

NORTH DAKOTA MATHEMATICS CONTENT STANDARDS

Grades K-12

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Based on the *Common Core State Standards for Mathematics*



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Mathematics | Grade 2

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.

- (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.

Grade 2 Overview

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten

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

Measurement and Data

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

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.
8. Look for and express regularity in repeated reasoning.

Domain: Operations and Algebraic Thinking **2.OA**

Cluster: Represent and solve problems involving addition and subtraction.

Code	Standards	Annotation
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.	See Glossary, Table 1. (CCSS)

Cluster: Add and subtract within 20.

Code	Standards	Annotation
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.	See standard 1.OA.6 for a list of mental strategies. (CCSS) fluency (computational): Having efficient, flexible and accurate methods for computing. (ND) fluency (procedural): Skill in carrying out procedures, flexibly, accurately, efficiently and appropriately. (ND) Know from memory: The ability to compute math facts with automaticity (3-5 seconds) and confidence. (ND)

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

Code	Standards	Annotation
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.	

Domain: Number and Operations in Base Ten **2.NBT**

Cluster: Understand place value.

Code	Standards	Annotation
2.NBT.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 708 equals 7 hundreds, 0 tens, and 8 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a "hundred."	See Glossary, Table 1. (CCSS)

	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).	
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.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.	

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

Code	Standards	Annotation
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.	fluency (computational): Having efficient, flexible and accurate methods for computing. (ND) fluency (procedural): Skill in carrying out procedures, flexibly, accurately, efficiently and appropriately. (ND)
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.	Explanations may be supported by drawings or objects. (CCSS)

Domain: Measurement and Data **2.MD**

Cluster: Measure and estimate lengths in standard units.

Code	Standards	Annotation
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.	"Length units" in this statement refer to standard units.

	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.	
Cluster: Relate addition and subtraction to length.		
Code	Standards	Annotation
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.	
Cluster: Work with time and money.		
Code	Standards	Annotation
2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	
2.MD.8	Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i>	
Cluster: Represent and interpret data.		
Code	Standards	Annotation
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.	There are two possible interpretations of the standard. Students should make repeated measurements of a growing or shrinking object over time. Students should make repeated measurements of the same object using various units of measurement. (ND)
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.	See Glossary, Table 1. (CCSS)

Domain: Geometry

2.G