

# New York City Department of Education

## Scope and Sequence Sample— Grade 2

### 2012-13 School Year

#### Overview

This document was created after closely examining the Common Core Learning Standards (CCLS) and the previous New York State Standards and updated after examining NYS' recently released [scope and sequence supports](#) and testing program [guidance](#). It provides a high-level CCLS-aligned scope and sequence for Mathematics that also takes into account the differences in and transition from the New York State Standards. The scope and sequence is aligned to the Common Core and demonstrates a focus on the major work of the grade<sup>1</sup>, which the [State has indicated](#) will be the focus of next year's 3-8 State exams. This scope and sequence represents one way that a school may choose to organize and teach the full range of the standards and incorporate the State's [pre and post-test standards](#) guidance. This document contains the following components:

- **Year-long Overview:** A one-page view of the year that shows the:
  - **Unit Summary:** The number of suggested units across the year and the amount of instructional time spent on each unit.
  - **Concepts that Should be Omitted:** Concepts that are no longer taught at this grade-level according to the CCLS.
  - **Bridge Guidance:** Concepts that would have been taught in earlier grades, according to the Common Core, but were not part of the New York State Standards. They should be considered and woven into units during transition years since the concepts were not previously addressed/addressed fully in the New York State Standards. We ask that you consider the needs of your students when deciding if it is necessary to teach these concepts. Please note: Bridge concepts are intended for instructional consideration when crafting a coherent sequence of instruction during the transitional years only and are not a part of SED's draft Test Program Guidance.
- **High-level Unit Overviews:** Overviews of each unit that include the:
  - **Unit Description:** A narrative description of the concepts the unit is intended to cover and the amount of instructional time suggested.
  - **Standards:** The group of related standards that should be taught within the unit.

#### How to Use:

To use this document, teacher teams could:

- Review the year-long and unit overviews to assess whether the scope and sequence makes sense for their school.
- Review the resources available by standard in each high-level unit overview.
- Use the high-level unit overviews and resources available to teach a sequence of instruction that fully addresses the standards represented.

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<sup>1</sup> For a listing of content emphases by cluster, refer to <http://engageny.org/resource/math-content-emphases>. For additional guidance—including key advances by grade, opportunities for in-depth focus, connections between content and practice standards, etc.—refer to [http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematics\\_August%202012rev2\\_FINAL.pdf](http://www.parcconline.org/sites/parcc/files/PARCCMCFMathematics_August%202012rev2_FINAL.pdf).

With questions or feedback on this document, please email [commoncorefellows@schools.nyc.gov](mailto:commoncorefellows@schools.nyc.gov).

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### Grade 2 Year-Long Overview:

This table shows an overview of all units that should be taught across the year and the recommended instructional time for each unit <sup>1</sup>.

Grade 2: Suggested Distribution of Units in Instructional Days	Time	# of weeks
Unit 1: Add/Subtract Numbers to 100, Fluency with Sums and Differences to 20	5%	2 weeks
Unit 2: Adding and Subtraction of Length, Weight, Capacity, and Time Measurements	10%	4 weeks
Unit 3: Place Value, Counting, and Comparison of Numbers to 1000	16%	5 weeks
Unit 4: Addition and Subtraction of Numbers to 1000	20%	7 weeks
Unit 5: Preparation for Multiplication and Division Facts	22%	8 weeks
Unit 6: Comparison, Addition and Subtraction with Length and Money	17%	6 weeks
Unit 7: Recognizing Angles, Faces, and Vertices of Shapes, Fractions of Shapes	10%	4 weeks

#### Concepts that should be Omitted:

- Gather and record data using tallies
- Describe and extend increasing or decreasing sequences

#### Bridge Concepts

- Understand subtraction as an unknown addend problem.
- Use place value understanding to add within 100.
- Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- Compare two two-digit numbers based on meaning of the tens and ones digits, recording the results of comparisons with the symbols  $<$ ,  $>$ , and  $=$ .

<sup>1</sup> Unit overviews and suggested instructional time are based on *Common Core Curriculum Maps in Mathematics A Story of Units Pre-K- 5* developed by Common Core, Inc.  
Version 9.17.12

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### Unit 1: Add/Subtract Numbers to 100, Fluency with Sums and Differences to 20 – (2 Weeks)

**DESCRIPTION:** Students will begin with an established motivating, differentiated fluency program in the first few weeks that will provide the amount of practice necessary for every student to reach mastery of the addition and subtraction facts to 20. The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

#### Standards

The standards listed below are **not** intentionally sequenced and should **not** simply be taught consecutively. Strong units weave these standards together in a thoughtful and coherent way. Schools and teacher teams can use this document to compare their current curriculum to and choose high leverage moments to enhance instruction.

**Represent and solve problems involving addition and subtraction.**

**2.OA.1:** Use addition & subtraction strategies within 100 to solve one & two<sup>2</sup>-step word problems involving situations of adding to, taking from, putting together, taking apart, & comparing, with unknowns *in all positions*,<sup>3</sup> e.g., by using drawings & equations with a symbol for the unknown number to represent the problem.

**Add and subtract within 20.**

**2.OA.2:** Fluently add & subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

**Use place value understanding and properties of operations to add and subtract.**

**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.

**Bridge Guidance:** Concepts that would have been taught in earlier grades, according to the Common Core, but were not part of the New York State Standards. They should be considered and woven into units during transition years since the concepts were not previously addressed/addressed fully in the New York State Standards. We ask that you consider the needs of your students when deciding if it is necessary to teach these concepts. Please note: Bridge concepts are intended for instructional consideration when crafting a coherent sequence of instruction during the transitional years only and are not a part of SED's draft Test Program Guidance.

#### Standards

**1.OA.4** Understand subtraction as an unknown-addend problem. For example subtract  $10 - 8$  by finding the number that makes 10 when added to 8.

**1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens & ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones – called a ten.

The numbers from 11 to 19 are composed of a ten & one, two, three, four, five, six, seven, eight or nine ones.

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### Unit 2: Addition and Subtraction of Length, Weight, Capacity and Time Measurements - (4 Weeks)

**DESCRIPTION:** Students will learn to measure using non-standard units (while continuing to practice fluency). This unit provides the necessary background to ask varied and multifaceted measurement problems throughout the year. The major underlying goal of the measurement unit, however, is for students to learn the meaning of the word “unit,” essentially by employing it repeatedly in describing length units, weight units, and capacity units. The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

#### Standards

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#### Measure and estimate lengths in standard units.

**2.MD.1:** Measure the length of an object by selecting & using appropriate tools such as rulers, yardsticks, meter sticks & measuring tapes.

**2.MD.2:** Measure the length of an object twice, using length units of different lengths for the two measurements, describe how the two measurements relate to the size of the unit chosen.

**2.MD.3:** Estimate lengths using units of inches, feet, centimeters & meters.

**2.MD.4:** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

#### Relate addition and subtraction to length.

**2.MD.5:** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

**2.MD.6:** Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ... & represent whole-number sums & differences within 100 on a number line diagram.<sup>4</sup>1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $5 = ? - 6$ ,  $6 + 6 = ?$ .

#### Work with time and money.

**2.MD.7:** Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m

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### Unit 3: Place Value, Counting, Comparison of Numbers to 1000 – (5 Weeks)

**DESCRIPTION:** Students will learn that all arithmetic algorithms are manipulations of *place value units*: ones, tens, hundreds, etc. The place value units move from a proportional model to a non-proportional model. The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

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#### Understand place value.

**2.NBT.1:** Understand that the three digits of a three-digit number represent amounts of hundreds, tens & ones: e.g., 706 equals 7 hundreds, 0 tens & 6 ones. Understand the following as special cases:

- a. 100 can be thought of as a bundle of 10 tens - called a "hundred."
- b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two three, four five six, seven, eight or nine hundreds (& 0 tens & 0 ones).

**2.NBT.2:** Count within 1000: skip-count by 5s, 10s & 100s.

**2.NBT.3:** Read & write numbers to 1000 using base-ten numerals, number names, & expanded form.

**2.NBT.4:** Compare 2 three-digit numbers based on meanings of the hundreds, tens & ones digits, using  $>$ ,  $+$ , &  $<$  to record the results of comparisons.

**Bridge Guidance:** Concepts that would have been taught in earlier grades, according to the Common Core, but were not part of the New York State Standards. They should be considered and woven into units during transition years since the concepts were not previously addressed/addressed fully in the New York State Standards. We ask that you consider the needs of your students when deciding if it is necessary to teach these concepts. Please note: Bridge concepts are intended for instructional consideration when crafting a coherent sequence of instruction during the transitional years only and are not a part of SED's draft Test Program Guidance.

#### Standards

**1.NBT.3** Compare two two-digit numbers based on meanings of the tens & ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , &  $<$ .<sup>5</sup>

**1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens & ones. Understand the following as special cases:

- a. 10 can be thought of as a bundle of ten ones – called a ten.

The numbers from 11 to 19 are composed of a ten & one, two, three, four, five, six, seven, eight or nine ones.

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### Unit 4: Addition, and Subtraction of Numbers to 1000 – (7 Weeks)

**DESCRIPTION:** Work with units continues into this unit on multiplication. Making groups of 4 apples each establishes the unit “4 apples” (or just four) that can then be counted: 1 four, 2 fours, 3 fours, etc. Relating the new unit to the one used to create it develops the idea of multiplication: 3 groups of apples equal 12 apples (or 3 fours is 12). The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

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**Represent and solve problems involving addition and subtraction.**

**2.OA.1:** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

**Use place value understanding and properties of operations to add and subtract.**

**2.NBT.5:** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship

**2.NBT.6:** Add up to four two-digit numbers using strategies based on place value and properties of operations.

**2.NBT.7:** 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 method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

**2.NBT.8:** Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900

**2.NBT.9:** Explain why addition and subtraction strategies work, using place value and the properties of operations.

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**1.NBT.4** Add within 100, including adding a two digit number & a one digit number, & adding a two-digit number & a multiple of 10, using concrete models or drawings & strategies based on place value, properties of operations, &/or the relationship between addition & subtraction: relate the strategy to a written method & explain the reasoning used. Understand that in adding two digit numbers, one adds tens & tens, ones & ones: & sometimes it is necessary to compose a ten.

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### Unit 5: Preparation for Multiplication and Division Facts – (8 Weeks)

**DESCRIPTION:** Students will have another chance to practice their algorithms and problem solving skills with the most famous and most interesting units of all: dollars, dimes, and pennies. The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

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**Work with equal groups of objects to gain foundations for multiplication.**

**2.OA.3:** Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

**2.OA.4:** Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

**Reason with shapes and their attributes.**

**2.G.2:** Partition a rectangle into rows and columns of same size squares and count to find the total number of them.

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### Unit 6: Comparison, Addition and Subtraction with Length and Money - (6 Weeks)

**DESCRIPTION:** Students will learn two important relationships: an analog clock face is a “curved number line” (the precursor of a protractor) and that fractions naturally occur on a clock face (e.g. half past the hour). The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

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**2.MD.1:** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks and measuring tapes.

**2.MD.2:** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

**2.MD.3:** Estimate lengths using units of inches, feet, centimeters and meters.

**2.MD.4:** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

#### Relate addition and subtraction to length.

**2.MD.5:** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problems.

**2.MD.6:** Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

#### Work with time and money

**2.MD.8:** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

#### Represent and interpret data.

**2.MD.9:** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

**2.MD.10:** Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

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### Unit 7: Recognizing Angles, Faces, and Vertices of Shapes, Fractions of Shapes - (4 Weeks)

**DESCRIPTION:** Students will learn to identify different shapes with different attributes. The Mathematical Practices should be evident throughout instruction and connected to the content addressed in this unit. Students should engage in mathematical tasks that provide an opportunity to connect content and practices.

#### Standards

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#### Reason with shapes and their attributes.

**2.G.1:** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

**2.G.3:** Partition circles and rectangles into two, three or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.