

COURSE PROGRESSION FOR MIDDLE SCHOOLS

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Grade 6	Grade 7	Grade 7 Accelerated	Grade 8	Grade 8 Compacted (An Algebra Course for Middle School)
Unit 6.0 Introduction: Mathematical Investigations	Unit 7.0 Introduction: Mathematical Investigations	Unit Acc7.0 Introduction: Mathematical Investigations	Unit 8.0 Introduction: Mathematical Investigations	Unit 8Alg.0 Introduction: Mathematical Investigations
Unit 6.1 Ratio and Proportional Relationships 6.RP.1, 2, 3	Unit 7.1 Analyze Proportional Relationships 7.RP.1, 2, 3	Unit Acc7.1 From Proportional Relationships to Functions 7.RP.1, 2, 3 8.F.1, 2, 3, 4, 5	Unit 8.1 From Proportional Relationships to Functions 8.F.1, 2, 3, 4, 5	Unit 8Alg.1 From Proportional Relationships to Functions 8.F.1, 2, 3, 4, 5 F-IF.1, 2, 3, 4, 5 N-Q.1, 2, 3; F-IF.9; F-LE.1, 2, 3, 5
Unit 6.2 Expressions 6.EE.1, 2, 3, 4; 6.NS.4	Unit 7.2 Expressions 7.EE.1, 2, 3	Unit Acc7.2 Expressions & Linear Equations in one unknown 7.EE.1, 2, 8.EE.1, 2, 3, 7	Unit 8.2 Expressions 8.EE.7	Unit 8Alg.2 Arithmetic with polynomials Part 1 A-APR.1; A-SSE.1, 2 A-SSE.3
Unit 6.3 Equations and Inequalities 6.EE.5, 6, 7, 8	Unit 7.3 Linear Equations & Inequalities 7.EE.3, 4	Unit Acc7.3 Linear Equations & Inequalities 7.EE.3, 4	Unit 8.3 Linear Equations in one unknown 8.EE.7	Unit 8Alg.3 Linear Equations & Inequalities in One Unknown 8.EE.7 A-CED.1, 3, 4; A-REI.1,2,11



<p>Unit 6.4 Division of Fractions by Fractions 6.NS.1; 6.NS.2, 3</p>	<p>Unit 7.4 The Number System 7.NS.1, 2, 3</p>	<p>Unit Acc7.4 The Number System 7.NS.1, 2, 3; 7.RP.3</p>	<p>Unit 8.4 Linear Equations in two Variables & Systems 8.EE.5, 6, 8</p>	<p>Unit 8Alg.4 Linear Equations & Inequalities Two Variables 8.EE.5, 6, 8 A-CED.2, 3, 4; A-REI.10, 12</p>
<p>Unit 6.5 Quantitative Relationships 6.EE.9; 6.NS.8; 6.G.2; 6.SP.4</p>	<p>Unit 7.5 Problem solving with percentages 7.RP.3</p>	<p>Unit Acc7.5 Integer Exponents & Rational and Irrational Numbers 8.EE.1, 2 8.NS.1, 2</p>	<p>Unit 8.5 Integer Exponents & Rational and Irrational Numbers 8.EE.1, 2 8.NS.1, 2</p>	<p>Unit 8Alg.5 Interpret Linear Models S-ID.7, 8, 9 S-ID.5,6 S-ID.1, 2, 3</p>
<p>Unit 6.6 Geometry —Area 6.G.1</p>	<p>Unit 7.6 Geometric Measurement—Angles 7.G.5</p>	<p>Unit Acc7.6 Scientific Notation 8.EE.3, 4</p>	<p>Unit 8.6 Scientific Notation 8.EE.3, 4</p>	<p>Unit 8Alg.6 Linear Functions F-IF.6 F-IF.7a, 9; F-BF.1a N.RN.1, 2</p>
<p>Unit 6.7 Problem solving with rational numbers 6. NS 5, 6, 7</p>	<p>Unit 7.7 Problem solving with rational numbers 7.NS.3</p>	<p>Unit Acc7.7 Isometries 8.G.1, 2, 3</p>	<p>Unit 8.7 Isometries 8.G.1, 2, 3</p>	<p>Unit 8Alg.7 Exponential functions F-IF.6 F-IF.7a, 9; F-BF.1a N.RN.1,2</p>
<p>Unit 6.8 Geometry—Surface Area & Volume 6.G. 2, 4</p>	<p>Unit 7.8 Geometric Figures—Scaling 7.G.1, 3 7.RP.2</p>	<p>Unit Acc7.8 Dilations 7.G.1, 3 7.RP.2 8.G.3,4</p>	<p>Unit 8.8 Dilations 8.G.3, 4</p>	<p>Unit 8Alg.8 Quadratic Functions F-IF.4,5,6 F-IF.7a, 7b, 8a ,9; F-BF.1a F-BF.3</p>

<p>Unit 6.9 Statistics</p> <p>6.SP.1, 2, 3</p>	<p>Unit 7.9 Geometric Measurement— Area, Surface area, and Volume</p> <p>7.G.4, 6</p>	<p>Unit Acc7.9 Congruence & Similarity</p> <p>7.G.2, 5 8.G.2, 4</p>	<p>Unit 8.9 Congruence & Similarity</p> <p>8.G.2, 4, 5</p>	<p>Unit 8Alg.9 Linear, Quadratic, and Exponential functions compared</p> <p>8.EE.1, 2 F-LE.1, 2, 3, 4</p>
<p>Unit 6.10 Statistics</p> <p>6.SP.4, 5</p>	<p>Unit 7.10 Statistics</p> <p>7.SP.1,2 7.SP.3,4</p>	<p>Unit Acc7.10 Pythagorean Theorem</p> <p>8.G.6, 7, 8</p>	<p>Unit 8.10 Pythagorean Theorem</p> <p>8.G.6, 7, 8</p>	<p>Unit 8Alg.10 Arithmetic with polynomials Part 2</p> <p>A-APR.1, 3</p>
<p>Unit 6.11 Geometry— Geometric figures</p> <p>6.G.3</p>	<p>Unit 7.11 Geometric Figures</p> <p>7.G.2</p>	<p>Unit Acc7 .11 Bivariate Data</p> <p>7.SP.1, 2, 5, 6, 7, 8 7.SP.3, 4 8.SP.1, 2, 3, 4</p>	<p>Unit 8.11 Bivariate Data</p> <p>8.SP.1, 2, 3, 4</p>	<p>Unit 8Alg.11 Systems of Equations & Systems of Linear Inequalities in Two Variables</p> <p>A-REI.10, 11, 12 A-REI.5, 6</p>
<p>Unit 6.12 Critical Areas 1, 2, 3, & 4</p> <p>6.RP; 6.EE; 6.NS.1; 6.NS.2, 3; 6.SP</p>	<p>Unit 7.12 Probability</p> <p>7.SP.5, 6, 7, 8</p>	<p>Unit Acc7.12 Volume of Cones, Cylinders, and Spheres</p> <p>7.G.4, 6; 8.G.9</p>	<p>Unit 8.12 Volume of Cones, Cylinders, and Spheres</p> <p>8.G.9</p>	

GRADE 6 COURSE OUTLINE

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CONTENT AREA	FORMATIVE ASSESSMENT LESSONS	DAN MEYER 3-ACT PROBLEMS	DAYS
Unit 6.0 Introduction: Mathematical Investigations			
Unit 6.1 Ratio and Proportional Relationships 6.RP.1, 2, 3	Sharing Costs: Travelling to School Optimizing: Security Cameras Proportional Reasoning	Nana's Paint Mixup Split Time Pain Relief Bolt Nana's Chocolate Milk Coke v Sprite Sugar Packets Bone Collector Amazon Percent Discount Super Bear	
Unit 6.2 Expressions 6.EE.1, 2, 3, 4 6.NS.4	Laws of Arithmetic Factors and Multiples Investigating: Consecutive Sums	Shipping Routes	
Unit 6.3 Equations and Inequalities 6.EE.5, 6, 7, 8	Interpreting Equations		
Unit 6.4 Division of Fractions by Fractions 6.NS.1 6.NS.2, 3	Interpreting Multiplication and Division		
Unit 6.5 Quantitative Relationships 6.EE.9 6.NS.8 6.G.2 6.SP.4	Modeling: Car Skid Marks Using Coordinates to Interpret and Represent Data A Measure of Slope		
Unit 6.6 Geometry —Area 6.G.1		Bubble Wrap Dollar Wall	



Unit 6.7 Problem solving with rational numbers 6. NS 5, 6, 7	Adding and Subtracting Directed Numbers Fractions, Decimals and Percents	Partial Product Finals Week	
Unit 6.8 Geometry—Surface Area & Volume 6.G. 2, 4	Designing: Candy Cartons Optimizing: Packing It In	Hot Coffee	
Unit 6.9 Statistics 6.SP.1, 2, 3	Mean, Median, Mode, and Range		
Unit 6.10 Statistics 6.SP.4, 5	Representing Data Using Grouped Frequency Graphs and Box Plots		
Unit 6.11 Geometry—Geometric figures 6.G.3			
Unit 6.12 Critical Areas 1, 2, 3, & 4 6.RP 6.EE 6.NS.1 6.NS.2, 3 6.SP	Using Standard Algorithms Solving Real-life Problems: Selling Soup	Shower v Bath Leaky Faucet Neptune Speed of Light Print Job Fort Steuben	

The Formative Assessment Lessons are available at:

<http://map.mathshell.org/materials/lessons.php>

Link to list of Dan Meyer’s 3-Act problems:

<https://docs.google.com/spreadsheet/pub?key=0AjIqyKM9d7ZYdEhtR3BJMmdBWnM2YWxwWYVM1UWowTEE>

GRADE 7 COURSE OUTLINE

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CONTENT AREA	FORMATIVE ASSESSMENT LESSONS	DAN MEYER 3-ACT PROBLEMS	DAYS
Unit 7.0 Introduction: Mathematical Investigations			
Unit 7.1 Analyze Proportional Relationships 7.RP.1, 2, 3	Proportion and Non-proportion Situations Modeling: A Race	Coin Carpet	
Unit 7.2 Expressions 7.EE.1, 2, 3	Drawing to Scale: Designing a Garden		
Unit 7.3 Linear Equations & Inequalities 7.EE.3, 4	Steps to Solving Equations		
Unit 7.4 The Number System 7.NS.1, 2, 3	Using Positive and Negative Numbers in Context		
Unit 7.5 Problem solving with percentages 7.RP.3	Increasing and Decreasing Quantities by a Percent	Dueling Discounts	
Unit 7.6 Geometric Measurement—Angles 7.G.5			
Unit 7.7 Problem solving with rational numbers 7.NS.3			
Unit 7.8 Geometric Figures—Scaling 7.G.1, 3 7.RP.2	Developing a Sense of Scale	Holes Coin Carpet	
Unit 7.9 Geometric Measurement—Area, Surface area, and Volume 7.G.4, 6	Using Dimensions: Designing a Sports Bag Maximizing Area: Gold Rush The Area of a Circle	Ticket to Ride Brita Coffee Traveler Popcorn Picker Pizza Doubler Penny Circle	



Unit 7.10 Statistics 7.SP.1, 2 7.SP.3, 4	Estimating: Counting Trees Comparing Data	Yellow Starbursts	
Unit 7.11 Geometric Figures 7.G.2	Describing Quadrilaterals Possible Triangle Constructions		
Unit 7.12 Probability 7.SP.5, 6, 7, 8	Evaluating Statements about Probability Probability Games Understanding Relative Frequency		

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GRADE 7 ACCELERATED COURSE OUTLINE

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CONTENT AREA	FORMATIVE ASSESSMENT LESSONS	DAN MEYER 3-ACT PROBLEMS	DAYS
Unit Acc7.0 Introduction: Mathematical Investigations			
Unit Acc7.1 From Proportional Relationships to Functions 7.RP.1, 2, 3 8.F.1, 2, 3, 4, 5	Proportion and Non-proportion Situations Developing a Sense of Scale Modeling: A Race	Dueling Discounts Coin Carpet	
Unit Acc7.2 Expressions & Linear Equations in One unknown 7.EE.1, 2, 8.EE.1, 2, 3, 7	Drawing to Scale: Designing a Garden Steps to Solving Equations Building and Solving Equations 1		
Unit Acc7.3 Linear Equations & Inequalities 7.EE.3, 4	Lines, Slopes and Linear Equations Solving Real-Life Problems: Baseball Jerseys	Ditch Diggers	
Unit Acc7.4 The Number System 7.NS.1, 2, 3 7.RP.3	Using Positive and Negative Numbers in Context Increasing and Decreasing Quantities by a Percent	Dueling Discounts	
Unit Acc7.5 Integer Exponents & Rational and Irrational Numbers 8.EE.1, 2 8.NS.1, 2	Applying Properties of Exponents Repeating Decimals		
Unit Acc7.6 Scientific Notation 8.EE.3, 4	Estimating Length Using Scientific Notation		
Unit Acc7.7 Isometries 8.G.1, 2, 3	Representing and Combining Transformations		



Unit Acc7.8 Dilations 7.G.1, 3 7.RP.2 8.G.3, 4		Holes	
Unit Acc7.9 Congruence & Similarity 7.G.2, 5 8.G.2, 4	Identifying Similar Triangles		
Unit Acc7.10 Pythagorean Theorem 8.G.6, 7, 8	The Pythagorean Theorem: Square Areas Finding Shortest Routes: The Schoolyard Problem	Taco Cart	
Unit Acc7.11 Bivariate Data 7.SP.1, 2, 5, 6, 7, 8 7.SP.3, 4 8.SP.1, 2, 3, 4	Testing a New Product	Yellow Starbursts	
Unit Acc7.12 Area, Surface Area, and Volume 7.G.4, 6 8.G.9	Using Dimensions: Designing a Sports Bag Estimations and Approximations: The Money Munchers The Area of a Circle Modeling: Making Matchsticks Estimating and Sampling: Jellybeans	Ticket to Ride Brita Coffee Traveler Popcorn Picker Pizza Doubler Penny Circle	

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GRADE 8 COURSE OUTLINE

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CONTENT AREA	FORMATIVE ASSESSMENT LESSONS	DAN MEYER 3-ACT PROBLEMS	DAYS
Unit 8.0 Introduction: Mathematical Investigations			
Unit 8.1 From Proportional Relationships to Functions 8.F.1, 2, 3, 4, 5	Interpreting Distance-Time Graphs Modeling Situations with Linear Equations Modeling: Buying Cars	25 Billion Apps Joulies	
Unit 8.2 Expressions 8.EE.7	Generalizing Patterns: The Difference of Two Squares		
Unit 8.3 Linear Equations in one unknown 8.EE.7	Solving Linear Equations in One Variable Building and Solving Equations 1 Lines, Slopes and Linear Equations	Ditch Diggers	
Unit 8.4 Linear Equations in two Variables & Systems 8.EE.5, 6, 8	Classifying Solutions to Systems of Equations Lines and Linear Equations Solving Real-Life Problems: Baseball Jerseys	Playing Catch Up	
Unit 8.5 Integer Exponents & Rational and Irrational Numbers 8.EE.1, 2 8.NS.1, 2	Applying Properties of Exponents Repeating Decimals		
Unit 8.6 Scientific Notation 8.EE.3, 4	Estimating Length Using Scientific Notation		
Unit 8.7 Isometries 8.G.1, 2, 3	Representing and Combining Transformations		
Unit 8.8 Dilations 8.G.3, 4			



Unit 8.9 Congruence & Similarity 8.G.2, 4, 5	Identifying Similar Triangles		
Unit 8.10 Pythagorean Theorem 8.G.6, 7, 8	The Pythagorean Theorem: Square Areas Finding Shortest Routes: The Schoolyard Problem	Taco Cart	
Unit 8.11 Bivariate Data 8.SP.1, 2, 3, 4	Testing a New Product		
Unit 8.12 Volume of Cones, Cylinders, and Spheres 8.G.9	Modeling: Making Matchsticks Estimating and Sampling Jellybeans		

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GRADE 8 COMPACTED COURSE OUTLINE

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CONTENT AREA	FORMATIVE ASSESSMENT LESSONS	DAN MEYER 3-ACT PROBLEMS	DAYS
Unit 8Alg.0 Introduction: Mathematical Investigations			
Unit 8Alg.1 From Proportional Relationships to Functions 8.F.1, 2, 3, 4, 5 F-IF.1, 2, 3, 4, 5 N-Q.1, 2, 3 F-IF.9 F-LE.1, 2, 3, 5	Interpreting Distance-Time Graphs Modeling Situations with Linear Equations	Domino Skyscraper 25 Billion Apps Joulies Falling Rocks Falling Glowsticks	
Unit 8Alg.2 Arithmetic with Polynomials Part 1 A-APR.1 A-SSE.1, 2 A-SSE.3	Interpreting Algebraic Expressions		
Unit 8Alg.3 Linear Equations & Inequalities in One Unknown 8.EE.7 A-CED.1, 3, 4 A-REI.1, 2, 11	Solving Linear Equations in One Variable Sorting Equations and Identities Building and Solving Equations 2	Ditch Diggers World Record Airbag	
Unit 8Alg.4 Linear Equations & Inequalities in Two Variables 8.EE.5, 6, 8 A-CED.2, 3, 4 A-REI.10, 12	Optimization Problems: Boomerangs Classifying Solutions to Systems of Equations Solving Linear Equations in Two Variables	Playing Catch Up	
Unit 8Alg.5 Interpreting Mathematical Models S-ID.7, 8, 9 S-ID.5, 6 S-ID.1, 2, 3	Representing Data 1: Using Frequency Graphs Representing Data 2: Using Box Plots Interpreting Statistics A Case of Muddying the Waters Devising a Measure for Correlation		



Unit 8Alg.6 Linear Functions F-IF.6 F-IF.7a, 9 F-BF.1a N.RN.1, 2	Lines and Linear Equations Modeling: Buying Cars		
Unit 8Alg.7 Exponential Functions F-IF.6 F-IF.7a, 9 F-BF.1a N.RN.1, 2			
Unit 8Alg.8 Quadratic Functions F-IF.4, 5, 6 F-IF.7a, 7b, 8a, 9 F-BF.1a F-BF.3	Solving Quadratic Equations: Cutting Corners Forming Quadratics	Will It Hit The Hoop	
Unit 8Alg.9 Linear, Quadratic, and Exponential Functions Compared 8.EE.1, 2 F-LE.1, 2, 3, 4	Comparing Investments Generalizing Patterns: Table Tiles Functions and Everyday Situations	Double Sunglasses Pixel Pattern Toothpicks Gmail Tap Fry's Bank	
Unit 8Alg.10 Arithmetic with Polynomials Part 2 A-APR.1, 3	Manipulating Polynomials		
Unit 8Alg.11 Systems of Equations & Systems of Linear Inequalities in Two Variables A-REI.10, 11, 12 A-REI.5, 6	Defining Regions Using Inequalities		

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