

Havre Public School Mathematics 2nd grade

Course: 2nd Grade Mathematics

Time: 1 year

Length: 50 minutes per day

ESSENTIAL UNDERSTANDING:

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

(<http://www.corestandards.org/Math/Content/2/introduction/>)

Theme Samples:

1. Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).
2. Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.
3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.
4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

(<http://www.corestandards.org/Math/Content/2/introduction/>)

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.

Student Objectives:

Numbers and Operations in Base Ten:

- I can understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- I can skip count by 5s, 10s, and 100s.
- I can read, write, and represent numbers in standard form, word form, and expanded form.
- I can compare two three-digit numbers.
- I can use strategies to fluently add and subtract within 100.
- I can use strategies to add up to four two-digit numbers.
- I can use different strategies to add and subtract within 1000.
- I can mentally add and subtract 10 or 100 to any given three-digit number.
- I can add and subtract within 100 on one-step and two-step problems.

Measurement and Data:

- I can measure the length of an object by selecting appropriate tools.
- I can measure the length of an object twice, using length units of different lengths for the two measurements.
- I can estimate the lengths of items using units of inches, feet, centimeters, and meters.
- I can measure to determine how much longer one object is than another.
- I can use addition and subtraction within 100 to solve word problems involving lengths.
- I can use a number line to solve addition and subtraction problems to 100.
- I can tell and write time from analog and digital clocks to the nearest 5 minutes, using a.m., and p.m.
- I can solve word problems involving dollar bills, quarters, dimes, nickels, and pennies using \$ and ¢ symbols.
- I can measure lengths of several objects to the nearest whole unit. I can show the measurements by making a line plot.
- I can draw a picture graph and a bar graph to represent data. I can solve addition and subtraction problems using data from the graphs.

Geometry:

- I can recognize and draw shapes having specific attributes. I can identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- I can partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
- I can partition circles and rectangles into 2, 3, or 4 equal shares. I can describe the shares as halves, thirds, or fourths.

2nd Grade Pacing Guide:

Numbers to 1000

Trimester 1 – 4 weeks

- 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- 2.NBT.2** Count within 1000; skip-count by 5s, 10s, and 100s.
- 2.NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- 2.NBT.2** Count within 1000; skip-count by 5s, 10s, and 100s.
- 2.NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 2.OA.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.

Place Value

Trimester 1 – 4 weeks

- 2.NBT.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- 2.NBT.2** Count within 1000; skip-count by 5s, 10s, and 100s.
- 2.NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 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.1** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones
- 2.NBT.2** Count within 1000; skip-count by 5s, 10s, and 100s.
- 2.NBT.3** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- 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.OA.1** Use addition and subtraction within 100 to solve one-and two-step word problems involving situations within a cultural context, including those of Montana American Indians, 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.

Comparing Numbers

Trimester 1 – 3 weeks

2.NBT.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.

Addition with and without Renaming

Trimester 1 and 2 – 5 weeks

2.OA.1 Use addition and subtraction within 100 to solve one-and two-step word problems involving situations within a cultural context, including those of Montana American Indians, 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.

2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and /or the relationships between addition and subtraction.

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.

Subtraction with and without Renaming

Money

Trimester 3 – 2 weeks

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

<p>Trimester 2 – 5 weeks</p>	<p>2.OA.1 Use addition and subtraction within 100 to solve one-and two-step word problems involving situations within a cultural context, including those of Montana American Indians, 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.</p> <p>2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and /or the relationships between addition and subtraction.</p> <p>2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>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.</p> <p>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.</p> <p>2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.</p>
----------------------------------	---

Time

<p>Trimester 3 – 2 weeks</p>	<p>2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p>
----------------------------------	--

Geometry

<p>Trimester 2 and 3– 3 weeks</p>	<p>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.</p> <p>2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p> <p>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.</p> <p>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.</p>
---	--

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.

Measurement

Trimester 3 –
3 weeks

- 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 differences in terms of a standard length unit.
- 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, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Tables and Graphs

Trimester 3 –
2 weeks

- 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.

Mental Math

Trimesters 1 – 3 (integrated into place value, addition, and subtraction)

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.OA.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.

Timeline:

Place Value/Mental Math – Trimester 1 (11 weeks)

Addition and Subtraction/Mental Math – Trimester 1 and 2 (10 weeks)

Geometry – Trimester 3 (3 weeks)

Fractions – Trimester 3 (3 weeks)

Length – Trimester 3 (3 weeks)

Money – Trimester 3 (2 weeks)

Time – Trimester 3 (2 weeks)

Tables and Graphs – Trimester 3 (2 weeks)

Montana Content Standards:

OPERATIONS AND ALGEBRAIC THINKING:

Represent and solve problems involving addition and subtraction.

[CCSS.Math.Content.2.OA.A.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.¹

Add and subtract within 20.

[CCSS.Math.Content.2.OA.B.2](#)

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

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

[CCSS.Math.Content.2.OA.C.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.

[CCSS.Math.Content.2.OA.C.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.

NUMBERS AND OPERATIONS IN BASE TEN:

Understand place value.

[CCSS.Math.Content.2.NBT.A.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. Understand the following as special cases:

[CCSS.Math.Content.2.NBT.A.1.a](#)

100 can be thought of as a bundle of ten tens — called a "hundred."

[CCSS.Math.Content.2.NBT.A.1.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).

[CCSS.Math.Content.2.NBT.A.2](#)

Count within 1000; skip-count by 5s, 10s, and 100s.

[CCSS.Math.Content.2.NBT.A.3](#)

Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

[CCSS.Math.Content.2.NBT.A.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.

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

[CCSS.Math.Content.2.NBT.B.5](#)

Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

[CCSS.Math.Content.2.NBT.B.6](#)

Add up to four two-digit numbers using strategies based on place value and properties of operations.

[CCSS.Math.Content.2.NBT.B.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.

[CCSS.Math.Content.2.NBT.B.8](#)

Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.

[CCSS.Math.Content.2.NBT.B.9](#)

Explain why addition and subtraction strategies work, using place value and the properties of operations.¹

MEASUREMENT AND DATA:

Measure and estimate lengths in standard units.

[CCSS.Math.Content.2.MD.A.1](#)

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

[CCSS.Math.Content.2.MD.A.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.

[CCSS.Math.Content.2.MD.A.3](#)

Estimate lengths using units of inches, feet, centimeters, and meters.

[CCSS.Math.Content.2.MD.A.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.

[CCSS.Math.Content.2.MD.B.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.

[CCSS.Math.Content.2.MD.B.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.

[CCSS.Math.Content.2.MD.C.7](#)

Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

[CCSS.Math.Content.2.MD.C.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.

[CCSS.Math.Content.2.MD.D.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.

[CCSS.Math.Content.2.MD.D.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 problems¹ using information presented in a bar graph.

GEOMETRY:

Reason with shapes and their attributes.

[CCSS.Math.Content.2.G.A.1](#)

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

[CCSS.Math.Content.2.G.A.2](#)

Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

[CCSS.Math.Content.2.G.A.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.

(<http://www.corestandards.org/Math/Content/2/introduction/>)

Resources

www.corestandards.org/

www.commoncoresheets.com/

<https://www.ixl.com/signin/lincolnmckinley>

Splash Math iPad app

Rocket Math

Super Teacher Worksheets

Singapore Math Series/Singapore Strategies

Harcourt Math Series

Mad Minute