



MIDDLETOWN MATH SCOPE & SEQUENCE

Grade: 7 Marking Periods 1-4

Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
Unit 1 – Algebra and Integers					
Vocabulary: Variable, Algebraic Expression, Numerical Expression, Evaluate, Order of Operations, Powers, Equation, Open Sentence, Property, Counterexample, Negative Number, Integer, Coordinate, Inequality, Absolute Value, Opposites, Additive, Inverse, Factor, Product, Solve, Solution, Inverse Operations, Identity Property					
1.1		<ul style="list-style-type: none"> Problem solving strategies 	1		
1.2	7N11	<ul style="list-style-type: none"> Simplify expressions using order of operations. Note: Expression may include absolute value and/or integral exponents greater than zero. Integral exponents greater than zero. Simplify expressions in fraction form (ex. $a - \frac{c}{3}$). Evaluate expressions. Properties (commutative, associative, identity, distributive). 	2	SQ10, SQ28, 6Q3, 6Q9, 8Q11	
1.3	7N11	<ul style="list-style-type: none"> Simplify expressions using order of operations. Note: Expression may include absolute value and/or integral exponents greater than zero. Absolute value. Compare and order integers. Evaluate expressions. 	2		

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		<ul style="list-style-type: none"> Graph integers on a number line and coordinate plane (4 quadrants). 			
1.4	7N12 7N13	<ul style="list-style-type: none"> Add, subtract, multiply or divide integers. Add and subtract two integers with or without a number line. Add integers with number line. Add integers with counters or lumps and bumps. Add integers with rules. 	3	SQ1, 6Q1, 6Q15, 6Q33, 7Q8, 8Q25, 7Q31, 8Q31	
1.5	7N12 7N13	<ul style="list-style-type: none"> Add, subtract, multiple or divide integers. Add and subtract two integers with or without a number line. Subtract integers with number line. Subtract integers with the rule “Add the Opposite”. 	3		
1.6	7N12	<ul style="list-style-type: none"> Add, subtract, multiple or divide integers. Multiply and divide integers. 	2		
		Quiz / Test			
1.7	7A1	<ul style="list-style-type: none"> Translate two-step verbal expressions into algebraic expressions. 	1	SQ2, SQ17, 6Q8, 6Q11, 6Q14, 7Q11,	

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		<ul style="list-style-type: none"> Translate expressions and equations. Describe the difference between expression and equation. 		8Q33	
1.8 / 1.9	7A4 *Supplement 2-step equation review	<ul style="list-style-type: none"> Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. Solve 1 and 2 step equations (all operations). Solve equations with integers. Combining like terms, using the distributive property and moving variables will be stressed at a later date. 	1	SQ8, SQ24, SQ33, SQ39, 6Q11, 6Q18, 6Q24, 6Q31, 6Q38, 6Q41, 7Q5, 7Q30, 7Q45, 8Q16	
10.5	7A5 7G10	<ul style="list-style-type: none"> Solve one-step inequalities (positive coefficients only). Graph the solution set of an inequality (positive coefficients only) on a number line. Translate verbal inequalities into algebraic inequalities. Graph solutions. Check validity of answers. 	1		
10.6	7A5 7G10	<ul style="list-style-type: none"> Solve one-step inequalities (positive coefficients only). Graph the solution set of an inequality (positive coefficients only) on a number line. Add and subtract one-step inequalities. 	2		

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10.7	7A5 7G10	<ul style="list-style-type: none"> • Solve one-step inequalities (positive coefficients only). • Graph the solution set of an inequality (positive coefficients only) on a number line. • Multiply and divide (positive coefficient only). 	2		
		Review and test	3		
		Total	24		
Unit 2 – Algebra: Rational Numbers					
Vocabulary: Rational Number, Terminating Decimal, Repeating Decimal, Bar Notation, Perfect Square, Square Root, Radical Sign, Principal Square Root, Base, Exponent, Power, Scientific Notation, Irrational Number, Real Number, Prime Number, Composite Number, Prim Factorization, Factor Tree, Greatest Common Factor, Multiple, Least Common Multiple					
2.1 2.2	7N17 6N20 6N21	<ul style="list-style-type: none"> • Classify irrational numbers as non-repeating/non-terminating decimals. • Represent fractions as terminating or repeating decimals. • Find multiple representations of rational numbers (fraction & decimals). • Rational numbers include terminating and repeating decimals. • Irrational numbers are non-repeating and non-terminating decimals. 	3	SQ1, 6Q8, 7Q15, 8Q2	

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Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
3.1	7N15 7N16	<ul style="list-style-type: none"> Recognize and state the value of the square root or a perfect square (up to 225). Determine the root of non-perfect squares using a calculator. <ul style="list-style-type: none"> Principle square roots (+ values). Negative square roots ($-\sqrt{121}$). Square roots to solve equations (both +/- values). Non-perfect square roots using a calculator. 	1	SQ19	
3.2	7N16 7N18 7N19	<ul style="list-style-type: none"> Determine the square root of non-perfect squares using a calculator. Identify the two consecutive whole numbers between which the square root of a non-perfect square number is less than 225 lies. Justify the reasonableness of answers using estimation. 	2	6Q22, 7Q25, 8Q17, SQ38	
		Quiz	1		
2.8	7N4 7N11 7N14	<ul style="list-style-type: none"> Develop the laws of exponents for multiplication and division. Simplify expressions using order of operations. 	2	SQ10, SQ28, 6Q3, 6Q9, 8Q11	

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Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
		<ul style="list-style-type: none"> Develop a conceptual understanding of negative and zero exponents with a base of ten and relate it to fractions and decimals. 			
2.9	7N5 7N6 7N7	<ul style="list-style-type: none"> Write numbers in scientific notation. Translate numbers from scientific notation into standard form. Compare numbers in scientific notations. Bridge conceptual understanding of negative and zero exponents of base 10 to scientific notation. 	3	6Q18, 7Q17, SQ22, 6Q28, 7Q18, 7Q38, 8Q13, 8Q26	
3.3	7N1 7N2 7N3	<ul style="list-style-type: none"> Distinguish between the various subsets of real numbers (counting/natural numbers, whole, rational and irrational numbers). Recognize the difference between rational and irrational numbers (explore different approximations of Pi). Place rational and irrational numbers on a number line and justify the placements of those numbers. 	2	SQ27, SQ26, 7Q9, 7Q12, 8Q6	
PS6	7N10	<ul style="list-style-type: none"> Determine the prime factorization of a given number and write in exponential form. 	2	SQ32, 7Q23, 8Q36	
PS7	7N8	<ul style="list-style-type: none"> Find the common factors and greatest common factor of two or 	2	SQ13, 6Q10, 7Q15,	

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Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
		more numbers.		8Q20	
PS9	7N9	<ul style="list-style-type: none"> Determine the common multiples and the least common multiples of two or more numbers. 	2	SQ16, 6Q4, 7Q20, 8Q7	
		Review and test	3		
		Total	23		
Unit 3 – Applying Ration, Percents, and proportions Vocabulary: Ratio, Rate, Unit Rate, Proportion, Cross Products, Metric Units, Customary Units, Tools of Measurement (scale balance), Polygon, Similar, Corresponding Parts, Congruent, Scale Factor, Percent, Percent Proportion, Percent Equation, Part, Base					
4.1	7M5 7M6	<ul style="list-style-type: none"> Calculate unit pricing using proportions. Compare unit prices. Simplify rates comparing different units. 	1	SQ44, 6Q40, 7Q19, 8Q42	
4.4	6N9	<ul style="list-style-type: none"> Solve proportions using equivalent fractions. Cross-product method. Write and solve proportions from written statements. 	1	7Q5, 7Q28, 8Q24	
	7M2 7M3 7M4	<ul style="list-style-type: none"> Convert capacities and volumes within a given system. Identify customary and metric units of mass. Convert mass within a given system. Using proportions. 	1	SQ14, 6Q6, 6Q16, 7Q3, 7Q6, 8Q2, 8Q29, SQ29, 6Q20, SQ23, 6Q24, 6Q35,	

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Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
				8Q19	
	7M12 7M13 7M9	<ul style="list-style-type: none"> • Determine personal references for customary/metric units of mass. • Justify the reasonableness of the mass of an object. • Determine the tool and technique to measure with an appropriate level of precision; mass. 	1	7Q35, SQ8, 7Q29, 8Q27	
4.5	6G1	<ul style="list-style-type: none"> • Calculate the length of the corresponding sides of similar triangles, using proportional reasoning. 	1	6Q20	
5.1	6N21	<ul style="list-style-type: none"> • Find multiple representations of rational numbers (fractions, decimals, and percents from 0-100). • Converting fractions and percents. 	1	SQ1, 6Q8, 7Q15, 8Q2	
5.2	6N21	<ul style="list-style-type: none"> • Find multiple representations of rational numbers (fractions, decimals and percents from 0-100). • Convert decimals and percents. 	1		
5.3 / 5.6	6N12	<ul style="list-style-type: none"> • Solve percent problems involving percent, rate and base. 	2	SQ26, 6Q33, 7Q9, 8Q30	
		Review and test	2		
		Total	11		

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Unit 4 – Measuring Area, Surface Area, and Volume					
Vocabulary: Base, Altitude, Polygons, Circle, Center, Radius, Diameter, Circumference, Pi, Complex Figure, Plane, Solid, Polyhedron, Edge, Face, Vertex, Prism, Pyramid, Volume, Cylinder, Complex Solid, Surface Area					
7.1	7A6 6G2	<ul style="list-style-type: none"> • Evaluate formulas for given input values (surface area, rate, and density problems). • Determine the area of triangles and quadrilaterals (squares, rectangles, rhombi, trapezoids), and develop formulas. 	2	8Q5 6Q26	
7.2	7A6 7G1	<ul style="list-style-type: none"> • Evaluate formulas for given input values (surface area, rate, and density problems). • Calculate the radius or diameter, given the circumference or the area of a circle. • Find area and circumference of a circle. • Find radius/diameter given area/circumference. 	2	SQ20, 6Q19, 6Q29, 7Q28, 8Q12	
7.3	7A6	<ul style="list-style-type: none"> • Evaluate formulas for given input values (surface area, rate, and density problems). • Area of complex (irregular) figures. 	1		
7.4	7G3	<ul style="list-style-type: none"> • Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, 	1	SQ5, 6Q2, 6Q17, 6Q27, 7Q2, 7Q5,	

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		cones, and pyramids).		8Q30	
7.5	7A6 7G2	<ul style="list-style-type: none"> Evaluate formulas for given input values (surface area, rate, and density problems). Calculate the volume of prisms and cylinders, using a given formula and a calculator. 	2	SQ36, 6Q32, 8Q35	
7.7	7A6 7G3 7G4 7M11	<ul style="list-style-type: none"> Evaluate formulas for given input values (surface area, rate, and density problems). Identify the two-dimensional shapes that make up the faces and bases of three-dimensional shapes (prisms, cylinders, cones, and pyramids). Determine the surface area of prisms and cylinders, using a calculator and a variety of methods. Estimate surface area. 	3	6Q36, 7Q33 SQ33, 8Q23	
		Review and test	3		
		Total	17		

Unit 5 – Probability

Vocabulary: Outcome, Sample Space, Random, Simple Event, Probability, Complementary Events, Tree Diagram, Fundamental Counting Principle, Compound Event, Independent Events, Dependent Events, Experimental Probability, Theoretical Probability, Biased, Unbiased (random), Population Sample

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8.1	7S8 7S10	<ul style="list-style-type: none"> Interpret data to provide the basis for predictions and to establish experimental probabilities. Predict the outcome of an experiment. Simple events Complementary events 	2	SQ37, 6Q26, 6Q38, 7Q24, 8Q22, SQ15, SQ18, 7Q17, 7Q21, 8Q10, 8Q18	
8.2	7S8 7S10 7S12	<ul style="list-style-type: none"> Interpret data to provide the basis for predictions and to establish experimental probabilities. Predict the outcome of an experiment. Compare actual results to predicted results. Sample space and tree diagrams. Fundamental Counting Principle. 	2	8Q16	
8.5	7S8 7S10 7S12	<ul style="list-style-type: none"> Interpret data to provide the basis for predictions and to establish experimental probabilities. Predict the outcome of an experiment. Compare actual results to predicted results. Compound events. Independent and dependent events. 	2		
8.6	7S8	<ul style="list-style-type: none"> Interpret data to provide the basis for predictions and to establish experimental probabilities. 	2		

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Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
	7S9 7S10 7S11 7S12	<ul style="list-style-type: none"> • Determine the validity of sampling methods to predict outcomes. • Predict the outcome of an experiment. • Design and conduct an experiment to test predictions. • Compare actual results to predicted results. 		6Q30, 8Q28	
8.7	7M10 7S9	<ul style="list-style-type: none"> • Identify the relationships between relative error and magnitude when dealing with large numbers (ex: money and population). • Determine the validity of sampling methods to predict outcomes. 	2		
		Review and test	2		
		Total	12		
Unit 6 – Statistics					
Vocabulary: Histogram, Circle Graph, Mean, Median, Mode, Range, Measure of Variation, Quartiles, Outlier, Biased Sample					
	7S3	<ul style="list-style-type: none"> • Convert raw data into double bar and double line graphs. • Create double bar/double line. 	2	Supplement SQ34, 7Q36	
9.1	7S1 7S6	<ul style="list-style-type: none"> • Identify and collect data using a variety of methods. • Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs or circle 	1	*Read histogram only	

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		graphs).			
9.2	7M8 7S1 7S2 7S6	<ul style="list-style-type: none"> • Draw central angles in a given circle using a protractor (circle graphs). • Identify and collect data using a variety of methods. • Display data in a circle graph. • Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs or circle graphs). 	3	6Q34, 8Q37, SQ21, SQ27, 6Q7, 6Q21, 7Q1, 7Q22, 8Q8, 8Q21	
9.3	7S1 7S6	<ul style="list-style-type: none"> • Identify and collect data using a variety of methods. • Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs or circle graphs). • Choose appropriate graph to display data. 	1		
9.4	7S5	<ul style="list-style-type: none"> • Select the appropriate measure of central tendency. • Find mean, median and mode. • Determine the appropriate measure of central tendency. • Justify reasonableness of answer. 	1		
9.5	7S4	<ul style="list-style-type: none"> • Calculate the range of a set of data. 	1	SQ12, 6Q5, 7Q4,	

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				7Q13, 8Q14	
9.7	7S1 7S6 7S7	<ul style="list-style-type: none"> Identify and collect data using a variety of methods. Read and interpret data represented graphically. Identify and explain misleading statistics and graphs. 	1	7Q37	
		Review and test	2		
		Total	12		
Unit 7 – Algebra: Complex Equations and Functions					
Vocabulary: Equivalent Expressions, Term Coefficient, Like Terms, Constant, Simplest Form, Simplifying, Sequence, Term, Common Ratio, Common Difference, Function, Function Table, Domain, Range, Linear Function, X-Intercept, Y-Intercept					
10.1	7N11 7A2*	<ul style="list-style-type: none"> Simplify expressing using order of operations. Add and subtract monomials with exponents of one. Use distributive property to simplify expressions. Combine like terms to simplify expressions. 	1	SQ10, SQ28, 6Q3, 6Q9, 8Q11, 6Q6, 7Q3, 8Q20	
10.2	7A4*	<ul style="list-style-type: none"> Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. Use distributive property to solve equations. Combine like terms to solve equations. 	3	SQ8, SQ24, SQ33, SQ39, 6Q11, 6Q18, 6Q24, 6Q31, 6Q38, 6Q41, 7Q5, 7Q30, 7Q45, 8Q16	

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10.3	7A1 7A4	<ul style="list-style-type: none"> Translate two-step verbal expressions into algebraic expressions. Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. Translate and solve equations. 	1	SQ2, SQ17, 6Q8, 6Q11, 6Q14, 7Q11, 8Q33	
10.4	7A4*	<ul style="list-style-type: none"> Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation. Solve equations by moving variables to one side of the equation. 	4		
		Quiz	1		
11.1	7A8*	<ul style="list-style-type: none"> Create algebraic patterns using charts/tables, graphs, equations, and expressions. Identify type of sequence. State rule and extend pattern. 			
11.2	7A10*	<ul style="list-style-type: none"> Write an equation to represent a function from a table of values. 	2	SQ30, SQ34, 6Q16, 6Q23, 6Q33,	

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		<ul style="list-style-type: none"> Introduce $f(x)$ notation. Create a complete function table. Write an equation from a table in the form of $y = mx + b$. 		6Q42, 7Q21, 7Q38, 7Q40	
11.3	7A7* 7A8* 7A10*	<ul style="list-style-type: none"> Draw the graphic representation of a pattern from an equation or a table of values. Create algebraic patterns using charts/tables, graphs, equations, and expressions. Write an equation to represent a function from a table of values. 	4	7Q32, 8Q33	
		Review and test	2		
		Total	19		
Unit 8 – Angles and Pythagorean Theorem Vocabulary: Quadrilateral, Trapezoid, Parallelogram, Rectangle, Rhombus, Square, Interior Angles, Regular Polygons, Right Triangle, Legs, Hypotenuse, Pythagorean Theorem, Converse, Pythagorean Triple, Coordinate Plane, Origin, X-Axis, Y-Axis Quadrants, Ordered Pair, X-Coordinate, Y-Coordinate, Scale Drawing, Scale Model, Scale					
6.2	5G6	<ul style="list-style-type: none"> Classify triangles by properties of their angles and sides. 	2		
6.4	5G8	<ul style="list-style-type: none"> Find a missing angle when given two angles of a triangle. 			
	7G7	<ul style="list-style-type: none"> Find a missing angle when given angles of a quadrilateral. 			

Bold Standards – Indicates standards that are new to the 7th grade.

Standards – Indicates standards that are post-March objectives.

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MIDDLETOWN MATH SCOPE & SEQUENCE



Grade: 7 Marking Periods 1-4

Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
6.5a	7A9* 7G7	<ul style="list-style-type: none"> Build a pattern to develop a rule for determining the sum of the interior angles of polygons. Find a missing angle when given angles of a quadrilateral. 	2		
3.4	7G5* 7G6* 7G8* 7G9*	<ul style="list-style-type: none"> Identify the right angle, hypotenuse and legs of a right triangle. Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem. Use the Pythagorean Theorem. Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem. 	2	8Q6 SQ18, SQ31, 6Q27, 6Q32, 7Q6, 7Q18, 7Q42, 8Q25, 8Q36 6Q35	
3.5	7G5* 7G6* 7G8*	<ul style="list-style-type: none"> Identify the right angle, hypotenuse and legs of a right triangle. Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem. Use the Pythagorean Theorem. 		8Q6 SQ18, SQ31, 6Q27, 6Q32, 7Q6,	

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MIDDLETOWN MATH SCOPE & SEQUENCE



Grade: 7 Marking Periods 1-4

Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
	7G9*	<ul style="list-style-type: none"> Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem. 		7Q18, 7Q42, 8Q25, 8Q36, 6Q35	
3.6	7G8*	<ul style="list-style-type: none"> Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle. Finding the distance between two points on a coordinate plane. 	2	SQ18, SQ31, 6Q27, 6Q32, 7Q6, 7Q18, 7Q42, 8Q25, 8Q36	
		Review and test	2		
		Total	12		
Unit 9 – Proportions, Algebra, and Geometry					
Vocabulary: Scale Drawing, Scale Model, Scale					
4.6	7M1	<ul style="list-style-type: none"> Calculate the distance using a map scale. 	4	SQ29, 6Q14, 6Q30, 7Q7, 7Q27, 8Q12, 8Q21	
Supplement	7M7	<ul style="list-style-type: none"> Convert money between different currencies with the use of an exchange table and a calculator. 	2	8Q38	
		Quiz	1		

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MIDDLETOWN MATH SCOPE & SEQUENCE



Grade: 7 Marking Periods 1-4

Resource	NYS Standard	Performance Indicator	# of Days	Notes	Compass Learning Resources
		Total	7		

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Grade 7 MP1-4

4/28/2010