

SEC K-12 Mathematics Taxonomy

100	Nbr. sense /Properties/ Relationships
200	Operations
300	Measurement
400	Consumer Applications
500	Basic Algebra
600	Advanced Algebra
700	Geometric Concepts
800	Advanced Geometry

900	Data Displays
1000	Statistics
1100	Probability
1200	Analysis
1300	Trigonometry
1400	Special Topics
1500	Functions
1600	Instructional Technology

Other Coding Conventions

Topics:

0	All
999	Out of Subject Area

Cognitive Demands:

B	Memorize
C	Perform Procedures
D	Demonstrate Understanding
E	Conjecture/Analyze
F	Solve Non-Routine Problems
Z	Non-Specific Cognitive Demand

K-12 Mathematics Taxonomy

100	Nbr. sense /Properties/ Relationships
101	Place value
102	Whole numbers and Integers
103	Operations
104	Fractions
105	Decimals
106	Percents
107	Ratio and proportion
108	Patterns
109	Real and/or Rational numbers
110	Exponents and scientific notation
111	Factors, multiples, and divisibility
112	Odd/even/prime/composite/square numbers
113	Estimation
114	Number Comparisons (order, magnitude, relative size, inverse, opposites, equivalent forms, scale or number line)
115	Order of operations
116	Computational Algorithms
117	Relationships between operations
118	Number Theory (e.g. base-ten and non-base-ten systems)
119	Mathematical properties (e.g., distributive property)
190	Other
200	Operations
201	Add/subtract whole numbers and integers
202	Multiply whole numbers and integers
203	Divide whole numbers and integers
204	Combinations of operations on whole numbers or integers
205	Equivalent and non-equivalent fractions
206	Add/subtract fractions
207	Multiply fractions
208	Divide fractions
209	Combinations of operations on fractions
210	Ratio and proportion
211	Representations of fractions
212	Equivalence of decimals, fractions, and percents
213	Add/ subtract decimals
214	Multiply decimals
215	Divide decimals
216	Combinations of operations on decimals
217	Computing with percents
218	Computing with exponents and radicals
290	Other

300	Measurement
301	Use of measuring instruments
302	Theory (arbitrary, standard units and unit size)
303	Conversions
304	Metric (SI) system
305	Length and perimeter
306	Area and volume
307	Surface Area
308	Direction, Location, Navigation
309	Angles
310	Circles (e.g., pi, radius, area)
311	Mass (weight)
312	Time and temperature
313	Money
314	Derived measures (e.g., rate and speed)
315	Calendar
316	Accuracy and Precision
390	Other
400	Consumer Applications
401	Simple interest
402	Compound interest
403	Rates (e.g., discount and commission)
404	Spreadsheets
490	Other
500	Basic Algebra
501	Absolute value
502	Use of variables
503	Evaluation of formulas, expressions, and equations
504	One-step equations
505	Coordinate Planes
506	Patterns
507	Multi-step equations
508	Inequalities
509	Linear and non-linear relations
510	Rate of change/slope/line
511	Operations on polynomials
512	Factoring
513	Square roots and radicals
514	Operations on radicals
515	Rational expressions
516	Multiple representations
590	Other

K-12 Mathematics Taxonomy

600	Advanced Algebra
601	Quadratic equations
602	Systems of equations
603	Systems of inequalities
604	Compound Inequalities
605	Matrices and determinants
606	Conic sections
607	Rational, negative exponents/radicals
608	Rules for exponents
609	Complex numbers
610	Binomial theorem
611	Factor/remainder theorem
612	Field properties of real number system
613	Multiple representations
690	Other
700	Geometric Concepts
701	Basic terminology
702	Points, lines, rays, segments, and vectors
703	Patterns
704	Congruence
705	Similarity
706	Parallels
707	Triangles
708	Quadrilaterals
709	Circles
710	Angles
711	Polygons
712	Polyhedra
713	Models
714	3-D relationships
715	Symmetry
716	Transformations (e.g., flips or turns)
717	Pythagorean Theorem
790	Other
800	Advanced Geometry
801	Logic, reasoning, and proofs
802	Loci
803	Spheres, cones, and cylinders
804	Coordinate Geometry
805	Vectors
806	Analytic Geometry
807	Non-Euclidean Geometry
808	Topology
890	Other

900	Data Displays
901	Summarize data in a table or graph
902	Bar graph and histograms
903	Pie charts and circle graphs
904	Pictographs
905	Line graphs
906	Stem and Leaf plots
907	Scatter plots
908	Box plots
909	Line plots
910	Classification and Venn diagrams
911	Tree diagrams
990	Other
1000	Statistics
1001	Mean, median, and mode
1002	Variability, standard deviation, and range
1003	Line of best fit
1004	Quartiles and percentiles
1005	Bivariate distribution
1006	Confidence intervals
1007	Correlation
1008	Hypothesis testing
1009	Chi Square
1010	Data Transformation
1011	Central Limit Theorem
1090	Other
1100	Probability
1101	Simple probability
1102	Compound probability
1103	Conditional probability
1104	Empirical probability
1105	Sampling and Sample spaces
1106	Independent vs. dependent events
1107	Expected value
1108	Binomial distribution
1109	Normal curve
1190	Other
1200	Analysis
1201	Sequences and series
1202	Limits
1203	Continuity
1204	Rates of change
1205	Maxima, Minima, and Range
1206	Differentiation
1207	Integration
1290	Other

K-12 Mathematics Taxonomy

1300	Trigonometry
1301	Basic ratios
1302	Radian measure
1303	Right triangle trigonometry
1304	Law of Sines and Cosines
1305	Identities
1306	Trigonometric equations
1307	Polar coordinates
1308	Periodicity
1309	Amplitude
1390	Other
1400	Special Topics
1401	Sets
1402	Logic
1403	Mathematical induction
1404	Linear programming
1405	Networks
1406	Iteration and recursion
1407	Permutation combinations
1408	Simulations
1409	Fractals
1490	Other
1500	Functions
1501	Notation
1502	Relations
1503	Linear
1504	Quadratic
1505	Polynomial
1506	Rational
1507	Logarithmic
1508	Exponential
1509	Trigonometric and circular
1510	Inverse
1511	Composition
1590	Other
1600	Instructional Technology
1601	Use of calculators
1602	Use of graphing calculators
1603	Use of computers and internet
1604	Computer programming
1605	Use of Spreadsheets
1690	Other

Cognitive Demand Categories for Mathematics

B	C	D	E	F
Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Analyze, Generalize, Prove	Solve Non-Routine Problems / Make Connections
<u>Recite basic mathematical facts</u>	<u>Use numbers to count, order, denote</u>	<u>Communicate mathematical ideas</u>	<u>Determine the truth of a mathematical pattern or proposition</u>	<u>Apply and adapt a variety of appropriate strategies to solve non-routine problems</u>
<u>Recall mathematics terms and definitions</u>	<u>Do computational procedures or algorithms</u>	<u>Use representations to model mathematical ideas</u>	<u>Write formal or informal proofs</u>	<u>Apply mathematics in contexts outside of mathematics</u>
<u>Recall formulas and computational procedures</u>	<u>Follow procedures / instructions</u>	<u>Explain findings and results from data analysis strategies</u>	<u>Recognize, generate or create patterns</u>	<u>Apply to real world situations</u>
	<u>Solve equations/formulas/routine word problems</u>	<u>Develop/explain relationships between concepts</u>	<u>Find a mathematical rule to generate a pattern or number sequence</u>	<u>Synthesize content and ideas from several sources</u>
	<u>Organize or display data</u>	<u>Show or explain relationships between models, diagrams, and/or other representations</u>	<u>Make and investigate mathematical conjectures</u>	
	<u>Read or produce graphs and tables</u>		<u>Identify faulty arguments or misrepresentations of data</u>	
	<u>Execute geometric constructions</u>		<u>Reason inductively or deductively</u>	