

## Math 7

### Number Systems: 38 Days

**Vocabulary:** Integer, Absolute Value, Opposite, Inequality, Inequality symbols, Rational Numbers, Irrational Numbers, Pi, Numerator, Denominator, Terminating Decimal, Repeating Decimal, Improper Fractions, Mixed Numbers, Associative Property, Commutative Property, Distributive Property, Identities, Inverses

Topic	Next Gen Stand.	Suggested Activities	Mathematical Practices	Notes
Introductions to Number Systems		<ul style="list-style-type: none"> <li>Counting/Natural, Wholes, Integers, Rationals, Irrationals</li> <li>Constructive number activity</li> </ul>	<p><b>MP 2:</b> Reason abstractly and quantitatively.</p> <p><b>MP 4:</b> Model with mathematics.</p> <p><b>MP 7:</b> Look for and make use of structure.</p>	
Review Number Systems		<ul style="list-style-type: none"> <li>Pi, Absolute Value</li> </ul>		Make sure to discuss Pi
Comparing Rational Numbers	NY-7.NS.1.b	<ul style="list-style-type: none"> <li>Ordering Cards, sorting activity</li> <li>Human Clothesline</li> </ul>		
Continuation...	NY-7.NS.1.b			
Continuation...	NY-7.NS.1.b			
Converting Fractions to Decimals	NY-7.NS.1.d	<ul style="list-style-type: none"> <li>Conversion Chart</li> <li>Focus on benchmarks</li> </ul>		
Converting Fractions to Decimals	NY-7.NS.1.d	<ul style="list-style-type: none"> <li>Continuation</li> </ul>		Make sure to hit mixed numbers and improper fractions

Curriculum Map: Math 7

Properties of Rational Numbers	NY-7.NS.1.d	<ul style="list-style-type: none"> <li>• Identification/Review</li> <li>• Class discussions</li> </ul>	
Continuation...	NY-7.NS.1.d	<ul style="list-style-type: none"> <li>• Complex Integers Problems and when to use</li> </ul>	Use as a pre-assessment for integers and fractions
Review Day		<ul style="list-style-type: none"> <li>• Stations</li> </ul>	
Quiz/Task			
Exploring Adding Integers	NY-7.NS.1.a	<ul style="list-style-type: none"> <li>• Zero pairs from positive and negative circles</li> <li>• Have students discover rule</li> </ul>	
Adding Integers on a Number Line	NY-7.NS.1.a	<ul style="list-style-type: none"> <li>• Adding Integers on a Number Line Practice</li> </ul>	
Adding Integers Practice	NY-7.NS.1.a	<ul style="list-style-type: none"> <li>• Adding integers with manipulatives to generate rule (cubes, disks, cards, tug-o-war)</li> </ul>	
Exploring Subtracting Integers	NY-7.NS.1.c	<ul style="list-style-type: none"> <li>• Use manipulatives to discover rule</li> </ul>	
Subtracting Integers on a Number Line	NY-7.NS.1.c	<ul style="list-style-type: none"> <li>• Subtracting integers on a number line to generate rule</li> </ul>	

Curriculum Map: Math 7

Adding and Subtracting Integers	NY-7.NS.1.a,c	<ul style="list-style-type: none"> <li>Adding and subtracting integer practice within the context of real world problems</li> </ul>		
Introduce Multiplying and Dividing Integers and short quiz	NY-7.NS.2.a,b	<ul style="list-style-type: none"> <li>Short fluency quiz on adding and subtracting integers and properties (matching)</li> <li>Introduce multiplying and dividing integers (good guy/bad guy and/or pattern)</li> </ul>	<p><b>MP 2:</b> Reason abstractly and quantitatively.</p> <p><b>MP 6:</b> Attend to precision.</p> <p><b>MP 8:</b> Look for and express regularity in repeated reasoning.</p>	
All Four Operations With Integers	NY-7.NS.1.a,c NY-7.NS.2.a,b	<ul style="list-style-type: none"> <li>Mixture of integer problems with all four operations (whiteboards)</li> </ul>		Math Playground Activity on computer
Quiz Integers & Pre-assess Decimals				
Adding and Subtracting Decimals	NY-7.NS.1.a,c	<ul style="list-style-type: none"> <li>Quick fluency quiz on all four operations with integers</li> <li>Adding and Subtracting Decimals</li> </ul>		
Multiplying Decimals	NY-7.NS.2.a	<ul style="list-style-type: none"> <li>Multiplying Decimals Practice</li> </ul>		

Curriculum Map: Math 7

Dividing Decimals	NY-7.NS.2.b	<ul style="list-style-type: none"> <li>Dividing Decimals Practice</li> </ul>	
All Four Operations w/Decimals	NY-7.NS.1.a,c NY-7.NS.2.a,b NY-7.NS.3]	<ul style="list-style-type: none"> <li>Practice all four operations with decimals</li> </ul>	
Real World Decimal Problems	NY-7.NS.1.a,c NY-7.NS.2.a,b NY-7.NS.3	<ul style="list-style-type: none"> <li>Applications or Task</li> </ul>	
Quiz		<ul style="list-style-type: none"> <li>All four operations: int &amp; dec</li> </ul>	
Frac - Recall		<ul style="list-style-type: none"> <li>Place on a number line</li> </ul>	
Continuation...		<ul style="list-style-type: none"> <li>Stations with Benchmarks</li> </ul>	
Continuation...		<ul style="list-style-type: none"> <li>Benchmark Chart</li> <li>Exploring Adding and Subtracting</li> </ul>	
Add Fractions	NY-7.NS.1.a		
Sub Fractions	NY-7.NS.1.c		
Mult. and Div. of Rational	NY-7.NS.2.a,b		Make sure to hit complex fractions

Curriculum Map: Math 7

Mult. and Div. of Rationals	NY-7.NS.2.a,b			
Real World Fraction Problems	NY-7.NS.3	<ul style="list-style-type: none"> <li>Real World Fraction Problems Practice</li> </ul>		
All Four Operations with Fractions	NY-7.NS.1.a,c NY-7.NS.2.a,b	<ul style="list-style-type: none"> <li>All four operations with fractions</li> <li>Colored Sheet Activity</li> </ul>		
Review	NY-7.NS.1 NY-7.NS.2 NY-7.NS.3	<ul style="list-style-type: none"> <li>Review activities with ALL rational numbers</li> <li>Review Sheet</li> </ul>		
Unit Test		<ul style="list-style-type: none"> <li>Summative Assessment</li> </ul>		
Extra Day		<ul style="list-style-type: none"> <li>If needed</li> <li>Task Day</li> <li>Extensions</li> </ul>		

**Math 7**  
**Ratios and Proportional Reasoning: 25 Days**

**Vocabulary:** Ratios, Rates, Unit Rates, Proportions, Scale Factor, Complex Fraction, Cross Products, Equivalence, Constant of Proportionality, Slope, Origin, Scale, Scale Drawing

Topic	Next Gen Stand.	Activities	Mathematical Practices	Notes
Introduction				
Rates and ratios	NY-7.RP.1	<ul style="list-style-type: none"> <li>Put examples of ratios and rates on cards, group students, and have them categorize cards and justify (all whole numbers)</li> <li>Formalize definitions</li> </ul>	<p><b>M.P. 2:</b> Reason abstractly and quantitatively</p> <p><b>M.P. 6:</b> Attend to precision</p>	
Better Buy	NY-7.RP.1	<ul style="list-style-type: none"> <li>Stations with Activities</li> </ul>		
Introducing Unit Rates	NY-7.RP.1	<ul style="list-style-type: none"> <li>Unit rate notes (all whole numbers) with practice problems in context.</li> </ul>		
Fractional Unit Rate	NY-7.RP.1	<ul style="list-style-type: none"> <li>WU: Unit rate with fractions (that are decimal friendly)</li> <li>Practice fractional unit rates then do unit rate activity (ex. heart rate, pulse beats per minute)</li> </ul>		

Curriculum Map: Math 7

Equivalent Ratios	NY-7.RP.2.a	<ul style="list-style-type: none"> <li>• Short Quiz</li> <li>• Explore equivalent ratios (see if groups can pick out pairs of equivalent ratios from examples)</li> <li>• Start putting equivalent ratios in tables</li> </ul>	<p><b>M.P. 1:</b> Make sense of problems and persevere in solving them</p> <p><b>M.P.3:</b> Construct viable arguments and critique the reasoning of others</p> <p><b>M.P. 5:</b> Use appropriate tools strategically</p> <p><b>M.P.7:</b> Look for and make use of structure</p> <p><b>M.P.8:</b> Look for and express regularity in repeated reasoning</p>	
Introduction to proportions	NY-7.RP.2.a	<ul style="list-style-type: none"> <li>• WU: Give three easy word problems and see if they can figure it out. <ul style="list-style-type: none"> <li>• Give multiple scenarios of the same problem so we can also put these into a table.</li> </ul> </li> <li>• Discuss strategies</li> </ul>		
Proportions with fractions	NY-7.RP.2.a	<ul style="list-style-type: none"> <li>• Give partners worksheet with fractional proportions - not that they can do whole numbers, try with fractions. Make sure to use at least one example in a table.</li> <li>• Ratatouille Activity</li> </ul>		
Quiz		<ul style="list-style-type: none"> <li>• Ratios, Proportions, and Unit Rates</li> </ul>		
Relating Scale Drawings to Ratios&Rates				<ul style="list-style-type: none"> <li>• See Module</li> <li>• Work with Tech Teacher</li> </ul>

Curriculum Map: Math 7

Unit Rate as a Scale Factor				
Computing Actual Lengths from Scale Drawing				
Computing Actual Areas from a Scale Drawing				Make sure to address the relationship from area to the actual scale.
Creating a scale drawing				
Changing scales				
Continuation...				
Identifying proportional relationships		<ul style="list-style-type: none"> <li>• Table work</li> </ul>		<ul style="list-style-type: none"> <li>• Include fractions</li> </ul>
Graphing		<ul style="list-style-type: none"> <li>• Basic Review</li> <li>• Graph proportional relationships</li> </ul>		
Introducing constant of proportionality	NY-7.RP.2.b	<ul style="list-style-type: none"> <li>• WU: Use tables from days 6 - 8. Post around the room and try to write equations from tables.</li> <li>• Discuss what all equations have in common: <math>y = ax</math> where <math>a =</math> constant of proportionality.</li> </ul>		
Writing Equations		<ul style="list-style-type: none"> <li>• Using tables and graphs</li> </ul>		



**Curriculum Map: Math 7**

More Table and Equation Practice	NY-7.RP.2.c	<ul style="list-style-type: none"> <li>Address an equation, graph, or table that has a y-intercept and is therefore, not proportional. (Warm-Up or exit slip???)</li> </ul>		
Continue from Day 11	NY-7.RP.2.d	<ul style="list-style-type: none"> <li>Station Review</li> </ul>		
Interpreting proportional relationships from graphs	NY-7.RP.2.a,b,d			
Review		<ul style="list-style-type: none"> <li>Museum Walk: Post examples of tables, graphs, equations, and written scenarios around the room and have students answer corresponding questions about each example.</li> </ul>		
Test				

**Extra Topic: Circle Discovery (3 Days) including hands on discovery activities**

## Math 7

### Expressions, Equations, and Inequalities: 38 Days

**Vocabulary:** Variables, Algebraic Expressions, Equations, Inequalities, "at least", "at most", "is less than", "is greater than", "is greater than or equal to", "is less than or equal to", "is", Evaluate, Simplify, Solve, Check, Solution, Substitute, Inverse, Arithmetic and Algebraic, Distributive Property, Terms, Like Terms, Monomials, Binomials, Trinomials, Constant, Integers, Combining, Factoring, Expanding, Linear, Coefficients, Circumference, Diameter, Radius, Area

Topic	Next Gen Stand.	Activities	Mathematical Practices	Notes	
Introduction or Launch Day		<ul style="list-style-type: none"> <li>Post-It Activity</li> </ul>			
Translating Basics		<ul style="list-style-type: none"> <li>Operations Chart</li> </ul>	<b>MP 2:</b> Reason abstractly and quantitatively.  <b>MP 3:</b> Construct viable arguments and critique the reasoning of others.  <b>MP 8:</b> Look for and express regularity in repeated reasoning.	Work in radius and diameter vocabulary	
Translating Practice		<ul style="list-style-type: none"> <li>Practice</li> </ul>			
Evaluating Expressions	NY-7.EE.3	<ul style="list-style-type: none"> <li>Emphasis on vocabulary</li> <li>Evaluate expressions with integers, fractions, decimals, and percents</li> <li>Evaluating expressions</li> </ul>			
Practice		<ul style="list-style-type: none"> <li>Practice with evaluating</li> </ul>			
Evaluating Circles					
Combining like terms	NY-7.EE.1	<ul style="list-style-type: none"> <li>Combining like terms</li> </ul>			Make sure to talk about equivalent expressions throughout.
Continuation...					

Curriculum Map: Math 7

Distributing	NY-7.EE.1			
Practice		<ul style="list-style-type: none"> <li>Station Review</li> </ul>		Include fractions and comb. & dist. together
Factoring	NY-7.EE.1			
Continuation...				
Review				
Expressions Test				
1-step eq'ns rationals (Add & Sub)				Use rationals
1-step eq'ns rationals (Mult. & Div.)				
Solving for Area and Circumference				Given circumference, find area
Two-step eq'ns (Mult. only)	NY-7.EE.3			Use rationals, make numbers nasty!
Two-step eq'ns (Div. only)	NY-7.EE.3		<b>MP 1:</b> Make sense of problems and persevere in solving them.	
Practice with two-step		<ul style="list-style-type: none"> <li>Challenging problems</li> </ul>		

Curriculum Map: Math 7

Eq'ns that combine like terms	NY-7.EE.3		MP 3: Construct viable arguments and critique the reasoning of others.	
Eq'ns with distribution	NY-7.EE.3			
Practice solving equations				
Writing equations from real life scenarios	NY-7.EE.4.a			
More Practice				
Quiz: Solving Equations				
Solution sets and graphing	NY-7.EE.4.b		MP 3: Construct viable arguments and critique the reasoning of others.  MP 6: Attend to precision.	
Writing inequalities from graphs	NY-7.EE.4.b			
Write inequalities from real life scenarios	NY-7.EE.4.b			

Curriculum Map: Math 7

Solve 1-step inequalities with rationals (Add & Sub)	NY-7.EE.4.b			
Solve 1-step inequalities with rationals (Multiplication)	NY-7.EE.4.b			
Solve 1-step inequalities with rationals (Division)	NY-7.EE.4.b			
Two-step inequalities (Multiplication)	NY-7.EE.4.b	<ul style="list-style-type: none"> <li>Solve inequalities using puzzle activity</li> </ul>		
Two-step inequalities (Division)	NY-7.EE.4.b			
Practice				
Applications of Inequalities	NY-7.EE.4.b			
Quiz - Inequalities				

**Math 7**  
**Percents: 16 Days**

Vocabulary: Estimation, Rounding, Tax, Tip, Discount, Commission, Simple Interest, Markup, Markdown, Percent Error, Percent Change

Topic	Next Gen Stand.	Activities	Mathematical Practices	Notes
Explore percent problems	NY-7.RP.3	<ul style="list-style-type: none"> <li>Group students homogeneously and give them some basic percent problems.</li> <li>Let students make their own meaning and use whatever method they choose.</li> </ul>	<p><b>M.P.1:</b> Make sense of problems and persevere in solving them</p> <p><b>M.P.2:</b> Reason abstractly and quantitatively</p>	
Benchmark Percents with estimation	NY-7.RP.3	<ul style="list-style-type: none"> <li>Put one problem from day prior on board and have students (that used different strategies) come up to show their work.</li> <li>Discuss how and why each one worked.</li> <li>Estimation (add bar model)</li> </ul>	<p><b>M.P.4:</b> Model with Mathematics</p> <p><b>M.P.6:</b> Attend to precision</p>	
One-Step Percents	NY-7.RP.3	<ul style="list-style-type: none"> <li>Estimating Warm-Up</li> <li>One-Step Practice</li> <li>Continue to use multiple methods so students can see pros and cons (when to use and when not to)</li> </ul>	<p><b>M.P.7:</b> Look for and make use of structure</p>	

Curriculum Map: Math 7

Tax, Tip, and Discount (2 steps)	NY-7.RP.3	<ul style="list-style-type: none"> <li>One-Step Warm-Up (maybe force them to solve use two different methods to check for understanding.</li> <li>TTD Practice</li> </ul>		
Simple Interest and Commission	NY-7.RP.3	<ul style="list-style-type: none"> <li>Warm-Up: Give 2 SI problems constructively (solve for the amount of interest for one year and then ask if they can find it for 30 years) and then compare.</li> <li>Practice</li> </ul>		
Review		<ul style="list-style-type: none"> <li>Percent Basketball</li> <li>Practice</li> </ul>		
Quiz				
Finding the Original Price	NY-7.RP.3	<ul style="list-style-type: none"> <li>WU: Give one problem constructively to see if they can figure it out.</li> <li>Original Price Practice</li> </ul>		
Extra Practice	NY-7.RP.3	<ul style="list-style-type: none"> <li>WU: Percent Review - Do with a partner and collect.</li> </ul>		
Percent Change & Percent Error	NY-7.RP.3	<ul style="list-style-type: none"> <li>Percent Change Practice</li> <li>(Twinkie Activity)</li> </ul>		
Emphasize equations and bars for %s	NY-7.RP.3			

Curriculum Map: Math 7

Review				
Quiz				
Multi-Step Problems	NY-7.RP.3			
Review		<ul style="list-style-type: none"> <li>Stations</li> </ul>		
Test				



**Math 7**  
**Statistics and Probability: 11 Days**

**Vocabulary:** Population, Sample, Random sample, Range, Mean, Median, Mode, Outlier, Frequency Table, Dot Plot, Mean, Absolute Deviation, Stem and Leaf Plot, First Quartile, Second Quartile, Third Quartile, Inner Quartile Range, Box and Whisker Plot, Percentiles, Index, Theoretical Probability, Experimental Probability, Simple Events, Compound Events, Equally Likely, Sample Space, Outcome

Topic	Next Gen Stand.	Activities	Mathematical Practices	Notes
Population vs. sampling (random) Use proportions to make predictions		<ul style="list-style-type: none"> <li>Focus on vocabulary</li> <li>Compare and contrast samples</li> </ul>	<p><b>M.P. 3:</b> Construct viable arguments and critique the reasoning of others</p> <p><b>M.P.6:</b> Attend to precision</p>	
MCT and Frequency Tables	NY-7.SP.3	<ul style="list-style-type: none"> <li>Compare and contrast tables</li> </ul>		
MCT and Dot Plots	NY-7.SP.3	<ul style="list-style-type: none"> <li>Compare and contrast dot plots</li> </ul>		
Calculate and Interpret Mean Absolute Deviation	NY-7.SP.3			
Box and Whisker Plots	NY-7.SP.3,4			

Curriculum Map: Math 7

Compare and contrast multiple sets of data	NY-7.SP.4	<ul style="list-style-type: none"> <li>The data should be in multiple representations when comparing, contrasting, and drawing conclusions</li> </ul>		
Basic Probability Theoretical vs. experimental & Likelihood		<ul style="list-style-type: none"> <li>Probability from <math>0 \rightarrow 1</math></li> </ul>	<p><b>M.P.4:</b> Model with mathematics</p> <p><b>M.P.5:</b> Use appropriate tools strategically</p>	
FCP			<p><b>M.P.6:</b> Attend to precision</p>	
Dependent Events	NY-7.SP.8.a		<p><b>M.P.7:</b> Look for and make use of structure</p>	
Independent Events				
Generating sample spaces: lists, tables, and trees	NY-7.SP.8		<p><b>M.P.4:</b> Model with mathematics</p> <p><b>M.P.5:</b> Use appropriate tools strategically</p> <p><b>M.P.7:</b> Look for and make use of structure</p>	

New York State Assessment Review

## Math 7

### Geometry: 14 Days

**Vocabulary:** Polygon, Plane Figure, Vertex, Scalene, Isosceles, Equilateral, Acute, Right, Obtuse, Quadrilateral, Parallelogram, Rhombus, Trapezoid, Square, Rectangle, Pentagon, Hexagon, Heptagon, Octagon, Nonagon, Decagon, Line Segment, Parallel, Similar Figures, Endpoint, Adjacent, Complementary, Perpendicular, Supplementary, Vertical, Congruent, Apothem, Regular, Irregular, Perimeter, Area, Surface Area, Volume, Composite Figures, Solid, Face, Edge, Net, Cross-section, Prism, Pyramid

Topic	Next Gen Stand.	Activities	Mathematical Practices	Notes
Basic geometric vocabulary		<ul style="list-style-type: none"> <li>• Polygons</li> <li>• Types of Quadrilaterals</li> <li>• Types of Triangles</li> <li>• HW: Freehand constructions</li> </ul>		<b>Use a calculator</b>
Protractor practice to develop triangle angle-sum of triangles and constructions	NY-7.G.2	<ul style="list-style-type: none"> <li>• WU: Four corner activity???</li> <li>• Develop the angle sum of a triangle by having each student draw a triangle on graph paper, then switch with a partner and measure. (Practice with protractor)</li> <li>• Using a protractor, construct triangles and quads given:               <ul style="list-style-type: none"> <li>• three angles</li> <li>• two sides and one angle</li> </ul> </li> </ul>	<p><b>M.P.5:</b> Use appropriate tools strategically</p> <p><b>M.P.6:</b> Attend to precision</p>	
Straw Activity				

Curriculum Map: Math 7

Task				
Similar Figures				
Determine number of triangles from given conditions	NY-7.G.2	<ul style="list-style-type: none"> <li>• Divide into four groups (differentiated among ability)               <ul style="list-style-type: none"> <li>• 1) given three angles, discover infinitely many triangles</li> <li>• 2) given three sides, discover one or no triangles</li> <li>• 3) given ASA, discover one triangle is created</li> <li>• 4) given SAS, discover one triangle is created</li> </ul> </li> </ul>		
Perimeter and Area	NY-7.G.6		<p><b>M.P.1:</b> Make sense of problems and persevere in solving them</p> <p><b>M.P.2:</b> Reason abstractly and quantitatively</p> <p><b>M.P.8:</b> Look for and express regularity and repeated reasoning</p>	
Continuation...	NY-7.G.6			
Circle Day				
Composite Figures	NY-7.G.6			
Continuation...				
Review				
Quiz				
"Final Exam Tasks"				

**Math 7**  
**Geometry continued...: 15 Days**

Two-dimensional figures from three-dimensional figures	NY-7.G.3		<p><b>M.P.1:</b> Make sense of problems and persevere in solving them</p> <p><b>M.P.3:</b> Construct viable arguments and critique the reasoning of others</p> <p><b>M.P.5:</b> Use appropriate tools strategically</p> <p><b>M.P.2:</b> Reason abstractly and quantitatively</p> <p><b>M.P.8:</b> Look for and express regularity and repeated reasoning</p>	
Surface Area	NY-7.G.6			
Continuation...				
Volume	NY-7.G.6	<ul style="list-style-type: none"> <li>Area of the base times the height of the prism</li> </ul>		
Continuation...				
Tin Man Project				

Curriculum Map: Math 7

Task or Assessment				
Continuation...				
Continuation...				
Angle relationship vocabulary	NY-7.G.5	<ul style="list-style-type: none"> <li>Complementary, supplementary, adjacent, vertical</li> </ul>	<b>M.P.4:</b> Model with mathematics  <b>M.P.6:</b> Attend to precision  <b>M.P.7:</b> Look for and make use of structure	
Practice with expressions and equations	NY-7.G.5			
Review				
Review				
Test				

Review of Material and Final Exam