

New York State P-12 Learning Standards for Mathematics (Revised 2017)

Grade 2
Operations & Algebraic Thinking

		Standard Code	Standard	Additional Clarification/Examples																																
Clusters	A. Represent and solve problems involving addition and subtraction.	2.OA.A.1	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.	<p>e.g., using drawings and equations with a symbol for the unknown number to represent the problem.</p> <p>In the chart below, the four unshaded (white) subtypes are mastered in Kindergarten. Grade 1 and 2 students work with all subtypes. Darker shading indicates the four difficult subtypes that students should work with in Grade 1 but need not master until Grade 2.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>Result Unknown</th> <th>Change Unknown</th> <th>Start Unknown</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Add To</td> <td>A bunnies sat on the grass. <i>B</i> more bunnies hopped there. How many bunnies are on the grass now? $A + B = \square$</td> <td>A bunnies were on the grass. Some more bunnies hopped there. Then there were <i>C</i> bunnies. How many bunnies hopped over to the first <i>A</i> bunnies? $A + \square = C$</td> <td>Some bunnies were sitting on the grass. <i>B</i> more bunnies hopped there. Then there were <i>C</i> bunnies. How many bunnies were on the grass before? $\square + B = C$</td> </tr> <tr> <td>C apples were on the table. I ate <i>B</i> apples. 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			1b. Use addition and subtraction within 100 to develop an understanding of solving two-step problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.	e.g., using drawings and equations with a symbol for the unknown number to represent the problem.																																

B. Add and Subtract within 20.

2.OA.B.2

2a. Fluently add and subtract within 20 using mental strategies. Strategies could include:

- making ten;
- decomposing a number leading to a ten;
- using the relationship between addition and subtraction;
- creating equivalent but easier or known sums; and
- counting on.

2b. Know from memory all sums within 20 of two one-digit numbers.

Note: Fluency involves a mixture of just knowing some answers, knowing some answers from patterns, and knowing some answers from the use of strategies.

e.g., $8 + 6 =$

$$\begin{array}{c} + 6 = \\ + 2 + 4 = \\ + 4 = 14; \end{array}$$

e.g., $13 - 4 =$

$$\begin{array}{c} 13 - 4 = \\ 13 - 3 - 1 = \\ 10 - 1 = 9 \end{array}$$

e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$

e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$.

Levels	$8 + 6 = 14$	$14 - 8 = 6$
Level 1: Count all	<p>Count All</p> <p>a</p> <p>b</p> <p>c</p>	<p>Take Away</p> <p>a</p> <p>b</p> <p>c</p>
Level 2: Count on	<p>Count On</p>	<p>To solve $14 - 8$ I count on $8 + ? = 14$</p> <p>I took away 8</p> <p>8 to 14 is 6 so $14 - 8 = 6$</p>

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Operations & Algebraic Thinking**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	C. Work with equal groups of objects to gain foundations for multiplication.	2.OA.C.3	3a. 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.
			3b. Write an equation to express an even number as a sum of two equal addends.	
		2.OA.C.4	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.	

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Number & Operations in Base Ten**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	A. Understand place value.	2.NBT. A.1	1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.	e.g. 706 equals 7 hundreds, 0 tens, and 6 ones.
		2.NBT. A.1a	1a. Understand 100 can be thought of as a bundle of ten tens, called a "hundred."	
		2.NBT. A.1b	1b. Understand the numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Number & Operations in Base Ten**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	A. Understand place value.	2.NBT. A.2	2. Count within 1000; skip-count by 5s, 10s, and 100s.	
		2.NBT. A.3	3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	e.g., expanded form: $237 = 200 + 30 + 7$
		2.NBT. A.4	4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.	

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Number & Operations in Base Ten**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	B. Use place value understanding and properties of operations to add and subtract.	2.NBT. B.5	5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	<u>Note:</u> Fluency involves a mixture of just knowing some answers, knowing some answers from patterns, and knowing some answers from the use of strategies.
		2.NBT. B.6	6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	
		2.NBT. B.7	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. 7b. Understand that in adding or subtracting up to 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.	<u>Notes:</u> <ul style="list-style-type: none"> • Fluency not expected until grade three. • A written representation is any way of representing a strategy using pictures or numbers.

New York State P-12 Learning Standards for Mathematics (Revised 2017)

Grade 2
Number & Operations in Base Ten

		Standard Code	Standard	Additional Clarification/Examples
Clusters	B. Use place value understanding and properties of operations to add and subtract.	2.NBT. B.8	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. B.9	9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	<u>Note</u> : Explanations may be supported by drawings or objects.

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Measurement & Data**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	A. Measure and estimate lengths in standard units.	2.MD.A.1	1. Measure the length of an object to the nearest whole by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	
		2.MD.A.2	2. Measure the length of an object twice, using different “length units” for the two measurements; describe how the two measurements relate to the size of the unit chosen.	
		2.MD.A.3	3. Estimate lengths using units of inches, feet, centimeters, and meters.	
		2.MD.A.4	4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard “length unit.”	

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Measurement & Data**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	B. Relate addition and subtraction to length.	2.MD.B.5	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 and equations with a symbol for the unknown number to represent the problem.
		2.MD.B.6	6. Represent whole numbers as lengths from 0 on a number line with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line.	
	C. Work with time and money.	2.MD.C.7	7. Tell and write time from analog and digital clocks in five minute increments, using a.m. and p.m. Develop an understanding of common terms, such as, but not limited to, <i>quarter past</i> , <i>half past</i> , and <i>quarter to</i> .	
		2.MD.C.8	8a. Count a mixed collection of coins whose sum is less than or equal to one dollar. 8b. Solve real world and mathematical problems within one dollar involving quarters, dimes, nickels, and pennies, using the ¢ (cent) symbols appropriately.	e.g., If you have 2 dimes and 3 pennies, how many cents do you have? Note: Students are not introduced to decimals, and therefore the dollar symbol, until Grade 4.

New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Measurement & Data**

		Standard Code	Standard	Additional Clarification/Examples												
Clusters	D. Represent and interpret data.	2.MD.D.9	9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Present the measurement data in a line plot, where the horizontal scale is marked off in whole-number units.													
		2.MD.D.10	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 picture graph or a bar graph.	<table border="1"> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Put Together/ Take Apart</td> <td align="center">Total Unknown</td> <td align="center">Both Addends Unknown</td> <td align="center">Addend Unknown</td> </tr> <tr> <td>A red apples and B green apples are on the table. How many apples are on the table? $A + B = \square$</td> <td>Grandma has C flowers. How many can she put in her red vase and how many in her blue vase? $C = \square + \square$</td> <td>C apples are on the table. A are red and the rest are green. How many apples are green? $A + \square = C$ $C - A = \square$</td> </tr> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Compare</td> <td align="center">Difference Unknown</td> <td align="center">Bigger Unknown</td> <td align="center">Smaller Unknown</td> </tr> <tr> <td> “How many more?” version: Lucy has A apples. Julie has C apples. How many more apples does Julie have than Lucy? $A + \square = C$ $C - A = \square$ </td> <td> Version with “More”: Julie has B more apples than Lucy. Lucy has A apples. How many apples does Julie have? Version with “Fewer”: Lucy has B fewer apples than Julie. Lucy has A apples. How many apples does Julie have? $A + B = \square$ </td> <td> Version with “More”: Julie has B more apples than Lucy. Julie has C apples. How many apples does Lucy have? Version with “Fewer”: Lucy has B fewer apples than Julie. Julie has C apples. How many apples does Lucy have? $C - B = \square$ $\square + B = C$ </td> </tr> </table>	Put Together/ Take Apart	Total Unknown	Both Addends Unknown	Addend Unknown	A red apples and B green apples are on the table. How many apples are on the table? $A + B = \square$	Grandma has C flowers. How many can she put in her red vase and how many in her blue vase? $C = \square + \square$	C apples are on the table. A are red and the rest are green. How many apples are green? $A + \square = C$ $C - A = \square$	Compare	Difference Unknown	Bigger Unknown	Smaller Unknown	“How many more?” version: Lucy has A apples. Julie has C apples. How many more apples does Julie have than Lucy? $A + \square = C$ $C - A = \square$
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New York State P-12 Learning Standards for Mathematics (Revised 2017)

**Grade 2
Geometry**

		Standard Code	Standard	Additional Clarification/Examples
Clusters	A. Reason with shapes and their attributes.	2.G.A.1	1. Classify two-dimensional figures as polygons or non-polygons.	
		2.G.A.2	2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	
		2.G.A.3	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. Describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	