CCSS-M PROGRESSIONS and *MATHLINKS*: CORE (Grades 6-8)

This chart shows how topics in MathLinks: Core (Grades 6-8) intersect the progressions of clusters in the Common Core State Standards in Mathematics (CCSS-M) from grades 4-High School (Mathematics 1).

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	High School Mathematics 1
Number – Base-10	**Number – Base 10**	**The Number System**	**The Number System**	**The Number System**	**Number and Quantity**
Major Clusters	**Major Clusters**	**Major Clusters**	**Major Clusters**	**Supporting / Additional Clusters**	**Quantity**
4.NBT.1-3 Generalize place value understanding for multi-digit whole numbers.	5.NBT.1-4 Understand the place value system.	6.NS.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions. (Lessons 4.3, 4.4)	7.NS.1-3 Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers. (Lessons 1.2, 1.3, 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 6.4, 7.1, 7.2, 7.3, 7.4, 9.1, 9.2, 9.3)	8.NS.1-2 Know that there are numbers that are not rational, and approximate them by rational numbers. (Lessons 2.1, 2.3)	Reason quantitatively and use units to solve problems.
4.NBT.4-6 Use place value understanding and properties of operations to perform multi-digit arithmetic.	5.NBT.5-7 Perform operations with multidigit whole numbers and decimals to hundredths.	6.NS.5-8 Apply and extend previous understandings of numbers to the system of rational numbers. (Lessons 10.1, 10.2, 10.3)			
Number – Fractions	**Number – Fractions**				
Major Clusters	**Major Clusters**	**Supporting / Additional Clusters**			
4.NF.1-2 Extend understand-ing of equivalence and ordering.	5.NF.1-2 Use equivalent fractions as a strategy to add and subtract fractions.	6.NS.2-4 Compute fluently with multi-digit numbers and find common factors and multiples. (Lessons 2.1, 2.2, 2.3, 4.1, 4.2, 5.1, 6.1, 6.2, 6.3, 7.3, 7.3)			
4.NF.3-4 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	5.NF.3-7 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.				
4.NF.5-7 Understand decimal notation for fractions and compare decimal fractions.					
Operations and Algebraic Thinking					
Supporting Cluster					
4.OA.4 Gain familiarity with factors and multiples.					

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	High School Mathematics 1
Operations and Algebraic Thinking	**Operations and Algebraic Thinking**	**Expressions and Equations**	**Expressions and Equations**	**Expressions and Equations**	**Algebra**
Major Clusters	**Supporting / Additional Clusters**	**Major Clusters**	**Major Clusters**	**Major Clusters**	**Seeing Structure in Expressions**
4.OA.1-3 Use the four operations with whole numbers to solve problems.	5.OA.1-2 Write and interpret numerical expressions	6.EE.1-4 Apply and extend previous understandings of arithmetic to algebraic expressions. (Lessons 6.1, 6.2, 6.3, 7.1, 7.2, 7.3, 9.1, 9.2, 9.3)	7.EE.1-2 Use properties of operations to generate equivalent expressions. (Lessons 2.1, 2.2, 6.1, 6.3, 6.4, 7.2, 7.3, 7.4)	8.EE.1-4 Work with radical and integer exponents. Lessons 2.1, 3.1, 3.2, 3.3, 10.1, 10.2, 10.3)	Interpret the structure of expressions.
	5.OA.3 Analyze patterns and relationships	6.EE.5-8 Reason about and solve one-variable equations and inequalities. (Lessons 6.2, 6.3, 7.1, 7.2, 7.3, 8.1, 8.2, 8.3, 9.1, 9.2, 9.3, 10.2)	7.EE.3-4 Solve real-life and mathematical problems using numerical and algebraic expressions and equations. (Lessons 2.1, 2.2, 3.2, 3.3, 5.1, 6.4, 7.1, 7.2, 7.3, 7.4, 8.1)	8.EE.5-6 Understand the connections between proportional relationships, lines, and linear equations. (Lessons 4.1, 4.3, 5.1, 5.2, 5.3, 10.3) 8.EE.7-8 Analyze and solve linear equations and pairs of simultaneous linear equations. (Lessons 7.1, 7.2, 7.3, 8.1, 8.2, 8.3)	**Creating Equations** Create equations that describe numbers and relationships. **Reasoning with Equations and Inequalities** Understand solving equations as a process of reasoning and explain the reasoning. Solve equations and inequalities in one variable. Solve systems of equations. Represent and solve equations and inequalities graphically.

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	High School Mathematics 1
Operations and Algebraic Thinking **Supporting Clusters** 4.OA.5 Generate and analyze patterns. **Measurement / Data** **Supporting Cluster** 4.MD.1-3 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	**Measurement / Data** **Supporting / Additional Cluster** 5.MD.1 Convert like measurement units within a given measurement system. **Geometry** **Supporting Cluster** 5.G.1-2 Graph points on the coordinate plane to solve real-world and mathematical problems.	**Ratios and Proportional Relationships** **Major Cluster** 6.RP.1-3 Understand ratio concepts and use ratio reasoning to solve problems. (Lessons 3.1, 3.2, 3.3,3.4, 4.2, 5.1, 5.2, 5.3, 7.1, 7.2, 7.3) **Expressions and Equations (EE)** **Major Cluster** 6.EE.9 Represent and analyze quantitative relationships between dependent and independent variables. (Lessons 7.1, 7.2, 7, 8.3, 9.1, 9.2, 9.3)	**Ratios and Proportional Relationships** **Major Cluster** 7.RP.1-3 Analyze proportional relationships and use them to solve real-world and mathematical problems. (Lessons 2.1, 2.2, 2.3, 3.1, 3.2, 3.3, 6.1, 6.2, 6.4, 7.2, 9.1, 9.2, 9.3, 10.2, 10.3)	**Functions** **Major Cluster** 8.F.1-3 Define, evaluate, and compare functions. (Lessons 4.1, 4.2, 4.3, 5.2, 5.3, 7.1, 8.2, 8.3, 10.3) **Supporting / Additional Cluster** 8.F.4-5 Use functions to model relationships between quantities. (Lessons 4.1, 4.2, 4.3, 5.1, 5.2, 5.3, 6.2, 7.1, 8.3)	**Functions** **Interpreting Functions** Understand the concept of a function and use function notation. Interpret functions that arise in applications in terms of the context. Analyze functions using different representations. **Building Functions** Build a function that models a relationship between two quantities Build new functions from existing functions. **Linear, Quadratic, and Exponential Models** Construct and compare linear, quadratic, and exponential models and solve problems. Interpret expressions for functions in terms of the situation they model. **Geometry** **Expressing Geometric Properties with Equations** Use coordinates to prove simple geometric theorems algebraically.

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	High School Mathematics 1
Geometry	**Geometry**	**Geometry**	**Geometry**	**Geometry**	**Geometry**
Supporting / Additional Cluster 4.G.1-3 Draw and identify lines and angles, and classify shapes by properties of their lines and angles	**Additional / Supporting Cluster** 5.G.3-4 Classify two-dimensional figures into categories based on their properties.	**Additional / Supporting Clusters** 6.G.1-4 Solve real-world and mathematical problems involving area, surface area, and volume. (Lessons 9.1, 9.2, 9.3, 10.4)	**Additional / Supporting Clusters** 7.G.1-3 Draw, construct, and describe geometrical figures and describe the relationships between them. (Lessons 2.3, 3.1, 8.2, 8.3	**Major Clusters** 8.G.1-5 Understand congruence and similarity using physical models, transparencies, or geometric software. (Lessons 1.3, 9.1, 9.2, 9.3, 10.1, 10.2, 10.3)	**Congruence** Experiment with transformations in the plane. Understand congruence in terms of rigid motions.
Measurement / Data **Supporting / Additional Cluster** 4.MD.1-3 Geometric Measurement: understand concepts of angle and angle measures.	**Measurement / Data** **Major Cluster** 5.MD.3-5 Geometric measurement: understand concepts of volume and relate volume to multiplication and addition..		7.G.4-6 Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.(Lessons 8.1, 9.1, 9.2, 9.3)	8.G.6-8 Understand and apply the Pythagorean Theorem. (Lessons 2.2, 9.1, 9.3, 10.1, 10.2, 10.3) **Additional / Supporting Cluster** 8.G.9 Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.(Lessons 1.1, 1.2)	Make geometric constructions.

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	High School Mathematics 1
Measurement / Data **Additional / Supporting Cluster** 4.MD.4 Represent and interpret data.	**Measurement / Data** **Additional / Supporting Cluster** 5.MD.2 Represent and interpret data.	**Statistics and Probability** **Additional / Supporting Clusters** 6.SP.1-3 Develop understanding of statistical variability. (Lessons 1.1, 1.2, 1.3, 5.3, 7.2) 6.SP.4-5 Summarize and describe distributions. (Lessons 1.1, 1.2, 1.3, 5.3)	**Statistics and Probability** **Additional / Supporting Clusters** 7.SP.1-2 Use random sampling to draw inferences about a population. (Lessons 10.1, 10.2, 10.3) 7.SP.3-4 Draw informal comparative inferences about two populations. (Lessons 10.2, 10.3) 7.SP.5-8 Investigate chance processes and develop, use, and evaluate probability models. (Lessons 1.1, 1.2, 1.3, 4.2, 9.2, 10.1)	**Statistics and Probability** **Additional / Supporting Clusters** 8.SP.1-4 Investigate patterns of association in bivariate data. (Lessons 6.1, 6.2, 6.3)	**Statistics and Probability** **Interpreting Categorical and Quantitative Data** Summarize, represent, and interpret data on a single count or measurement variable. Summarize, represent, and interpret data on two categorical and quantitative variables. Interpret linear models.