

# New York State Next Generation Mathematics Learning Standards

## Rising 1st



### Counting and Cardinality

- NY-K.CC.5a: Answer counting questions using as many as 20 objects arranged in a line, a rectangular array, and a circle. Answer counting questions using as many as 10 objects in a scattered configuration.

### Operations and Algebraic Thinking

- NY-K.OA.1: Represent addition and subtraction using objects, fingers, pennies, drawings, sounds, acting out situations, verbal explanations, expressions, equations, or other strategies.
- NY-K.OA.2b: Solve addition and subtraction word problems within 10.

### Number and Operations in Base Ten

- NY-K.NBT.1: Compose and decompose the numbers from 11 to 19 into ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

# New York State Next Generation Mathematics Learning Standards

## Rising 2nd



### Operations and Algebraic Thinking

- NY-1.OA.1: Use addition and subtraction within 20 to solve one step word problems involving situations of adding to, taking from, putting together, taking apart, and/or comparing, with unknowns in all positions.
- NY-1.OA.6a: Add and subtract within 20. Use strategies such as: counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.

### Number and Operations in Base Ten

- NY-1.NBT.4: Add within 100, including a two-digit number and a one-digit number and a two-digit number and a multiple of 10. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones, and sometimes it is necessary to compose a ten. Relate the strategy to a written representation and explain the reasoning used.
- NY-1.NBT.6: Subtract multiples of 10 from multiples of 10 in the range 10-90 using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy used to a written representation and explain the reasoning.

# New York State Next Generation Mathematics Learning Standards

Rising 3rd



## Operations and Algebraic Thinking

- NY-2.OA.1a: Use addition and subtraction within 100 to solve one-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

## Number and Operations in Base Ten

- NY-2.NBT.5: Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- NY-2.NBT.7a: Add and subtract within 1000, using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written representation.
- NY-2.NBT.9: Explain why addition and subtraction strategies work, using place value and the properties of operations.

# New York State Next Generation Mathematics Learning Standards

## Rising 4th



### Operations and Algebraic Thinking

- NY-3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.
- NY-3.OA.7a: Fluently solve single-digit multiplication and related divisions, using strategies such as the relationship between multiplication and division or properties of operations.
- NY-3.OA.8: Solve two-step word problems posed with whole numbers and having whole-number answers using the four operations.

### Numbers and Operations in Base Ten

- NY-3.NBT.2: Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

# New York State Next Generation Mathematics Learning Standards

## Rising 5th



### Operations and Algebraic Thinking

- NY-4.OA.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

### Number and Operations in Base Ten

- NY-4.NBT.4: Fluently add and subtract multi-digit whole numbers using a standard algorithm.
- NY-4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- NY-4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

# New York State Next Generation Mathematics Learning Standards

## Rising 6th



### Number and Operations in Base Ten

- NY-5.NBT.7: Using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations: add and subtract decimals to hundredths; and multiply and divide decimals to hundredths. Relate the strategy to a written method and explain the reasoning used.

### Number and Operations — Fractions

- NY-5.NF.3: Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- NY-5.NF.6: Solve real world problems involving multiplication of fractions and mixed numbers.
- NY-5.NF.7c: Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.

# New York State Next Generation Mathematics Learning Standards

Rising 7th



## Ratios and Proportional Relationships

- NY-6.RP.2: Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$  ( $b$  not equal to zero), and use rate language in the context of a ratio relationship.
- NY-6.RP.3b: Solve unit rate problems.
- NY-6.RP.3c: Find a percent of a quantity as a rate per 100. Solve problems that involve finding the whole given a part and the percent, and finding a part of a whole given the percent.

## The Number System

- NY-6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.

# New York State Next Generation Mathematics Learning Standards

Rising 8th



## Ratios and Proportional Relationships

- NY-7.RP.2c: Represent a proportional relationship using an equation.
- NY-7.RP.3: Use proportional relationships to solve multistep ratio and percent problems.

## The Number System

- NY-7.NS.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.

## Expressions, Equations, and Inequalities

- NY-7.EE.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.



# New York State Next Generation Mathematics Learning Standards

Rising 9th



## Expressions, Equations, and Inequalities

- NY-8.EE.4: Perform multiplication and division with numbers expressed in scientific notation, including problems where both standard decimal form and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.
- NY-8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
- NY-8.EE.8: Analyze and solve pairs of simultaneous linear equations.

## Craft and Structure

- NY-8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.