter 4	
G-CO.11	Parallelogram; Diagonals of a Parallelogram	Geometry Proficiency; Geometry Chapter 5	
G-CO.12	<i>Drawing/construction type</i>		
G-CO.13	<i>Drawing/construction type</i>		
G-SRT.1	Dilation; Scale Factor	Geometry Proficiency; Geometry Chapter 6	
G-SRT.2	Similar Triangles; SSS Similarity	Geometry Proficiency; Geometry Chapter 6	
G-SRT.3	AA Similarity	Geometry Proficiency; Geometry Chapter 6	
G-SRT.4	Triangle Proportionality Theorem	Geometry Proficiency; Geometry Chapter 6	
G-SRT.5	Similar Triangles	Geometry Proficiency; Geometry Chapter 6	
G-SRT.6	Trigonometric Ratios	Geometry Proficiency; Geometry Chapter 7	
G-SRT.7	Trigonometric Identities; Co-Function and Odd/Even Identities	Geometry Chapter 7	

G-SRT.8	Trigonometric Ratios	Geometry Proficiency; Geometry Chapter 7	
G-SRT.9 (+)	Sine Formula for the Area of a Triangle	Custom Programs	
G-SRT.10 (+)	Law of Sines; Law of Cosines	Geometry Proficiency; Algebra 2 Proficiency	
G-SRT.11 (+)	Law of Sines; Law of Cosines	Geometry Proficiency; Algebra 2 Proficiency	
G-C.1	Circles	Geometry Chapter 9	
G-C.2	Central Angles; Radius; Chord	Geometry Proficiency; Geometry Chapter 9	
G-C.3	Inscribing a Quadrilateral	Geometry Chapter 5	
G-C.4 (+)	<i>Drawing/construction type</i>		
G-C.5	Sectors; Intersecting Chords	Geometry Proficiency; Geometry Chapter 9	
G-GPE.1	Equation of a Circle	Geometry Proficiency;	
G-GPE.2	Focus; Parabolas	Algebra 2 Chapter 12	
G-GPE.3 (+)	Ellipse; Hyperbolas; Major and Minor Axes of Conics; Focus	Algebra 2 Chapter 12	
G-GPE.4	Coordinate Proofs	Custom Programs	
G-GPE.5	Slope; Parallel and Perpendicular Lines	Geometry Proficiency; Geometry, Chapter 3	Algebra vs. The Cockroaches
G-GPE.6	Segment Addition Postulate	Geometry Proficiency; Geometry, Chapter 1	
G-GPE.7	Perimeter; Distance Formula	Geometry Proficiency; Geometry, Chapter 7	
G-GMD.1	Circle	Geometry Proficiency; Geometry, Chapter 9	

G-GMD.2 (+)	Volume of a Sphere	Geometry, Chapter 11	
G-GMD.3	Volume of a Cone; Volume of a Cylinder; Volume of a Pyramid; Volume of a Sphere	Geometry Proficiency; Geometry, Chapter 11	
G-GMD.4	Cross Sections; Two-Dimensional Views of Three-Dimensional Objects	Custom Programs	
G-MG.1	<i>Modeling type</i>		
G-MG.2	<i>Modeling type</i>		
G-MG.3	<i>Modeling type</i>		
S-ID.1	Line Plots; Box-and-Whisker Plots; Histograms	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1, Chapter 11	
S-ID.2	Mean, Median, Mode; Interquartile; Standard Deviation; Normal Distribution	Pre-Algebra Proficiency; Algebra 1 Proficiency; Algebra 1, Chapter 11	
S-ID.3	Mean, Median, Mode	Pre-Algebra Proficiency; Algebra 1 Proficiency;	
S-ID.4	Standard Deviation; Normal Distribution	Custom Programs	
S-ID.5	Frequency Distributions	Algebra 1, Chapter 11	
S-ID.6	Scatter Plots	Algebra 1 Proficiency; Algebra 1, Chapter 11; Algebra 2, Chapter 2	
S-ID.7	Normal Distribution; Standard Deviation; Probability Models		
S-ID.8	Line of Best Fit	Algebra 1, Chapter 11	

S-ID.9	Correlation and Causal Relation	Custom Programs	
S-IC.1	Random Sampling	Custom Programs	
S-IC.2	Center and Variation of Data	Custom Programs	
S-IC.3	Random Sampling	Algebra 1, Chapter 13	
S-IC.4	Random Sampling	Algebra 1, Chapter 13	
S-IC.5	Developing a Probability Distribution from Empirical Data; Probability Distributions	Custom Programs	
S-IC.6	Developing a Probability Distribution from Empirical Data; Probability Distributions	Custom Programs	
S-CP.1	Sample Space; Complement of an Event	Algebra 1, Chapter 13	
S-CP.2	Independent and Dependent Events; Independent Events	Algebra 1, Chapter 13	
S-CP.3	Conditional Probability; Independent and Dependent Events	Algebra 1, Chapter 13	
S-CP.4	Developing a Probability Distribution from Empirical Data	Custom Programs	
S-CP.5	Conditional Probability; Independent and Dependent Events; Independent Events	Algebra 1, Chapter 13	
S-CP.6	Conditional Probability	Algebra 1, Chapter 13	
S-CP.7	Addition Rule of Probability; Mutually	Algebra 1, Chapter 13	

	Exclusive Events		
S-CP.8 (+)	Multiplication Rule of Probability	Custom Programs	
S-CP.9 (+)	Permutations; Combinations	Algebra 1, Chapter 13	
S-MD.1 (+)	Random Variables	Custom Programs	
S-MD.2 (+)	Expected Value	Custom Programs	
S-MD.3 (+)	Probability Distribution	Custom Programs	
S-MD.4 (+)	Developing a Probability Distribution from Empirical Data; Probability Distributions	Custom Programs	
S-MD.5 (+)	Word Problems: Expected Value	Custom Programs	
S-MD.6 (+)	Using Expected Value to Make Decisions	Custom Programs	
S-MD.7 (+)	Using Expected Value to Make Decisions	Custom Programs	

There are a few types of standards which are not covered, for the reasons detailed below.

### **Modeling**

While five of the six conceptual categories—Number and Quantity, Algebra, Functions, Geometry, and Statistics/Probability—are well-covered, the sixth category, Modeling, is not a major focus of CatchupMath. Our program aims to give students the practice they need to master the core skills and cement their conceptual understanding; we feel that *applying* these skills and concepts to real-world problems is better practiced in the classroom than with a computer tutor. Still, where possible, CatchupMath does include word problems which require students to find mathematical models for a described situation.

### **Explain/Prove**

Some standards state that a student is expected to “explain why” or “prove” that something is true. Through activities, videos, and practice problems, CatchupMath does its best to give students the tools they need to explain concepts and prove theorems. However, the program cannot assess the student’s ability to make a strong verbal argument or write a valid proof; this is necessarily left to the classroom teacher.

### **Drawing/Constructions**

Certain types of drawing and construction skills are not covered by Catchup Math, for example: geometric constructions with ruler and compass; drawings of two-dimensional representations of three-dimensional objects on isometric grid paper.

### **Mathematical Practices**

At the beginning levels of Catchup Math, <http://catchupmath.com/how-it-works>, the Practice Problems and Quiz Problems focus primarily on computation and algorithms. However, as students progress through the programs, they will encounter more problems asking them to utilize the Common Core Mathematical Practices, such as:

- Decontextualizing: e.g., our Word Problems activity requires students to write a formula for situations described in words (MP 2)
- Performing error analysis: e.g., we require students to identify the incorrect step in worked solutions (MP 3)
- Using and relating models: e.g., our Interactive Function activity relates two-column tables, graphs, and mapping diagrams (MP 4)
- Using appropriate tools strategically: e.g., we suggest when to use a calculator or look something up in a standard deviation table (MP 5)
- Attending to precision: e.g., when students enter answers to wrong degree of accuracy, we request that students improve the answer. (MP 6)

Catchup Math models good mathematical practices for students in both the written and video lessons as well as in our worked-out solutions to practice problems. Students are encouraged to use our Interactive Whiteboard to hand-write explanations, justifications, and strategies, for teacher observation and analysis of student progress.