



## Mathematics Standards

### GRADE: 2

#### Domain: OPERATIONS AND ALGEBRAIC THINKING

Cluster 1: Represent and solve problems involving addition and subtraction.

| STANDARD CODE | STANDARD   |
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| MAFS.2.OA.1.1 | 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.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts |
| MAFS.2.OA.1.a | Determine the unknown whole number in an equation relating four or more whole numbers. For example, determine the unknown number that makes the equation true in the equations $37 + 10 + 10 = \underline{\quad} + 18$ , $? - 6 = 13 - 4$ , and $15 - 9 = 6 + \square$ .   |

Cluster 2: Add and subtract within 20.

| STANDARD CODE | STANDARD  |
|---------------|---|
| MAFS.2.OA.2.2 | Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.<br><br><i>Cognitive Complexity:</i> Level 1: Recall |

Cluster 3: Work with equal groups of objects to gain foundations for multiplication.

| STANDARD CODE | STANDARD  |
|---------------|---|
| MAFS.2.OA.3.3 | 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.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts |
| MAFS.2.OA.3.4 | 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.<br><br><i>Cognitive Complexity:</i> Level 1: Recall  |

#### Domain: NUMBER AND OPERATIONS IN BASE TEN

Cluster 1: Understand place value.

| STANDARD CODE | STANDARD |
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| MAFS.2.NBT.1.1 | <p>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. Understand the following as special cases:</p> <ul style="list-style-type: none"> <li>a. 100 can be thought of as a bundle of ten tens — called a “hundred.”</li> <li>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 (and 0 tens and 0 ones).</li> </ul> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p> |
| MAFS.2.NBT.1.2 | <p>Count within 1000; skip-count by 5s, 10s, and 100s.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>   |
| MAFS.2.NBT.1.3 | <p>Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>  |
| MAFS.2.NBT.1.4 | <p>Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols to record the results of comparisons.</p> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p>  |

Cluster 2: Use place value understanding and properties of operations to add and subtract.

| STANDARD CODE  | STANDARD  |
|----------------|---|
| MAFS.2.NBT.2.5 | <p>Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>  |
| MAFS.2.NBT.2.6 | <p>Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>   |
| MAFS.2.NBT.2.7 | <p>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.</p> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p> |
| MAFS.2.NBT.2.8 | <p>Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>   |
| MAFS.2.NBT.2.9 | <p>Explain why addition and subtraction strategies work, using place value and the properties of operations.</p> <p><i>Cognitive Complexity:</i> Level 3: Strategic Thinking &amp; Complex Reasoning</p>  |

**Domain: MEASUREMENT AND DATA**

Cluster 1: Measure and estimate lengths in standard units.

| STANDARD CODE | STANDARD   |
|---------------|--|
| MAFS.2.MD.1.1 | <p>Measure the length of an object to the nearest inch, foot, centimeter, or meter by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p> |

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| MAFS.2.MD.1.2 | Describe the inverse relationship between the size of a unit and number of units needed to measure a given object. <i>Example: Suppose the perimeter of a room is lined with one-foot rulers. Now, suppose we want to line it with yardsticks instead of rulers. Will we need more or fewer yardsticks than rulers to do the job? Explain your answer.</i><br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts |
| MAFS.2.MD.1.3 | Estimate lengths using units of inches, feet, yards, centimeters, and meters.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts  |
| MAFS.2.MD.1.4 | Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts  |

Cluster 2: Relate addition and subtraction to length.

| STANDARD CODE | STANDARD   |
|---------------|--|
| MAFS.2.MD.2.5 | 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.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts |
| MAFS.2.MD.2.6 | 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.<br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts                        |

Cluster 3: Work with time and money.

| STANDARD CODE | STANDARD  |
|---------------|---|
| MAFS.2.MD.3.7 | Tell and write time from analog and digital clocks to the nearest five minutes.<br><br><i>Cognitive Complexity:</i> Level 1: Recall   |
| MAFS.2.MD.3.8 | Solve one- and two-step word problems involving dollar bills (singles, fives, tens, twenties, and hundreds) or coins (quarters, dimes, nickels, and pennies) using \$ and ¢ symbols appropriately. Word problems may involve addition, subtraction, and equal groups situations <sup>1</sup> . <i>Example: The cash register shows that the total for your purchase is 59¢. You gave the cashier three quarters. How much change should you receive from the cashier?</i><br><br><ol style="list-style-type: none"> <li>Identify the value of coins and paper currency.</li> <li>Compute the value of any combination of coins within one dollar.</li> <li>Compute the value of any combinations of dollars (e.g., If you have three ten-dollar bills, one five-dollar bill, and two one-dollar bills, how much money do you have?).</li> <li>Relate the value of pennies, nickels, dimes, and quarters to other coins and to the dollar (e.g., There are five nickels in one quarter. There are two nickels in one dime. There are two and a half dimes in one quarter. There are twenty nickels in one dollar).</li> </ol><br><sup>(1)</sup> See glossary <a href="#">Table 1</a><br><br><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills & Concepts |

Cluster 4: Represent and interpret data.

Major Cluster

- Don't ... Sort clusters from Major to Supporting, and then teach them in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters.

| STANDARD CODE  | STANDARD  |
|----------------|---|
| MAFS.2.MD.4.10 | <p>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.</p> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p>  |
| MAFS.2.MD.4.9  | <p>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.</p> <p><i>Cognitive Complexity:</i> Level 2: Basic Application of Skills &amp; Concepts</p> |

## Domain: GEOMETRY

Cluster 1: Reason with shapes and their attributes.

Supporting Cluster

- Don't ... Sort clusters from Major to Supporting, and then teach them in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters.

| STANDARD CODE | STANDARD  |
|---------------|---|
| MAFS.2.G.1.1  | <p>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.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>  |
| MAFS.2.G.1.2  | <p>Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p>   |
| MAFS.2.G.1.3  | <p>Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words <i>halves</i>, <i>thirds</i>, <i>half of</i>, <i>a third of</i>, 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.</p> <p><i>Cognitive Complexity:</i> Level 1: Recall</p> |