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| Time Frame | Topic/Unit | Skills/Concepts | Major Assessments | Core Standards | Resources |
|  | UNIT #1 – Essential Review | * Lesson 1 – Multiplication * Lesson 2 – Division * Lesson 3 – Dividing Fractions * Lesson 4 – Dividing with Decimals * Lesson 5 – Fractions and Decimals * Lesson 6 – Ratios and Rates * Lesson 7 – Introduction to the Calculator * Lesson 8 – Working with Rates Using the Calculator |  | 7.NS.2d | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #2 – Operations with Signed Numbers | * Lesson 1 – The Rational Numbers * Lesson 2 – Adding Signed Numbers * Lesson 3 – More Work Adding Signed Numbers * Lesson 4 – Subtracting Signed Numbers * Lesson 5 – More Work Subtracting Signed Numbers * Lesson 6 – Adding and Subtracting Graphically * Lesson 7 – Subtraction and Distance * Lesson 8 – Multiplication of Signed Numbers * Lesson 9 – Division of Signed Numbers * Lesson 10 – More Work Multiplying and Dividing Signed Numbers * Lesson 11 – Evaluating Expressions with Order of Operations * Lesson 12 – Working with Signed Numbers on the Calculator |  | 7.NS.1a  7.NS.1b  7.NS.1c  7.NS.1d  7.NS.2a  7.NS.2b  7.NS.2c  7.NS.3 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #3 – Proportional Relationships | * Lesson 1 – Ratios * Lesson 2 – Ratios and Complex Fractions * Lesson 3 – Fractions and Algebra * Lesson 4 – Solving Ratio Problems Using Algebra * Lesson 5 – Proportional Relationships * Lesson 6 – Solving Proportions * Lesson 7 – Exploring Proportional Relationships * Lesson 8 – Graphs of Proportional Relationships * Lesson 9 – Equations of Proportional Relationships * Lesson 10 – More Work with Proportional Relationships |  | 7.RP.1  7.RP.2a  7.RP.2b  7.RP.2c  7.RP.2d  7.RP.3 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #4 – Percent | * Lesson 1 – Finding Fractions of Quantities * Lesson 2 – More Work with Fractions of Wholes * Lesson 3 – Percent Basics * Lesson 4 – Decimals and Percentages * Lesson 5 – Percent, Decimals, and the Calculator * Lesson 6 – The Percentage a Part Represents * Lesson 7 – Messy Percentages * Lesson 8 – Percent Increase and Decrease * Lesson 9 – Additional Applications of Percent * Lesson 10 – Finding the Whole Using Algebra |  | 7.RP.3 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #5 – Linear Expressions | * Lesson 1 – The Properties of Real Numbers * Lesson 2 – Variables and Expressions * Lesson 3 – Equivalent Expressions Day 1 * Lesson 4 – Equivalent Expressions Day 2 * Lesson 5 – Combining Like Terms * Lesson 6 – Simplifying Complex Expressions * Lesson 7 – Factoring Binomials * Lesson 8 – Revisiting Percent Increase and Decrease Using Algebra |  | 7.EE.1  7.EE.2 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #6 – Linear Equations and Inequalities | * Lesson 1 – Solutions to Equations * Lesson 2 – Two-Step Equations * Lesson 3 – More Work with Two-Step Equations * Lesson 4 – Manipulating Expressions within Equations * Lesson 5 – Recognizing Structure to Solve Two-Step Equations * Lesson 6 – Solving Word Problems with Two-Step Equations Day 1 * Lesson 7 – Solving Word Problems with Two-Step Equations Day 2 * Lesson 8 – Solving Two-Step Inequalities * Lesson 9 – An Interesting Property of Inequalities * Lesson 10 – Modeling with Inequalities |  | 7.EE.3  7.EE.4a  7.EE.4b | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #7 –Statistics | * Lesson 1 – Statistical Questions and Measures * Lesson 2 – Quartiles * Lesson 3 – Box Plots * Lesson 4 – Outliers * Lesson 5 – Comparing Samples |  | 7.SP.1  7.SP.3  7.SP.4 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #8 – Probability | * Lesson 1 – Probability Terminology * Lesson 2 – Compound Events * Lesson 3 – More Work with Compound Events * Lesson 4 – Sums of Dice * Lesson 5 – Simulating Compound Events |  | 7.SP.8a  7.SP.8b  7.SP.8c | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #9 – The Geometry of Angle and Triangles | * Lesson 1 – Points, Lines, Rays, and Segments * Lesson 2 – Angles and Their Measures * Lesson 3 – Angle Types and Pairs * Lesson 4 – More Work with Angle Pairs * Lesson 5 – Algebra and Angles * Lesson 6 – Triangles and Their Angles |  | 7.G.5 | [www.emathinstrction.com](http://www.emathinstrction.com) |
|  | UNIT #10 – Geometric Measurement | * Lesson 1 – Basic Geometric Formula * Lesson 2 – Areas of Trapezoids * Lesson 3 – Scaled Drawings * Lesson 4 – Circles * Lesson 5 – The Circumference of a Circle * Lesson 6 – The Area of a Circle * Lesson 7 – Solids and Their Cross Sections * Lesson 8 – Surface Area of Solids * Lesson 9 – The Volume of Right Prisms |  | 7.G.1  7.G.3  7.G.4  7.G.6 | [www.emathinstrction.com](http://www.emathinstrction.com) |

NYS Next Generation Mathematics Learning Standards

**NY-7.RP (Ratios and Proportional Reasoning)**

Analyze proportional relationships and use them to solve real-world and mathematical problems.

1. Compute unit rates associated with ratios of fractions.

2. Recognize and represent proportional relationships between quantities.

a. Decide whether two quantities are in a proportional relationship.

b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal

descriptions of proportional relationships.

c. Represent a proportional relationship using an equation.

d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation,

with special attention to the points (0, 0) and (1, r) where r is the unit rate.

3. Use proportional relationships to solve multistep ratio and percent problems.

**NY-7.NS (The Number System)**

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and

divide rational numbers.

1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers.

Represent addition and subtraction on a horizontal or vertical number line.

a. Describe situations in which opposite quantities combine to make 0.

b. Understand addition of rational numbers; p  q is the number located a distance |q| from p, in the

positive or negative direction depending on whether q is positive or negative. Show that a number and

its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing

real-world contexts.

c. Understand subtraction of rational numbers as adding the additive inverse, p - q = p + (-q) . Show that

the distance between two rational numbers on the number line is the absolute value of their difference,

and apply this principle in real-world contexts.

d. Apply properties of operations as strategies to add and subtract rational numbers.

2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and

divide rational numbers.

a. Understand that multiplication is extended from fractions to rational numbers by requiring that

operations continue to satisfy the properties of operations, particularly the distributive property, leading

to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of

rational numbers by describing real-world contexts.

b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of

integers (with non-zero divisor) is a rational number. If p and q are integers, then

-() = =

Interpret quotients of rational numbers by describing real world contexts.

c. Apply properties of operations as strategies to multiply and divide rational numbers.

d. Convert a fraction to a decimal using long division; know that the decimal form of a rational number

terminates in 0s or eventually repeats.

3. Solve real-world and mathematical problems involving the four operations with rational numbers.

**NY-7.EE (Expressions, Equations, and Inequalities)**

Use properties of operations to generate equivalent expressions.

1. Add, subtract, factor, and expand linear expressions with rational coefficients by applying the properties of

operations.

2. Understand that rewriting an expression in different forms in real-world and mathematical problems can

reveal and explain how the quantities are related.

Solve real-life and mathematical problems using numerical and algebraic expressions, equations, and

inequalities.

3. Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers

in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of

operations to calculate with numbers in any form; convert between forms as appropriate. Assess the

reasonableness of answers using mental computation and estimation strategies.

4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations

and inequalities to solve problems by reasoning about the quantities.

a. Solve word problems leading to equations of the form px + q = r and p( x + q) = r , where p, q, and r

are rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an

arithmetic solution, identifying the sequence of the operations used in each approach.

b. Solve word problems leading to inequalities of the form px + q > r , px + q ≥ r , px + q < r , or

px + q ≤ r , where p, q, and r are rational numbers. Graph the solution set of the inequality on the number

line and interpret it in the context of the problem.

**NY-7.G (Geometry)**

Draw, construct, and describe geometrical figures and describe the relationships between them.

1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas

from a scale drawing and reproducing a scale drawing at a different scale.

2. Draw triangles when given measures of angles and/or sides, noticing when the conditions determine a unique

triangle, more than one triangle, or no triangle.

Draw, construct, and describe geometrical figures and describe the relationships between them.

3. Describe the two-dimensional shapes that result from slicing three-dimensional solids parallel or

perpendicular to the base.

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Apply the formulas for the area and circumference of a circle to solve problems.

5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write

and solve simple equations for an unknown angle in a figure.

6. Solve real-world and mathematical problems involving area of two-dimensional objects composed of

triangles and trapezoids, Solve surface area problems involving right prisms and right pyramids composed of triangles and trapezoids, Find the volume of right triangular prisms, and solve volume problems involving three-dimensional objects

composed of right rectangular prisms.

**NY-7.SP (Statistics and Probability)**

Draw informal comparative inferences about two populations.

1. Construct and interpret box-plots, find the interquartile range, and determine if a data point is an outlier.

3. Informally assess the degree of visual overlap of two quantitative data distributions.

4. Use measures of center and measures of variability for quantitative data from random samples or populations

to draw informal comparative inferences about the populations.

Investigate chance processes and develop, use, and evaluate probability models.

8. Find probabilities of compound events using organized lists, sample space tables, tree diagrams, and

simulation.

a. Understand that, just as with simple events, the probability of a compound event is the fraction of

outcomes in the sample space for which the compound event occurs.

b. Represent sample spaces for compound events using methods such as organized lists, sample space

tables, and tree diagrams.

For an event described in everyday language, identify the outcomes in the sample space which compose

the event.

c. Design and use a simulation to generate frequencies for compound events.