Standards Resource Guide

Grade 2

Overview

This guide is designed to support educators in interpreting and implementing the 2025 Louisiana Student Standards for Mathematics (LSSM). It provides descriptions of each standard to clarify its meaning and application to student learning. The document outlines the intended level of rigor and includes coherence to prerequisite and corequisite standards. Examples are provided for illustrative purposes only and do not represent a comprehensive list.

Additional information on the 2025 Louisiana Student Standards for Mathematics, including guidance on reading standards codes, a listing of standards for each grade or course, and links to additional resources, is available on the Louisiana Math Page. Questions may be directed to Math@la.gov.

August 2026

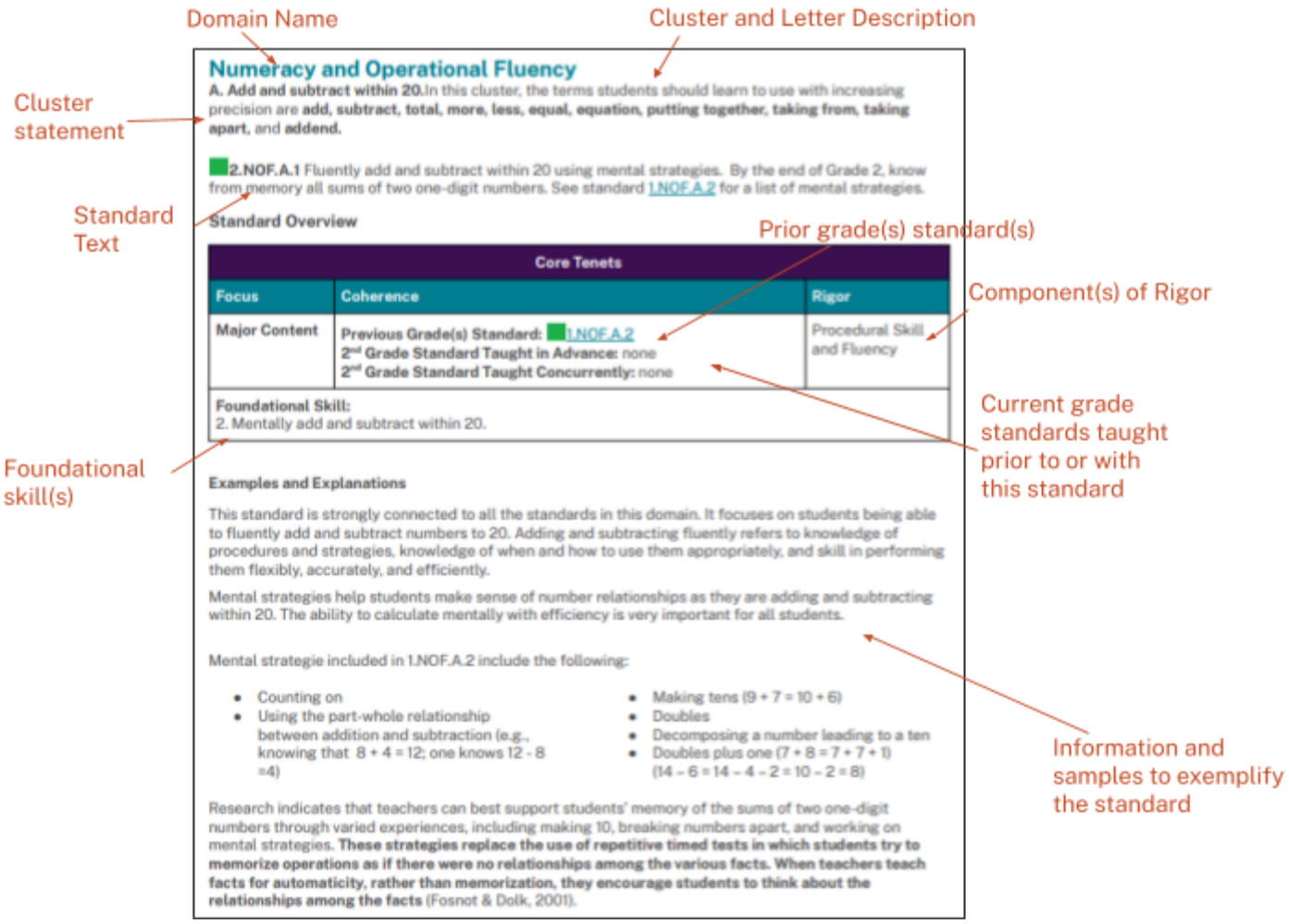
Table of Contents

Louisiana Department of Education
doe.louisiana.gov | P.O. Box 94064 • Baton Rouge, LA • 70804-9064

Introduction

How to Read This Guide

The diagram below provides an overview of the information found in all standards resource guides. Definitions and more complete descriptions are provided on the next page.



*Grades 3 through Geometry will also include a section with connections to assessment item types and achievement level descriptors.

Standards Codes: Major Work, Supporting Work, Additional Work

1. **Domain Name and Abbreviation:** A grouping of standards consisting of related content that is further divided into clusters. Each domain has a unique abbreviation, which is provided in parentheses beside the domain name.
2. **Cluster Letter and Description:** Each cluster within a domain begins with a letter. The description provides a general overview of the focus of the standards in the cluster.

3. **Previous Grade(s) Standards:** One or more standards that students should have mastered in previous grades to prepare them for new learning related to the current grade-level standard. For students who have unfinished learning, teachers should build in proactive, just-in-time supports to build essential prerequisite knowledge.
4. **Standards Taught in Advance:** These grade-level standards demonstrate within-grade coherence and include concepts on which the target standard is built. Students should have exposure to these standards before instruction in the target standard. As with previous-grade standards, teachers should plan proactive, just-in-time supports to build within-grade prerequisite knowledge ahead of instruction on the target standard.
5. **Standards Taught Concurrently:** These grade-level standards demonstrate within-grade coherence and include standards that should be taught at the same time as the target standard to provide coherence and connectedness in instruction.
6. **Component(s) of Rigor:** See full explanation on components of rigor below.
7. **Sample Problem:** The sample problem provides an example of how a student might meet the requirements of the standard. Multiple examples are provided for some standards. However, sample problems should not be considered an exhaustive list. Explanations, when appropriate, are also included.
8. **Text of Standard:** The complete text of the targeted Louisiana Student Standards of Mathematics is provided.

Classification of Major, Supporting, and Additional Work

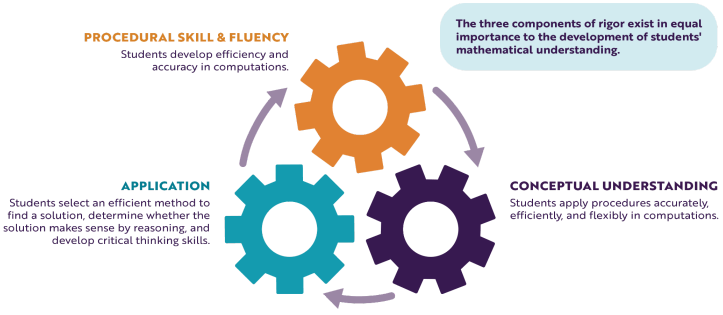
Students should spend the majority of their time on the major work of the grade, supporting work, and, where appropriate, additional work engages students in the major work of the grade, often through a change of the **context** within which students are performing mathematics. Each standard is color-coded to quickly and simply determine the focus for the grade. Furthermore, standards from previous grades that provide foundational skills for current grade standards are also color-coded to show whether those standards are classified as major, supporting, or additional in respective grades.

Core Tenets

The 2016 Louisiana Student Standards for Math called for three instructional shifts. Since then, teachers have used these shifts to ensure deep understanding and consistent application in mathematics classrooms across the state. Now, these shifts are recognized as core tenets that serve as the foundation and guiding principles of Louisiana's mathematics standards.

Coherence in mathematics refers to a coherent body of knowledge composed of interconnected concepts, principles, and procedures. These concepts are logically linked, building upon one another, and work together to deepen understanding, support problem solving, and enable learners to apply mathematical ideas consistently and meaningfully across different contexts.

Rigor in mathematics instruction does not simply mean increasing the difficulty or complexity of practice problems. Incorporating rigor into classroom instruction and student learning requires students to engage deeply with standards and grapple meaningfully with the concepts and ideas embedded within them. The **three** components of rigor, listed below, exist in equal



importance to the development of students' mathematical understanding.

- **Conceptual understanding** refers to understanding mathematical concepts, operations, and relations. It is more than knowing isolated facts and methods. Students should be able to make sense of why a mathematical idea is important and the kinds of contexts in which it is useful. It also allows students to connect prior knowledge to new ideas and concepts.
- **Procedural skill and fluency** is the ability to apply procedures accurately, efficiently, and flexibly. It requires speed and accuracy in calculation while giving students opportunities to practice basic skills without dictating the strategy or method chosen. Students' ability to solve more complex application tasks is dependent on procedural skill and fluency.
- **Application** provides valuable context for learning and the opportunity to solve problems in a relevant and meaningful way. It is through real-world application that students learn to select an efficient method to find a solution, determine whether the solution makes sense by reasoning, and develop critical thinking skills.

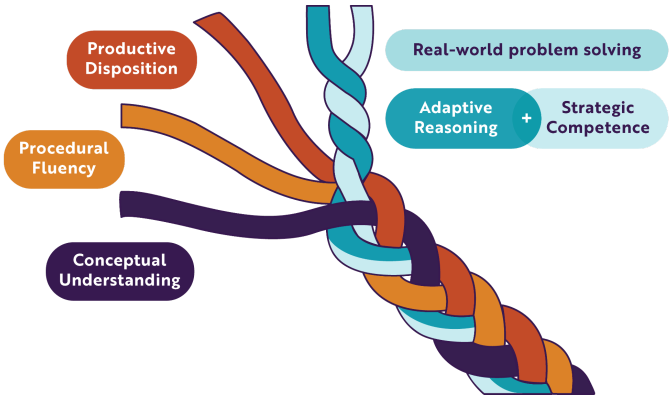
Focus calls for intentional emphasis on specific topics, skills and ideas within grade level on mathematics instruction. Not all content in a given grade is emphasized equally in the standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or the importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Louisiana Standards for Mathematical Practice. To say that some things have greater emphasis **is not to say** that anything in the standards can safely be neglected in instruction. Students should spend the majority of time on the major ( ) work of the grade, supporting ( ) work, and, where appropriate, additional ( ) work can engage students in the major work of the grade.

The Strands for Mathematical Proficiency

The strands of mathematical proficiency, as defined by the National Research Council (NRC),[1] provide a framework describing what proficiency means for a learner in mathematics.

The strands of mathematical proficiency are intertwined, gradually developed, and deepened over time. When intentionally presented in a connected and balanced way, each strand supports the others, ultimately strengthening the proficiency of learners.

1. **Conceptual Understanding** - Students develop an understanding of key mathematical ideas and relationships and explain why procedures work.



2. **Procedural Fluency** - Students use mathematical procedures with skill and flexibility, guided by a strong grasp of underlying concepts.
3. **Productive Dispositions** - Students view mathematics as coherent, valuable, and meaningful
4. **Real World and Problem Solving** - A combination of both adaptive reasoning and strategic competence, students represent and solve real-world mathematical problems logically, justify solutions, and clearly explain and defend reasoning.

The Relationship Between Mathematical Proficiency and the Components of Rigor

While there is some overlap between the Strands of Mathematical proficiency and the Core Tenets, there is a distinct difference between the two. The strands are a framework that is focused on learner outcomes and what it means for a student to be proficient in mathematics. The Core Tenets provide a framework for how teachers should design instruction to support learning. The core tenets reflect what should be done instructionally, while the proficiency strands represent the outcome, or what students become, as a result of that instruction.

Mathematical Fluency

Fluency in mathematics is the ability to apply foundational skills and concepts flexibly, accurately, and efficiently, grounded in strong conceptual understanding to solve problems, make connections, and reason mathematically across various contexts. While fluency is an essential component of mathematics instruction, it does not represent the full depth of a mathematical standard; it must be developed alongside conceptual understanding, reasoning, and problem-solving to ensure deep and meaningful learning.

Concrete - Representational - Abstract Framework

The Concrete-Representational-Abstract (CRA) Framework describes the instructional processes that students experience to build conceptual understanding of mathematics. The first stage is where students build a concrete understanding of a concept through the use of manipulatives or other physical objects. During the second phase, learners move into visual representations of concepts. Finally, during the abstract phase, students apply their understanding of the concepts abstractly through the use of

[1] ADDING + IT UP HELPING CHILDREN LEARN MATHEMATICS National Academies of Sciences, Engineering, and Medicine. 2001. Adding It Up: Helping Children Learn Mathematics. Washington, DC: The National Academies Press. https://doi.org/10.17226/5109.

numbers and symbols. When students engage in learning that follows this process, it allows them to build a solid understanding of key mathematical concepts and ideas, ensuring comprehension that is transferable and flexibly applied across grade bands.

An example of how this framework is represented across the progression of the Louisiana Student Standards for Mathematics can be seen in the way student learning progresses across a concept, such as linear functions. In fourth grade (4.AR.A.1), students are introduced to multiplicative comparison, where much of the learning is very **concrete**. At this phase, students are using counters and other manipulatives to physically compare quantities to determine the meaning of "times as many." When they move into the middle grades, this becomes more representational as students apply concrete understanding to recognize and represent proportional relationships. These are represented in various ways, such as ratio tables, double number lines, and graphs (6.PF.A.2, 7.PF.A.2). When students enter high school, the learning becomes **abstract** as they interpret linear functions such as y=kx and come to understand slope as rate of change.

While the example above represents a linear version of this instructional process across multiple grades, it is important to note that the concrete and representational components can occur at different times throughout the progression of learning, and may occur simultaneously across various periods. Additionally, this instructional process may also occur within lessons, units, or within the grade level.

Note about tasks vs. word problems: Real-world math tasks are open-ended and involve reasoning, exploration, and multiple solution paths. Word problems, by contrast, are usually structured scenarios with all needed information and a single correct answer. Real-world tasks build critical thinking and decision-making, while word problems focus on translating language into mathematical operations. Both types of tasks play an important role in mathematics learning — neither is inherently better than the other. Students should have frequent opportunities to engage with both, as each develops different but complementary aspects of mathematical proficiency. See the example below.

Word Problem (2.DM.C.8)	**Real-World Mathematical Task** (2.DM.C.8)
Sandra went to the store and received three quarters and one penny in change. How much change did she receive?	Sandra went to the store and received 76¢ in change. What are three different sets of coins she could have received?

Standards for Mathematical Practice

The Louisiana Standards for Mathematical Practice are expected to be integrated into every mathematics lesson for all students in grades K-12. Below are a few examples of how these practices may be integrated into tasks that students in grade 2 complete.

Louisiana Standards for Mathematical Practice (MP)	
Louisiana Standard	**Explanations and Examples**
2.MP.1 Make sense of problems and persevere in solving them.	In second grade, students realize that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. They may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They make conjectures about the solution and plan out a problem-solving approach.
2.MP.2 Reason abstractly and quantitatively.	Younger students recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities. Second graders begin to know and use different properties of operations and relate addition and subtraction to length.
2.MP.3 Construct viable arguments and critique the reasoning of others.	Second graders may construct arguments using concrete referents, such as objects, pictures, drawings, and actions. They practice mathematical communication skills as they participate in mathematical discussions involving questions like "How did you get that?" "Explain your thinking," and "Why is that true?" They not only explain their thinking, but also listen to others' explanations. They decide if the explanations make sense and ask appropriate questions.
2.MP.4 Model with mathematics.	In early grades, students experiment with representing problem situations in multiple ways, including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed.
2.MP.5 Use appropriate tools strategically.	In second grade, students consider the available tools, including estimation, when solving a mathematical problem and decide when certain tools might be better suited to the context. For instance, second graders may decide to solve a problem by drawing a picture rather than writing an equation.
2.MP.6 Attend to precision.	As children begin to develop mathematical communication skills, they try to use clear and precise language in discussions with others and when explaining the reasoning.
2.MP.7 Look for and make use of structure.	Second graders look for patterns. For instance, they adopt mental math strategies based on patterns (making ten, fact families, doubles).
2.MP.8 Look for and express regularity in repeated reasoning.	Students notice repetitive actions in counting and computation, etc. When children have multiple opportunities to add and subtract, they look for shortcuts, such as rounding up and then adjusting the answer to compensate for the rounding. Students continually check the work by asking themselves, "Does this make sense?"

Grade Level Foundational Skills

By the end of grade 2, mathematically proficient students can reliably apply the following skills to engage in grade-appropriate mathematical tasks. This list does not represent the full depth of learning expected in grade 2, but is comprised of the foundational skills required by the standards.

1. Know all sums of two one-digit numbers by memory.
2. Mentally add and subtract within 20.
3. Fluently add and subtract up to 100 using strategies.
4. Count within 1000 by 2s, 5s, and 10s.
5. Read and write numbers within 1000.
6. Given a three-digit number, mentally find 100 more or 100 less.
7. Compare numbers up to 1000, identifying whether one number is greater than, less than, or equal to another.
8. Measure to determine how much longer one object is than another using standard length units.

Numeracy and Operational Fluency

A. Add and subtract within 20. In this cluster, the terms students should learn to use with increasing precision are **add, subtract, total, more, less, equal, equation, putting together, taking from, taking apart,** and **addend.**

2.NOF.A.1 Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. See standard 1.NOF.A.2 for a list of mental strategies.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** 1.NOF.A.2 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Procedural Skill and Fluency
Foundational Skill: 2. Mentally add and subtract within 20.		

Examples and Explanations

This standard is strongly connected to all the standards in this domain. It focuses on students being able to fluently add and subtract numbers to 20. Adding and subtracting fluently refers to knowledge of procedures and strategies, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently.

Mental strategies help students make sense of number relationships as they are adding and subtracting within 20. The ability to calculate mentally with efficiency is very important for all students.

Mental strategies included in 1.NOF.A.2 include the following:

- Counting on
- Using the part-whole relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12; one knows 12 - 8 =4)
- Making tens (9 + 7 = 10 + 6)
- Doubles
- Decomposing a number leading to a ten
- Doubles plus one (7 + 8 = 7 + 7 + 1) (14 – 6 = 14 – 4 – 2 = 10 – 2 = 8)

Research indicates that teachers can best support students' memory of the sums of two one-digit numbers through varied experiences, including making 10, breaking numbers apart, and working on mental strategies. **These strategies replace the use of repetitive timed tests in which students try to memorize operations as if there were no relationships among the various facts. When teachers teach facts for automaticity, rather than memorization, they encourage students to think about the relationships among the facts** (Fosnot & Dolk, 2001).

Developing Fluency for Addition and Subtraction within 20

Example: 9 + 5 = __

Student A *Counting On*	**Student B** *Decomposing a Number-Leading to a Ten*
I started at 9 and then counted 5 more. I landed on 14.	I know that 9 and 1 is 10, so I broke 5 into 1 and 4. 9 plus 1 is 10. Then I have to add 4 more, which is 14.

B. Understand place value. In this cluster, the terms students should learn to use with increasing precision are **hundreds, tens, ones, skip count, base-ten, *number names to 1,000* (e.g., one, two, thirty, etc.), expanded form, greater than (>), less than (<), equal to (=), digit,** and **compare.**

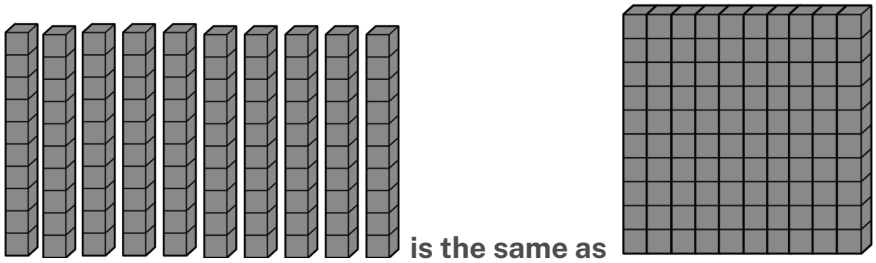
2.NOF.B.2 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.
For example: 706 equals 7 hundreds, 0 tens, and 6 ones.
Understand the following as special cases:

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

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** 1.NOF.C.5 **2nd Grade Standard Taught in Advance:** 2.NOF.B.3 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding

Examples and Explanations
Second-grade students extend base-ten understanding to hundreds as they view 10 tens as a unit called a "hundred." They use manipulative materials and pictorial representations to help make a connection between the written three-digit numbers and hundreds, tens, and ones.


is the same as

Second graders' understanding about hundreds also moves through several stages: **Counting by Ones; Counting by Groups & Singles;** and **Counting by Hundreds, Tens, and Ones**.

Counting by Ones: At first, even though second graders will have grouped objects into hundreds, tens, and ones, they rely on counting all of the individual cubes by ones to determine the final amount. It is seen as the only way to determine how many.
Counting by Groups and Singles: While students are able to group objects into collections of hundreds, tens, and ones and now tell how many groups of hundreds, tens, and ones there are, they still rely on counting by ones to determine the final amount. They are unable to use the groups and ones to determine how many.

Teacher: How many blocks do you have?

Student: I have 3 hundreds, 4 tens, and 2 ones.
Teacher: Does that help you know how many? How many do you have?
Student: Let me see. 100, 200, 300… ten, twenty, thirty, forty. So that's 340 so far. Then 2 more is 342.

Counting by Hundreds, Tens, and Ones: Students can group objects into hundreds, tens, and ones; tell how many groups and ones there are; and now use that information to tell how many. Occasionally, as this stage becomes fully developed, second graders rely on counting to "really" know the amount, even though they may have just counted the total by groups and ones.

Teacher: How many blocks do you have?
Student: I have 3 hundreds, 4 tens, and 2 ones.
Teacher: Does that help you know how many? How many do you have?
Student: Yes. That means that I have 342.
Teacher: Are you sure?
Student: Um. Let me count just to make sure. 100, 200, 300,… 340, 341, 342. Yes. I was right. There are 342 blocks.

Applying the understanding that "100" is the same amount as 10 groups of ten, as well as 100 ones, lays the groundwork for the structure of the base-ten system in future grades. Students can represent this with both groupable (cubes, links) and pre-grouped (place value blocks) materials to explore the idea that numbers such as 100, 200, 300, etc., are groups of hundreds with zero tens and ones.

2.NOF.B.3 Count forward and backward up to 1000, starting at any number less than 1000.
a. Skip-count by 2s, 5s, 10s and 100s.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.AR.B.3	Procedural Skill and Fluency
Foundational Skills: 4. Count within 1000 by 2s, 5s, and 10s.		

Examples and Explanations
Students need many opportunities counting up to 1,000 from different starting points. Students who have difficulty counting within 1000 may need more experience counting on with concrete resources and representations, such as number line representations.

Teacher: What are the next 3 numbers after 498?
Student: 499, 500, 501
Teacher: When you count back from 201, what are the first 3 numbers that you say?
Student: 200, 199, 198

Students should also have many experiences skip-counting by 5s, 10s, and 100s to begin to work toward multiplication concepts. Although skip-counting is not yet true multiplication because students don't keep track of the number of groups they have counted, they can explain that when they count by 2s, 5s, and 10s, they are counting groups of items with that amount in each group. The use of the 100s chart may be helpful for students to identify the counting patterns. For example, students learn that the ones digit alternates between 5 and 0 when skip-counting by 5s. When students skip-count by 100s, they learn that the hundreds digit is the only digit that changes and that it increases by one number.

2.NOF.B.4 Read and write numbers up to 1000 using base-ten numerals/ standard form, number names/written form, unit form, and expanded form.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency
Foundational Skills: 5. Read and write numbers within 1000.		

Examples and Explanations

Students need many opportunities to read and write numerals in multiple ways. They should connect the place value understanding built with 2.NOF.B.2 to written numerals, expanded form, and finally the reading of the number names.

Examples:

- Base-ten numerals 637 (standard form)
- Number names six hundred thirty-seven (written form)
- Expanded form 600 + 30 + 7 (expanded form)

When students say the expanded form, it may sound like this: “6 hundreds plus 3 tens plus 7 ones” or “600 plus 30 plus 7.”

Note: Everyday language doesn’t always reflect the mathematical structure students are learning in early place value. In mathematics, the word “and” is used to represent a fractional part of a number (i.e., decimals or fractions). When reading whole numbers, students should not include the word “and”, as using precise language helps support students’ understanding. (see 2.SMP.6 on page 9)

2.NOF.B.5 Compare two, three-digit numbers based on values of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding
Foundational Skills: 7. Compare numbers up to 1000, identifying whether one number is greater than, less than, or equal to another.		

Examples and Explanations

Students build on the work of 2.NOF.B.2 and 2.NOF.B.4 by examining the amount of hundreds, tens, and ones in each number. When comparing numbers, students draw on the understanding that 1 hundred (the smallest three-digit number) is actually greater than any amount of tens and ones represented by a two-digit number. When students truly understand this concept, it makes sense that one would compare three-digit numbers by looking at the hundreds place first.

Students should have ample experiences communicating comparisons in words before using symbols. Students were introduced to the symbols greater than (>), less than (<), and equal to (=) in first grade and continue to use them in second grade with numbers within 1,000. As students use these symbols to compare numbers, emphasize the meaning of the symbols rather than tricks unrelated to mathematics.

Example: Compare these two numbers using the correct symbol: 452 __ 455

Student A	**Student B**
Place Value 452 has 4 hundreds, 5 tens, and 2 ones. 455 has 4 hundreds, 5 tens, and 5 ones. They have the same number of hundreds and the same number of tens, but 455 has 5 ones, and 452 only has 2 ones. 452 is less than 455. 452 < 455	*Counting* 452 is less than 455. I know this because when I count up, I say 452 before I say 455. 452 < 455 452 is less than 455.

Note: While students may have the skills to order more than 2 numbers, this standard focuses on comparing two numbers and using reasoning about place value to support the use of the various symbols.

C. Use place value understanding and properties of operations to add and subtract. In this cluster, the terms students should learn to use with increasing precision are **fluent, compose, decompose, place value, digit, ten more, ten less, one hundred more, one hundred less, add, subtract, total, equal, addition,** and **subtraction**.

2.NOF.C.6 Fluently add and subtract up to 100 using strategies based on place value, properties of operations, and/or the part:whole relationship between addition and subtraction.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** 1.AR.E.8, 1.AR.E.9 **2nd Grade Standard Taught in Advance:** 2.NOF.A.1 **2nd Grade Standard Taught Concurrently:** none	Procedural Skill and Fluency
Foundational Skills: 3. Fluently add and subtract up to 100 using strategies.		

Examples and Explanations

Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently. Students need to communicate their thinking and be able to justify strategies both verbally and with paper and pencil.

Addition strategies based on place value for 48 + 37 may include:

- Adding by place value: 40 + 30 = 70 and 8 + 7 = 15 and 70 + 15 = 85.
- Incremental adding (breaking one number into tens and ones): 48 + 10 = 58, 58 + 10 = 68, 68 + 10 = 78, 78 + 7 = 85
- Compensation (making a friendly number): 48 + 2 = 50, 37 – 2 = 35, 50 + 35 = 85

Subtraction strategies based on place value for 81 – 37 may include:

- Adding up (from smaller number to larger number): 37 + 3 = 40, 40 + 40 = 80, 80 + 1 = 81, and 3 + 40 + 1 = 44.
- Incremental subtracting: 81 -10 = 71, 71 – 10 = 61, 61 – 10 = 51, 51 – 7 = 44
- Subtracting by place value: 81 – 30 = 51, 51 – 7 = 44

Although students are not required to know a property's name, students should use these properties:

- Commutative property of addition (Example: 3 + 5 = 5 + 3)
- Associative property of addition (Example: (2 + 7) + 3 = 2 + (7+3))
- Identity property of 0 (Example: 8 + 0 = 8)

Students in second grade need to communicate their understanding of why some properties work for some operations and not for others.

- Commutative Property: In first grade, students investigated whether the commutative property works with subtraction. The intent was for students to recognize that taking 5 from 8 is not the same as taking 8 from 5. Students should also understand that they will be working with numbers in later grades that will allow them to subtract larger numbers from smaller numbers. This exploration of the commutative property continues in second grade.
- Associative Property: Recognizing that the associative property does not work for subtraction is difficult for students to consider at this grade level, as it is challenging to determine all the possibilities.

Example: 67 + 25 = __

Place Value Strategy:	*Decomposing into Tens:*	*Commutative Property:*
I broke both 67 and 25 into tens and ones. 6 tens plus 2 tens equals 8 tens. Then I added the ones. 7 ones plus 5 ones equals 12 ones. I then combined my tens and ones. 8 tens plus 12 ones equals 92.	I decided to start with 67 and break 25 apart. I knew I needed 3 more to get to 70, so I broke off a 3 from the 25. I then added my 20 from the 22 left and got to 90. I had 2 left. 90 plus 2 is 92. So, 67 + 25 = 92	I broke 67 and 25 into tens and ones, so I had to add 60 + 7 + 20 + 5. I added 60 and 20 first to get 80. Then I added 7 to get 87. Then I added 5 more. My answer is 92.

Example: 63 – 32 = __

Decomposing into Tens:	*Think Addition:*
I broke apart both 63 and 32 into tens and ones. I know that 3 minus 2 is 1, so I have 1 left in the ones place. I know that 6 tens minus 3 tens is 3 tens, so I have a 3 in my tens place. My answer has a 1 in the ones place and 3 in the tens place, so my answer is 31. 63 – 32 = 31	I thought, '32 and what makes 63?' I know that I needed 30, since 30 and 30 is 60. So, that got me to 62. I needed one more to get to 63. So, 30 and 1 is 31. 32 + **31** = 63

2.NOF.C.7 Add up to four two-digit numbers using strategies based on place value and properties of operations.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2, 2.AR.A.2 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency
Foundational Skills: 3. Fluently add and subtract up to 100 using strategies.		

Examples and Explanations

Students demonstrate addition strategies with up to four two-digit numbers, with or without regrouping. Regrouping numbers does not indicate using a specific strategy.

Example: 43 + 34 + 57 + 24 = __

Student A

Associative Property

I saw the 43 and 57 and added them first. I know 3 plus 7 equals 10, so when I added them, 100 was my answer. Then I added 34 and had 134. Then I added 24 and had 158.
43 + 57 + 34 + 24 = 158

Student B

Place Value Strategies

I broke up all of the numbers into tens and ones. First, I added the tens. 40 + 30 + 50 + 20 = 140. Then I added the ones. 3 + 4 + 7 + 4 = 18. That meant I had 1 ten and 8 ones. So, 140 + 10 is 150. 150 and 8 more is 158. So, 43 + 34 + 57 + 24 = 158

Student C

Place Value Strategies and Associative Property

I broke up all the numbers into tens and ones. First, I added up the tens. 40 + 30 + 50 + 20. I changed the order of the numbers to make adding easier. I know that 30 plus 20 equals 50 and 50 more equals 100. Then I added the 40 and got 140. Then I added up the ones. 3 + 4 + 7 + 4. I changed the order of the numbers to make adding easier. I know that 3 plus 7 equals 10 and 4 plus 4 equals 8. 10 plus 8 equals 18. I then combined my tens and my ones. 140 plus 18 (1 ten and 8 ones) equals 158.

2.NOF.C.8 For a given number 100-900:

a. Mentally add 10 or 100
b. Mentally subtract 10 or 100

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2, **2nd Grade Standard Taught Concurrently:** 2.AR.A.2, 2.NOF.C.9	Conceptual Understanding
Foundational Skills: 6. Given a three-digit number, mentally find 100 more or 100 less.		

Examples and Explanations

Students need many opportunities to practice mental math by adding and subtracting multiples of 10 and 100 up to 900 using different starting points. They can practice this by counting and thinking aloud, finding missing numbers in a sequence, and finding missing numbers on a number line or hundreds chart, including looking for relevant patterns. This standard focuses only on adding and subtracting 10 or 100. Multiples of 10 or multiples of 100 can be explored; however, the focus of this standard is to ensure that students are proficient with adding and subtracting 10 and 100 mentally.

Mental math strategies may include:

- counting on: 300, 400, 500, etc.
- counting back: 550, 450, 350, etc.

Examples:

- 100 more than 653 is _____ (753)
- 10 less than 87 is _____ (77)
- "Start at 248. Count up by 10s until I tell you to stop."

2.NOF.C.9 Construct a written explanation or drawing for why addition and subtraction strategies work, using place value understanding and the properties of operations.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2, **2nd Grade Standard Taught Concurrently:** 2.AR.A.2, 2.NOF.C.8	Conceptual Understanding
Foundational Skills: 3. Fluently add and subtract up to 100 using strategies.		

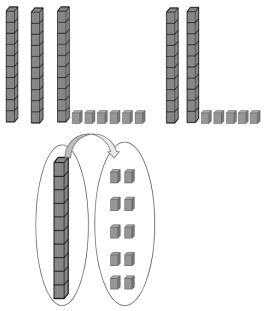
Examples and Explanations

Students need multiple opportunities to explain or illustrate addition and subtraction thinking. Students should be able to connect different representations and explain the connections. Representations can include numbers, words (including mathematical language), pictures, number lines, and/or physical objects. Students should be able to use any/all of these representations as needed. Strategies include compensation, breaking apart (decomposing), and/or place value models.

Example: Show and explain how to add 36 and 25.

Student 1
I broke 36 and 25 into tens and ones 30 + 6 + 20 + 5. I can change the order of my numbers, since it doesn't change any amounts, so I added 30 + 20 and got 50. Then I added 5 and 5 to make 10 and added it to the 50. So, 50 and 10 more is 60. I really needed to add 11, so I added one more and got 61.

Student 2
I used place value blocks and made a pile of 36 and a pile of 25. Altogether, I had 5 tens and 11 ones. 11 ones is the same as one ten and one left over. So, I really had 6 tens and 1 one. That makes 61.



Example: One of your classmates solved the problem 56 – 34 = __ by writing "I know that I need to add 2 to the number 4 to get 6. I also know that I need to add 20 to 30 to get to 50. So, the answer is 22." Is the strategy correct? Explain why or why not?

Student: Breaking apart works because you make the subtraction easier. By turning the 34 into 36, it made it easier for me to subtract from 56, which is 20. Then I went back and added the 2 I originally removed, which gave me the final answer.

Algebraic Reasoning

A. Represent and solve problems involving addition and subtraction. In this cluster, the terms students should learn to use with increasing precision are **add, subtract, more, less, equal, equation, putting together, taking from, taking apart, addend, total, comparing,** and **unknown.**

2.AR.A.1 Use addition and subtraction within 100 to solve one- and two-step real-world mathematical tasks involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions for one or two operations.

a. Represent these situations using models and equations, elevating the concrete-representational-abstract instructional framework.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** 1.AR.A.1, 1.AR.E.8, 1.AR.E.9 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.NOF.C.6, 2.DM.B.5, 2.DM.C.8, 2.DM.D.10	Application
Foundational Skills: 3. Fluently add and subtract up to 100 using strategies.		

Notes on vocabulary:

Students should engage in solving real-world problems by making sense of the situation before selecting an operation, rather than relying on keywords. Students should engage with all problem types and work with unknowns in all positions.

Teaching should follow the Concrete–Representational–Abstract (CRA) framework, supporting students in connecting models, drawings, and equations. Students should explain and justify how representations match the problem situation.

1. It is better in the earlier grades to use "total" rather than "sum." Formal vocabulary for subtraction ("minuend" and "subtrahend") is not needed for kindergarten, grade 1, and grade 2, and may inhibit students from seeing and discussing relationships between addition and subtraction. At these grades, the recommendation is to use the terms "total" and "addend" as they are sufficient for classroom discussion. This recommendation does not prohibit students from learning the term "sum" in grade 2; however, teachers will need to be aware of the misconceptions that its use may create.

2. Subtraction names a missing part. Therefore, the minus sign should be read as "minus" or "subtract" but not as "take away." Although "take away" has been a typical way to define subtraction, it is a narrow and incorrect definition. (*Fosnot & Dolk, 2001; Van de Walle & Lovin, 2006)

Examples and Explanations

Word problems that are connected to students' lives can be used. Students represent and solve word problems within 100, building upon previous work to 20. In addition, they represent and solve one- and two-step word problems of all three types (*Result Unknown, Change Unknown, Start Unknown*). See Table 1 at the end of the document for examples of all problem types.

One-step word problems use one operation. Two-step word problems use two operations, which may include the same operation or opposite operations.

One-Step Word Problem One Operation	**Two-Step Word Problem** Two Operations, Same	**Two-Step Word Problem** Two Operations, Opposite
There are 15 stickers on the page. Brittany put some more stickers on the page. There are now 22 stickers on the page. How many stickers did Brittany put on the page? 15 + □ = 22 22 – 15 = □	There are 9 blue marbles and 6 red marbles in the bag. Maria put in 8 more marbles. How many marbles are in the bag now? 9 + 6 + 8 = □	There are 9 peas on the plate. Carlos ate 5 peas. Mother put 7 more peas on the plate. How many peas are on the plate now? 9 — 5 + 7 = □

As second-grade students solve one- and two-step problems, they use manipulatives, such as snap cubes, place value materials (groupable and pre-grouped), ten frames, etc.; create drawings of manipulatives to show thinking; or use number lines to solve and describe strategies. Students then relate the drawings and materials to equations. By solving a variety of addition and subtraction word problems, second-grade students determine the unknown in all positions (*Result Unknown, Change Unknown, and Start Unknown*). Rather than a letter ("*n*"), boxes or pictures are used to represent the unknown number.

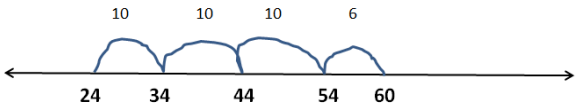
***Result* Unknown:**	***Change* Unknown:**	***Start* Unknown:**
There are 29 students on the playground. Then 18 more students showed up. *How many students are there now?* 29 + 18 = □	There are 29 students on the playground. *Some more students show up*. There are now 47 students. How many students came? 29 + 🌟 = 47	*There are some students on the playground.* Then 18 more students came. There are now 47 students. How many students were on the playground at the beginning? □ + 18 = 47

Second graders use a range of methods, often mastering more complex strategies such as making tens and using doubles and near doubles for problems involving addition and subtraction within 20. Moving beyond counting and counting-on, second-grade students apply their understanding of place value to solve problems.

One-Step Example: Some students are in the cafeteria. 24 more students came in. Now there are 60 students in the cafeteria. How many were in the cafeteria before the 24 students came in? Use drawings and equations to show your thinking.

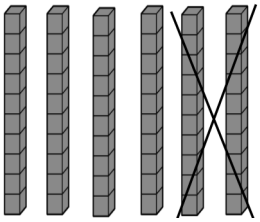
Possible solutions:
Student 1: I read the equation and thought about how to write it with numbers. I thought, "What number and 24 make 60?" So, my equation for the problem is □ + 24 = 60. I used a number line to solve it.

I started with 24. Then I took jumps of 10 until I got close to 60. I landed on 54. Then, I took a jump of 6 to get to 60. So, 10 + 10 + 10 + 6 = 36. So, there were 36 students in the cafeteria to start with.

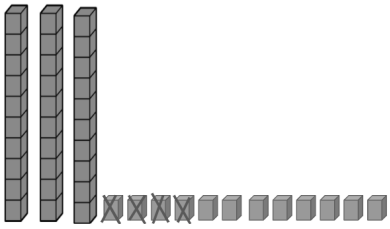


Student 2: I read the equation and thought about how to write it with numbers. I thought, "There are 60 total. I know about the 24. So, what is 60 – 24?" So, my equation for the problem is 60 – 24 = □. I used place value blocks to solve it.

I started with 60 and took 2 tens away.



I needed to take 4 more away. So, I broke up a ten into ten ones. Then, I took 4 away.

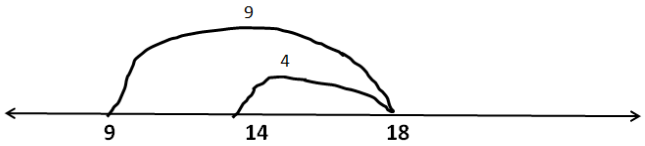


So there were 36 students in the cafeteria to start with.

Two-Step Problems: Because second-grade students are still developing proficiency with the most difficult subtypes (*Add To/Start Unknown; Take From/Start Unknown; Compare/Bigger Unknown; and Compare/Smaller Unknown*), two-step problems do **not** involve these subtypes. Most two-step problems should focus on single-digit addends since the primary focus of the standard is the problem type.

Two-Step Example: There are 9 students in the cafeteria. 9 more students come in. After a few minutes, some students leave. There are now 14 students in the cafeteria. How many students left the cafeteria? Use drawings and equations to show your thinking.

Student 1
I read the equation and thought about how to write it with numbers: 9 + 9 — □ = 14. I used a number line to solve it. I started at 9 and took a jump of 9. I landed on 18. Then, I jumped back 4 to get to 14. So, overall, I took 4 jumps — 4 students left the cafeteria.



Student 2

I read the equation and thought about how to write it with numbers: 9 + 9 — ☐ = 14. I used doubles to solve it. I thought about double 9s. 9 + 9 is 18. I knew that I only needed 14. So I took 4 away. That means 4 students left the cafeteria leaving 14 still in the cafeteria.

2.AR.A.2 Add and subtract up to 1000 using concrete models or drawings and strategies based on place value, properties of operations, and/or the part: whole relationship between addition and subtraction.

a. Understand that in adding or subtracting three-digit numbers, add or subtract hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
b. Justify reasoning with a written explanation when choosing a model or strategy to add or subtract.

Standard Overview

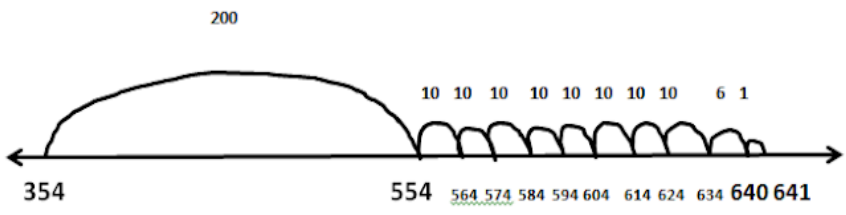
Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.NOF.B.2 **2nd Grade Standard Taught Concurrently:** 2.NOF.C.8, 2.NOF.C.9	Conceptual Understanding
Foundational Skills: 3. Fluently add and subtract up to 100 using strategies.		

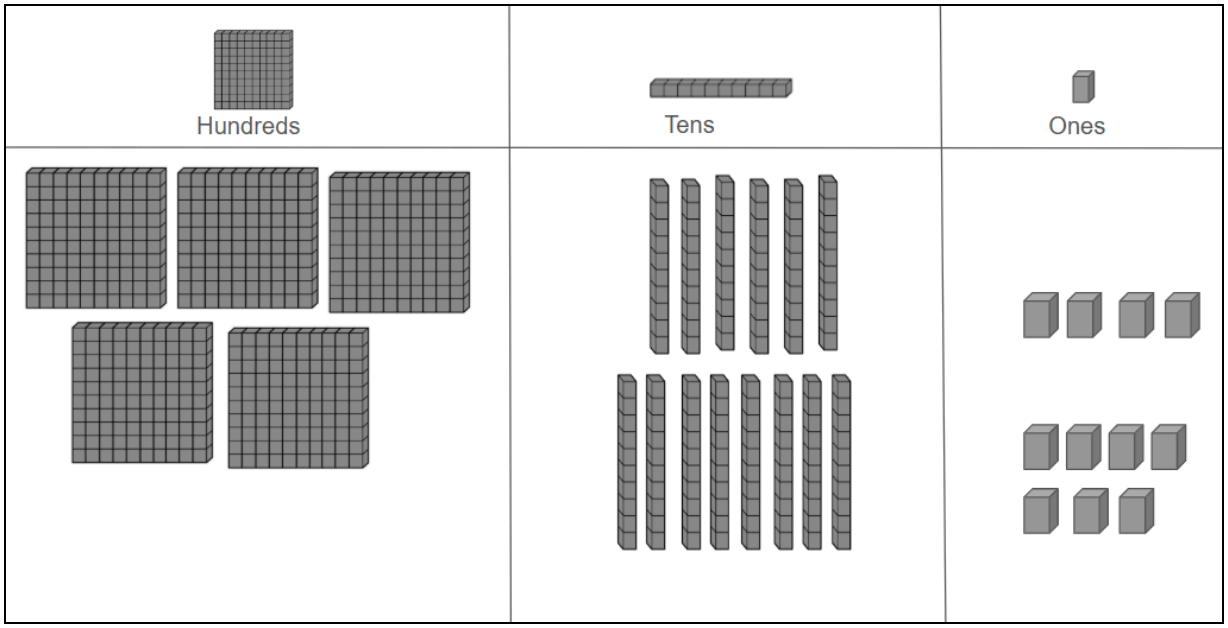
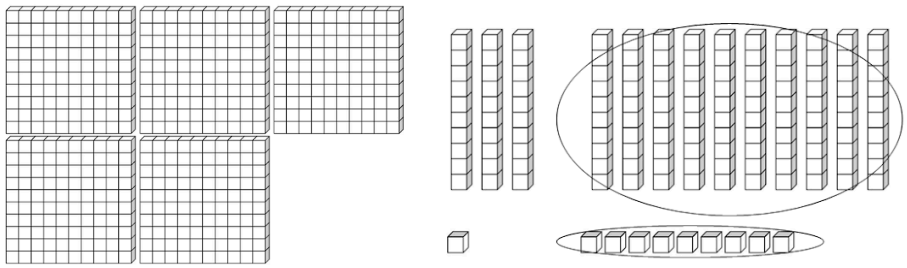
Examples and Explanations

There is a strong connection between this standard and place value understanding with addition and subtraction of smaller numbers. Students should have ample experience using concrete models or drawings to support the addition or subtraction of larger numbers. Strategies are similar to those stated in 2.NOF.C.6, as students extend learning to two 3-digit numbers.

This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. The standard algorithm of carrying or borrowing is not an expectation in second grade. **Students are not expected to add and subtract whole numbers using a standard algorithm until fourth grade.**

Example: 354 + 287 = __

Student A	I started at 354 and jumped 200. I landed on 554. I then made 8 jumps of 10 and landed on 634. I then jumped 6 to land on 640 to get to the next ten. Then I jumped 1 more and landed on 641. 354 + 287 = 641 

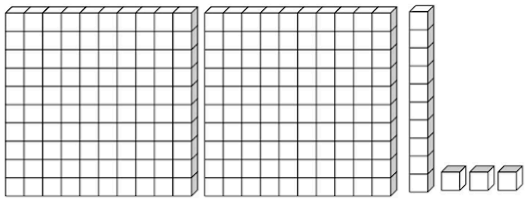
Student B	I used place value blocks and a place value mat. I broke all of the numbers and placed them on the place value mat. I first added the ones. 4 + 7 = 11. I then added the tens. 50 + 80 = 130. I then added the hundreds. 300 + 200 = 500. I then combined my answers. 500 + 130 = 630. 630 + 11= 641. 
Student C	I used place value blocks. I made a pile of 354. I then added 287. That gave me 5 hundreds, 13 tens, and 11 ones. I noticed that I could trade some pieces. I had 11 ones and traded 10 ones for a ten. I then had 14 tens, so I traded 10 tens for a hundred. I ended up with 6 hundreds, 4 tens, and 1 one. So, 354 + 287 = 641 

Student D	I used the arrow way to add. I started at 354 and added 100 twice to get to 554. I then added 50 to get to 604. Then I added 30 to get to 634. I then added 6 to make the next 10. I had 1 more to add to get to 641, so 354 + 287 is 641. 

Example: 213 - 124 = __

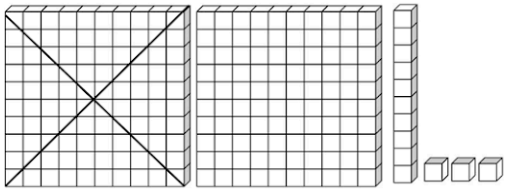
Student A

I used place value blocks. I made a pile of 213.

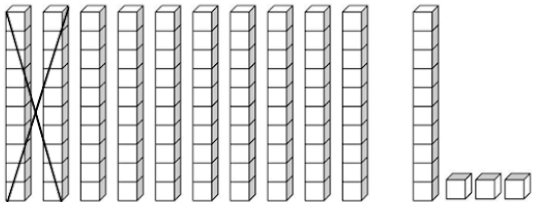


I then started taking away blocks.

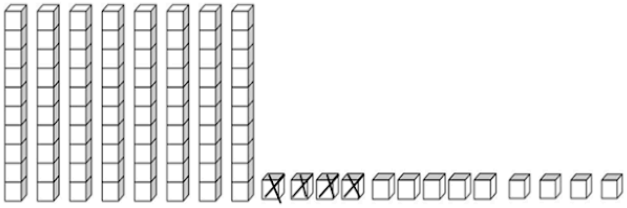
First, I took away a hundred which left me with 1 hundred and thirteen.



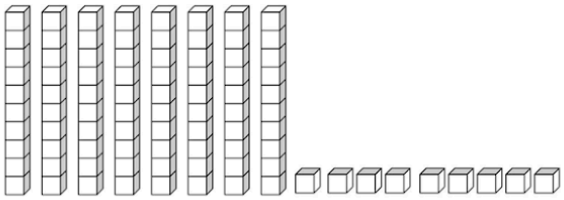
Now, I only need to take away 24.
I need to take away 2 tens, but I only had 1 ten, so I traded in my last hundred for 10 tens. Then I took two tens away, leaving me with no hundreds and 9 tens and 3 ones.



I then had to take 4 ones away, but I only have 3 ones. I traded in a ten for 10 ones. I then took away 4 ones.



This left me with no hundreds, 8 tens, and 9 ones. My answer is 89. **213 – 124 = 89**



B. Work with equal groups of objects to gain foundations for multiplication. In this cluster, the terms students should learn to use with increasing precision are **odd, even, row, column, rectangular array, equal, addend, equation,** and **total.**

2.AR.B.3 Determine whether a group of objects (up to 20) has an odd or even number of members.

a. Represent these situations by pairing objects or counting them by 2s.
b. Write an equation to express an even number as a sum of equal addends.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** 1.AR.C.5 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.NOF.B.3	Conceptual Understanding
Foundational Skills: 4. Count within 1000 by 2s, 5s, and 10s.		

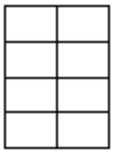
Examples and Explanations

The focus of this standard is placed on the conceptual understanding of even and odd numbers. Second graders apply their understanding of work with doubles to the concept of odd and even numbers. Students should have ample experiences exploring the concept that if a number can be decomposed (broken apart) into two equal addends or doubles addition facts (e.g., 10 = 5 + 5), then that number (10 in this case) is an even number. Students should explore this concept with concrete objects (e.g., counters, cubes) before moving toward pictorial representations, such as circles or arrays.

An even number is an amount that can be made of two equal parts with no leftovers. An odd number is not even or cannot be made of two equal parts and has a leftover. The number endings of 0, 2, 4, 6, and 8 are only an interesting and useful pattern or observation and should not be used as the definition of an even number. (Van de Walle & Lovin, 2006, p. 292)

Example: Is 8 an even number? Justify your thinking.

Student A	Student B
I grabbed 8 counters. I paired counters up into groups of 2. Since I didn't have any counters left over, I know that 8 is an even number.	I grabbed 8 counters. I put them into 2 equal groups. There were 4 counters in each group, so 8 is an even number.

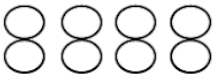


Student C

I drew 8 boxes in a rectangle that had two columns. Since every box on the left matches a box on the right, I know that 8 is even.

Student D

I drew 8 circles. I matched one on the left with one on the right. Since they all match up, I know that 8 is an even number.



Student E

I know that 4 plus 4 equals 8. So 8 is an even number.

2.AR.B.4 Use addition to find the total number of objects arranged in equal groups and rectangular arrays with up to 5 rows and up to 5 columns.

a. Write an equation to express the total as a sum of equal addends (a repeated addition equation).

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** 1.AR.C.5 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding
Foundational Skills: 3. Fluently add and subtract within 100 more or less.		

Examples and Explanations

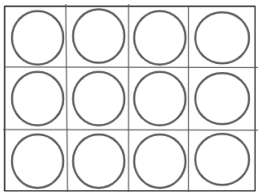
Second graders use rectangular arrays to work with repeated addition, a building block for multiplication in third grade. A rectangular array is any arrangement of things in rows and columns, such as a rectangle of square tiles. Students explore this concept with concrete objects (e.g., counters, bears, square tiles) as well as pictorial representations on grid paper or other drawings. Students can add either the rows or the columns and still arrive at the same solution.

- Geoboards can be used to demonstrate rectangular arrays

4 + 4 + 4 = 12

5 + 5 + 5 + 5 = 20

- What is the total number of circles below?



Student A	Student B
I see 3 counters in each column, and there are 4 columns. So I added 3 + 3 + 3 + 3. That equals 12.	I see 4 counters in each row, and there are 3 rows. So I added 4 + 4 + 4. That equals 12.
3 + 3 + 3 + 3 = 12	4 + 4 + 4 = 12

Geometric Reasoning & Logic

A. Reason with shapes and their attributes. In this cluster, the terms students should learn to use with increasing precision are **attribute[1], feature[1] angle, side, triangle, quadrilateral, square, rectangle, trapezoid, pentagon, hexagon, cube, face, edge, vertex, surface, figure, shape, closed, open, partition, equal size, equal shares, half, halves, thirds, half of, a third of, whole, two halves, three thirds, four fourths, rows, columns, circle, sphere, half-circle, quarter-circle, cone, prism, cylinder,** and **trapezoid.**

[1] **"Attributes"** and **"features"** are used interchangeably to indicate any characteristic of a shape, including properties, and other defining characteristics (e.g., straight sides) and non-defining characteristics (e.g., "right-side up").

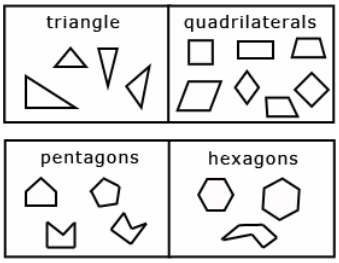
2.GL.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces*, with sizes being compared directly or visually. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
*Sizes are compared directly or visually, not compared by measuring.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Additional Content	**Previous Grade(s) Standard:** 1.GL.A.1 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency

Examples and Explanations

Students identify, describe, and draw triangles, quadrilaterals, pentagons, and hexagons. Pentagons, triangles, and hexagons should appear as both regular (equal sides and equal angles) and irregular. Students recognize all four-sided shapes as quadrilaterals. Students use the vocabulary word "angle" in place of "corner," but they do not need to name angle types. Shapes should be presented in a variety of orientations and configurations.



Example:

Teacher: Draw a closed shape that has five sides. What is the name of the shape?
Student: I drew a shape with 5 sides. It is called a pentagon.

Example:

Teacher: I have 3 sides and 3 angles. What am I?
Student: A triangle. See, 3 sides, 3 angles.

2.GL.A.2 Partition a rectangle into rows and columns of the same-size units, interpreting both as a collection of units and as single units, and count to find the total number of units. The rectangle should not be divided into more than 5 columns and 5 rows to correlate with 2.AR.B.4.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Additional Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency

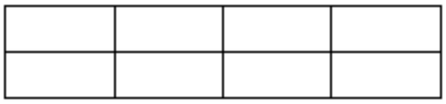
Examples and Explanations

This standard is a precursor to learning about the area of a rectangle and using arrays for multiplication. An interactive whiteboard or manipulatives such as square tiles, cubes, or other square-shaped objects can be used to help students partition rectangles.

Students should learn that rows are horizontal and columns are vertical.

Example:

Teacher: Partition the rectangle into 2 rows and 4 columns. How many units did you make?
Student: There are 8 squares in this rectangle. See... 2, 4, 6, 8. I folded the paper to make sure that they were all the same size.



2.GL.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.

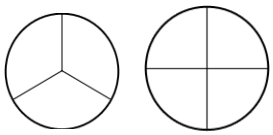
a. Identify examples and non-examples of halves, thirds, and fourths.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Additional Content	**Previous Grade(s) Standard:** 1.GL.A.3 **2nd Grade Standard Taught in Advance:** 2.GL.A.2 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency

Examples and Explanations

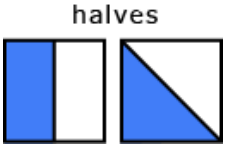
Second-grade students partition circles and rectangles into 2, 3, or 4 equal shares (regions). Students should be given ample experiences to explore this concept with paper strips and pictorial representations. Students should also work with the vocabulary terms halves, thirds, half of, third of, and fourth (or quarter) of. While students are working on this standard, teachers should help them to make the connection that a "whole" is composed of two halves, three thirds, or four fourths.

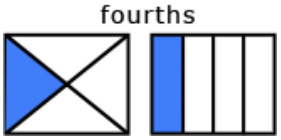


This standard also addresses the idea that equal shares of identical wholes may not have the same shape.

- For example, students should recognize that when they cut a circle into three equal pieces, each piece will equal one-third of its original whole. In this case, students should describe the whole as three-thirds. If a circle is cut into four equal pieces, each piece will equal one-fourth of its original whole and the whole is described as four-fourths.

  Students should see circles and rectangles partitioned in multiple ways so they learn to recognize that equal shares can be different shapes within the same whole. An interactive whiteboard may be used to show partitions of shapes.





Data Analysis and Measurement

A. Measure and estimate lengths in standard units. In this cluster, the terms students should learn to use with increasing precision are **measure, about, a little less than, a little more than, longer, shorter, standard units, inch, foot, metric units, centimeter, meter, tools, ruler, yardstick, meter stick, measuring tape, estimate, total,** and **difference**

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

Standard Overview

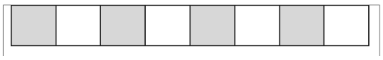
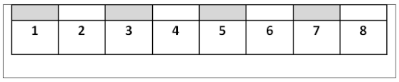
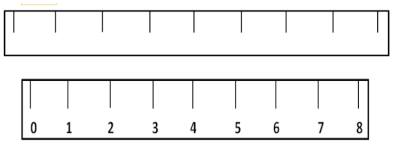
Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** 1.DM.A.2 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Procedural Skill and Fluency
Foundational Skills: 8. Measure to determine how much longer one object is than another using standard length units.		

Examples and Explanations

Students in second grade will build upon what they learned in first grade, from measuring length with non-standard units to the new skill of measuring length in metric and U.S. Customary with standard units of measure. They should have many experiences measuring the length of objects with rulers, yardsticks, meter sticks, and tape measures. These foundational understandings of measurement are to be developed:

- Understand that larger units (e.g., yard) can be subdivided into equivalent units (e.g., inches) (partition).
- Understand that the same object or many objects of the same size, such as paper clips, can be repeatedly used to determine the length of an object (iteration).
- Understand the relationship between the size of a unit and the number of units needed (compensatory principle). Thus, the smaller the unit, the more units it will take to measure the selected attribute.

When second-grade students are provided with opportunities to create and use a variety of rulers, they can connect their understanding of non-standard units from first grade to standard units in second grade.

By helping students progress from a “ruler” that is blocked off into colored units (no numbers)…	
…to a “ruler” that has numbers along with the colored units…	
…to a “ruler” that has inches (centimeters) with and without numbers, students develop the understanding that the numbers on a ruler do not count the individual marks but indicate the spaces (distance) between the marks. This is a critical understanding students need when using such tools as rulers, yardsticks, meter sticks, and measuring tapes.	

While not a requirement of the standard, second-grade students provided with sufficient practice may learn specific measurement facts as a result of the work:

- There are 12 inches in a foot.
- There are 3 feet in a yard.
- There are 100 centimeters in a meter.

2.DM.A.2 Measure the length of an object twice, using two different units of length (inches, feet, centimeters, or meters) or two different measurements.

a. Describe how the two measurements relate to the size of the unit chosen with a written response.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.DM.A.1, 2.DM.A.3 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency
Foundational Skills: 8. Measure to determine how much longer one object is than another using standard length units.		

Examples and Explanations

Students measure the length of the same object using different tools (ruler with inches, ruler with centimeters, a yardstick, or a meter stick). This will help students learn which tool is more appropriate for measuring a given object. They describe the relationship between the size of the measurement unit and the number of units needed to measure something. For instance, a student might say, "The longer the unit, the fewer I need." Multiple opportunities to explore relating within customary (inches to feet to yards) and within metric (centimeters to meters) should be provided.

Example: A student measured the length of a desk in both feet and inches. She found that the desk was 3 feet long. She also found out that it was 36 inches long.

Teacher: Why do you think you have two different measurements for the same desk?
Student: It only took 3 feet because the feet are so big. It took 36 inches because an inch is a whole lot smaller than a foot.

2.DM.A.3 Estimate lengths using units of inches, feet, centimeters, and meters to the nearest whole unit.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.DM.A.1 **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding
Foundational Skills: 8. Measure to determine how much longer one object is than another using standard length units.		

Examples and Explanations
Estimation helps develop familiarity with the specific unit of measure being used. To measure the length of a shoe, knowledge of an inch or a centimeter is important so that the student can approximate the length in inches or centimeters. Students should begin practicing estimation with items that are familiar to them (length of desk, pencil, favorite book, etc.). Once a student has made an estimate, the student then measures the object and reflects on the accuracy of the estimate made, and considers this information for the next measurement.

Example:

Teacher: How many inches do you think this string is if you measured it with a ruler?
Student: An inch is pretty small. I'm thinking it will be somewhere between 8 and 9 inches.
Teacher: Measure it and see.
Student: It is 9 inches. I thought that it would be somewhere around there.

Teachers may want to work with students to develop useful body benchmarks, such as the ones below, recognizing that body benchmarks may need to be adjusted for some students.

- Width of the pinky finger is about a centimeter
- First joint to the tip of the thumb is about an inch
- Length from your elbow to your wrist is about a foot
- If your arm is held out perpendicular to your body, the length from your nose to the tip of your fingers is about a yard

2.DM.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of the same standard length unit.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.DM.A.3 **2nd Grade Standard Taught Concurrently:** none	Procedural Skill and Fluency
Foundational Skills: 7. Compare numbers up to 1000, identifying whether one number is greater than, less than, or equal to another. 8. Measure to determine how much longer one object is than another using standard length units.		

Examples and Explanations

Second graders should be familiar enough with inches, feet, yards, centimeters, and meters to be able to compare the differences in lengths of two objects. They can make direct comparisons by measuring the difference in length between two objects by laying them side by side and selecting an appropriate standard length unit of measure. Students should use comparative phrases such as "It is longer by 2 inches" or "It is shorter by 5 centimeters" to describe the difference between two objects.

Example:

Teacher: Choose two pieces of string to measure. How many inches do you think each string is?
Student: I think string A is about 8 inches long. I think string B is only about 4 inches long. It's really short.
Teacher: Measure to see how long each string is. *Student measures.* What did you notice?
Student: String A is 10 inches long. String B is 6 inches long.
Teacher: How much longer is string A than string B?
Student: Hmmm. String B is 6 inches. It would need 4 more inches to be 10 inches. So string A is 4 inches longer.

B. Relate addition and subtraction to length. In this cluster, the terms students should learn to use with increasing precision are **inch, foot, yard, centimeter, meter, ruler, yardstick, meter stick, measuring tape, estimate, length, equation, number line, equally spaced, point, addition, subtraction, unknown, totals, differences, measure, standard units, customary, metric, units,** and **differences.**

2.DM.B.5 Use addition and subtraction up to 100 to solve one- and two-step real-world mathematical tasks involving lengths that are given in the same units by using drawings, such as drawings of rulers and equations with a symbol for the unknown number to represent the problem.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** 2.DM.A.4 **2nd Grade Standard Taught Concurrently:** 2.NOF.A.1, 2.DM.B.6	Application
Foundational Skills: 3. Fluently add and subtract within 100 using strategies. 8. Measure to determine how much longer one object is than another using standard length units.		

Examples and Explanations
Students need experience working with addition and subtraction to solve word problems, which include measures of length. It is important that word problems stay within the same unit of measure. Counting on and/or counting back on a number line will help tie this concept to previous knowledge. Some representations students can use include drawings, rulers, pictures, and/or physical objects.

Examples:

- Mary is making a dress. She has 5 yards of fabric. She uses some of the fabric and has 2 yards left. How many yards did Mary use? 5 – ? = 2
- The length of Tracy's desk is 23 inches. The teacher's desk measures 60 inches. How much longer is the teacher's desk than Tracy's desk? 23 + ? = 60 or 60 – 23 = ?

2.DM.B.6 Create a number line diagram with equally spaced points corresponding to whole numbers (0, 1, 2, etc.), using 0 or another whole number as a starting point.

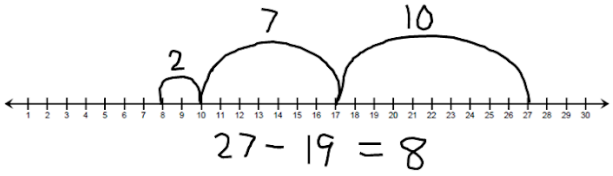
a. Recognize that each mark on a number line represents one whole number and that each position corresponds to a single value.
b. Represent whole numbers as lengths from 0.
c. Represent whole-number sums and differences up to 100 on a number line diagram.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Major Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.DM.B.5, 2.DM.D.9	Conceptual Understanding

Examples and Explanations
Students represent thinking when adding and subtracting within 100 by using a number line.
Example: There were 27 students on the bus. 19 got off the bus. How many students stayed on the bus?

Student: I used a number line. I started at 27. I broke 19 into 10 and 9. That way, I could take a jump of 10. I landed on 17. Then I broke the 9 into 7 and 2. I took a jump of 7. That got me to 10. Then I took a jump of 2. That's 8. So, there are 8 students now on the bus.



C. Work with time and money. In this cluster, the terms students should learn to use with increasing precision are **clocks, hand, hour hand, minute hand, hour, minute, a.m., p.m., o'clock, *multiples of 5*** **(e.g., five, ten, fifteen, etc.), analog clock, digital clock, quarter 'til, quarter after, half past, quarter hour, half hour, thirty minutes before, 30 minutes after, 30 minutes until, 30 minutes past, quarter, dime, nickel, dollar, cent(s), $, ¢, heads,** and **tails.**

2.DM.C.7 Tell, write, and represent time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

a. Express portions of an hour using the fractional terms half an hour, half past, quarter of an hour, quarter after, and quarter til.

Standard Overview

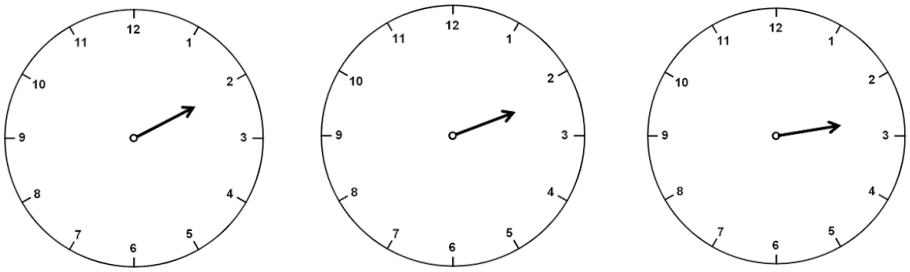
Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** 1.DM.B.3 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** none	Conceptual Understanding, Procedural Skill and Fluency
Foundational Skills: 4. Count within 1000 by 2s, 5s, and 10s.		

Examples and Explanations

In first grade, students learned to tell time to the nearest hour and half-hour. Students build on this understanding in second grade by skip-counting by 5 (2.NOF.B.3) to recognize 5-minute intervals on the clock. They need exposure to both digital and analog clocks. It is important that they can recognize time in both formats and communicate understanding of time using both numbers and language.

Students should understand that there are 2 cycles of 12 hours in a day — a.m. and p.m. Recording the daily actions in a journal would be helpful for making real-world connections and understanding the difference between these two cycles.

Learning to tell time is challenging for second-grade students. In order to read an analog clock, they must be able to read a dial-type instrument. Furthermore, they must realize that the hour hand indicates broad, approximate time while the minute hand indicates the minutes in between each hour. As students experience clocks with only hour hands, they begin to realize that when the time is two o'clock, two-fifteen, or two forty-five, the hour hand looks different, but is still considered "two." Discussing time as "about 2 o'clock," "a little past 2 o'clock," and "almost 3 o'clock" helps build vocabulary to use when introducing time to the nearest 5 minutes.



All of these clocks indicate the hour of “two,” although they look slightly different. This is an important idea for students as they learn to tell time.

2.DM.C.8 Solve real-world mathematical tasks involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.AR.A.1	Application
Foundational Skills: 4. Count within 1000 by 2s, 5s, and 10s.		

Examples and Explanations

Students should solve story problems connecting the different representations. These representations may include objects, pictures, charts, tables, words, and/or numbers. **Because students have no understanding of place values associated with decimals, problems should focus on whole dollar amounts or cents.** Students should communicate their mathematical thinking and justify their answers. First-grade students are expected to determine the value of a set of same-type coins. In grade 2, students should extend this to finding the value of a set of different-type coins.

Solving problems with money can be a challenge for young children because it builds on prerequisite number and place value skills and concepts. Many times money is introduced before students have the necessary number sense to work with money successfully.

> For these values to make sense, students must have an understanding of 5, 10, and 25. More than that, they need to be able to think of these quantities without seeing countable objects… A child whose number concepts remain tied to counts of objects [one object is one count] is not going to be able to understand the value of coins. (Van de Walle & Lovin, p. 150, 2006)

Just as students learn that a number (38) can be represented differently (3 tens and 8 ones; 2 tens and 18 ones) and remains the same amount (38), students can apply this understanding to money. For example, 25 cents can look like a quarter, two dimes and a nickel, and it can look like 25 pennies, and still all remain 25 cents. This concept of equivalent worth takes time and requires numerous opportunities to create different sets of coins, count sets of coins, and recognize the “purchase power” of coins (a nickel can buy the same things as 5 pennies).

Examples:

- Sandra went to the store and received 76¢ in change. What are three different sets of coins she could have received?
- Katie spent $3 at the store. She gave the cashier a $5 bill. How much change should Katie get back?
- How many different ways can you make $12 using $1, $5, and $10 bills?
- What is the value of 2 quarters, 3 dimes, 4 nickels, and 3 pennies in cents?

D. Represent and interpret data. In this cluster, the terms students should learn to use with increasing precision are **collect, organize, display, show, data, attribute, sort, line plot, picture graph, bar graph, category, chart, table, most, least, more than, less than, about, same, different, measure, inch, foot, yard, centimeter, meter,** and **length**.

2.DM.D.9 Generate measurement data by either measuring the lengths of several objects to the nearest whole unit or by taking repeated measurements of the same object.

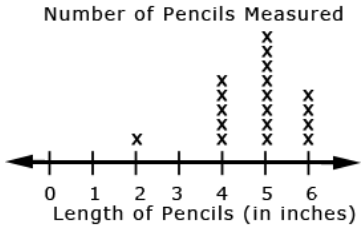
a. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

Standard Overview

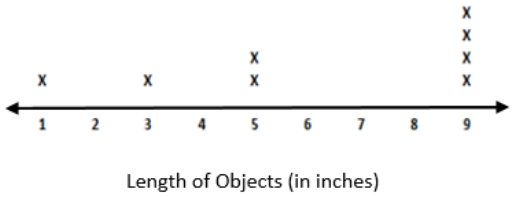
Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** none **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.DM.B.6	Procedural Skill and Fluency

Examples and Explanations

This standard emphasizes representing data using a line plot. Students will use the measurement skills learned in other measurement standards to measure objects, rounding lengths to the nearest whole unit. Line plots are first introduced in this grade level. A line plot can be thought of as plotting data on a number line.



Example: Measure the 8 objects in the basket on your desk to the nearest inch. Then, display your data on a line plot.



The student creates the above line plot, and the teacher follows up with questions for the student.

Teacher: What do you notice about your data?
Student: Most of the objects I measured were 9 inches. Only 2 objects were smaller than 4 inches. I was surprised that none of my objects measured more than 9 inches!
Teacher: Do you think that if you chose all new objects from the basket, your data would look the same? Different? Why do you think so?

2.DM.D.10 Draw a picture graph and a bar graph with a scale of 1, 2, 5, or 10 to represent a data set with up to four categories.

a. Solve simple put-together, take-apart, and compare real-world mathematical tasks using information presented in a picture graph or bar graph.

Standard Overview

Core Tenets		
Focus	**Coherence**	**Rigor**
Supporting Content	**Previous Grade(s) Standard:** 1.DM.C.4 **2nd Grade Standard Taught in Advance:** none **2nd Grade Standard Taught Concurrently:** 2.AR.A.1	Procedural Skill and Fluency, Application
Foundational Skills: 3. Fluently add and subtract within 100 using strategies.		

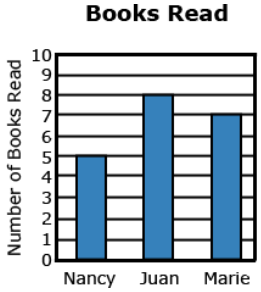
Examples and Explanations

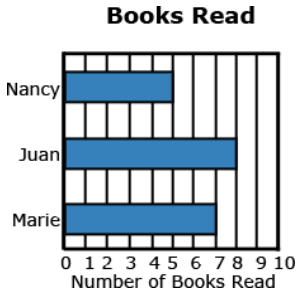
Students should draw both picture and bar graphs representing data that can be sorted up to four categories using single-unit scales (e.g., scales should count by ones). This is an extension from first grade in which students were limited to three categories. The data should be used to solve put-together, take-apart, and compare problems as listed in Table 1 found at the end of this document.

In second grade, picture graphs (pictographs) include symbols that represent single units. Pictographs should include a title, categories, category labels, key, and data.

Number of Books Read	
Nancy	✦ ✦ ✦ ✦ ✦
Juan	✦ ✦ ✦ ✦ ✦ ✦ ✦ ✦
✦ = 1 Book	

Second graders should draw both horizontal and vertical bar graphs. Bar graphs include a title, scale, scale label, categories, category label, and data.





Example:

The second-grade students were responsible for purchasing ice cream for an Open House event at school. They decided to collect data to determine which flavors to buy for the event. As a group, the students decided on the question, “What is your favorite flavor of ice cream?” and 4 likely responses: “chocolate,” “vanilla,” “strawberry,” and “cherry.”

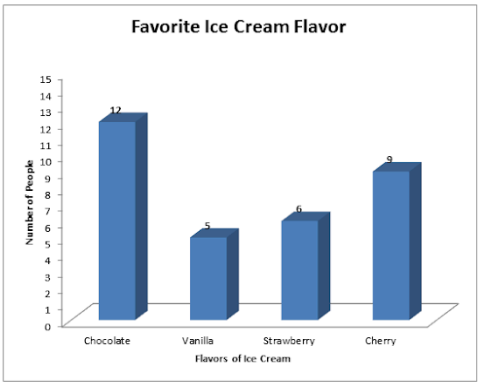
The students then divided into teams and collected data from different classes in the school. Each team decided how to keep track of the data. Most teams used tally marks to keep up with the responses. A few teams used a table and check marks.

When back in the classroom, each team organized the data by totaling each category in a chart or table. Team A’s data was as follows:

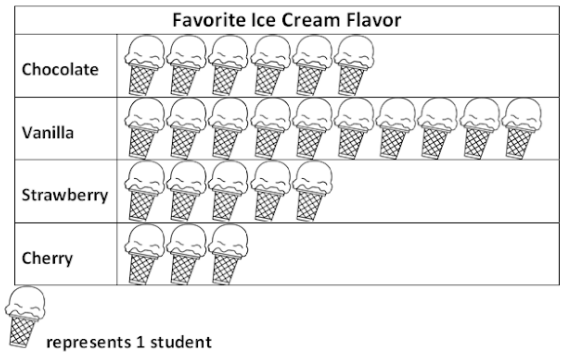
Flavor	Number of People
Chocolate	12
Vanilla	5
Strawberry	6
Cherry	9

Each team selected either a picture graph or a bar graph to display the data and created it using either paper or the computer. Team A and Team B graphs are provided here:

Team A: Bar Graph



Team B: Picture Graph



Teams then analyzed and recorded observations made from the data. The teacher posed simple problems:

- The total number of chocolate votes for Team A was 12, and the total number of chocolate votes for Team B was 6. How many chocolate votes are there altogether?
- Right now, with data from Team A, Team B, and Team C, vanilla has 45 votes, and chocolate has 34 votes. How many more votes would we need from Team D so that chocolate had the same number of votes as vanilla?
- Right now, cherry has a total of 22 votes. What if eleven people came and wanted to change the vote from cherry to another choice? How many votes would cherry have?

Cross Content Connections

Mathematics supports understanding and skills across all disciplines. The ability to apply mathematics learning across disciplines allows students to transform abstract concepts into practical tools, deepen engagement, think critically and apply mathematics to the real world.

English Language Arts

The connection between math and English Language Arts (ELA) begins in disciplinary literacy, which requires literacy skills in technical subjects, including the ability to decode complex word problems as narrative structures. Students must master the language of math by using ELA skills like reading comprehension and argumentative writing to explain their reasoning, prove theorems, and articulate the logic behind their numerical solutions.

Science

K-12 math and science are deeply integrated, with mathematics serving as the essential language that allows students to quantify, model, and analyze real-world phenomena they observe in science. As students progress, they use mathematics and computational thinking, ranging from simple data graphing to complex algebraic modeling, to turn raw scientific observations into evidence-based conclusions and predictable patterns. Explicit connections between the LSSM and Louisiana Student Standards for Science (LSSS) can be found on the Connections to K-12 ELA and Math document within the LSSS files.

Computer Science

The integration of mathematics and computer science is codified through state standards that treat computational thinking as a practical application of algebraic logic and problem-solving. Students use mathematical foundations, such as functions and data analysis, to build algorithms and write code that solves real-world challenges in Louisiana's growing technology and energy sectors. The Louisiana CS Frameworks make explicit connections and embed technology tools such as artificial intelligence to support students as they engage in math and computer science learning. Students can strategically use artificial intelligence tools to explore math ideas, test conjectures, analyze patterns and trends, and refine their thinking. The appropriate and skillful use of artificial intelligence in math requires students to use their mathematical reasoning to validate and critique artificial intelligence outputs in addition to naming how the use of artificial intelligence

supports and extends their thinking, understanding, and reasoning about concepts, ensuring the student maintains ownership of the mathematics, and leverages artificial intelligence as a resource.

Social Studies

The intersection of math and social studies is most evident in the analysis of historical data and economic trends, allowing students to quantify the impact of events such as the Great Flood of 1927 or the evolution of Louisiana's energy industry. By applying statistical tools to demographic shifts and geographic mapping, students move beyond historical content standards to demonstrate understanding of the skills and practices standards for social studies. Identifying and interpreting mathematical patterns strengthens students' ability to recognize trends that have shaped the geographical, economic, political, and cultural landscape of our state, nation, and world.

Leveraging Lower Grade Standards to Support Student Learning

Grade 1 Standards

1.AR.A.1 Use addition and subtraction within 20 to solve real-world mathematical tasks involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.

a. Represent these situations using models and equations, elevating the concrete-representational-abstract instructional framework. *Return to* 2.AR.A.1

1.AR.B.3 Apply properties of operations to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) *Return to* 2.NOF.C.9

1.AR.B.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8. Return to* 2.NOF.C.9

1.AR.C.5 Interpret the meaning of the equal sign.

a. Understand that the equal sign represents a relationship where expressions on each side of the equal sign represent the same value(s).
b. Determine if equations involving addition and subtraction are true or false.

Return to 2.AR.B.3, 2.AR.B.4

1.AR.E.8 AAdd one and two digit numbers within the range of 0-99, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10.

a. Use concrete models or drawings and strategies based on place value, properties of operations, and the part:whole relationship between addition and subtraction to add and subtract; relate the strategy to a number sentence.
b. Understand that in adding two-digit numbers, one must add tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
c. Justify the reasoning of methods for addition used with an oral or written explanation.

Return to 2.AR.A.1, 2.NOF.C.6

1.AR.E.9 Subtract two digit numbers, limited to multiples of 10 using concrete models or drawings and strategies based on place value, properties of operations, and the part:whole relationship between addition and subtraction.

a. Justify the reasoning used when choosing the model or strategy to compute with an oral or written explanation.
b. *Return to* 2.AR.A.1, 2.NOF.C.6

1.NOF.A.2 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

a. Use mental strategies such as
   - counting on or counting back;
   - using a number line or path;
   - making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14);
   - decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9);
   - using the part-whole relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and
   - creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

Return to 2.NOF.A.1

1.NOF.A.3 Given a two-digit number, mentally find one more, 10 more, one less, or 10 less than a given number, without having to count. Justify the reasoning used when computing mentally with an oral and/or written explanation. *Return to* 2.AR.A.1, 2.NOF.C.6

1.NOF.C.5 Understand that the two digits of a two-digit number represent amounts of tens and ones.

a. Read, write, and represent two-digit numbers up to 99 using base-ten numerals, standard form, word form, and unit form (i.e., 42 and 4 tens 2 ones). Understand the following as special cases:
   - 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 and one, two, three, four, five, six, seven, eight, or nine ones: the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens and 0 ones.

Return to 2.NOF.B.2

1.DM.A.2 Express the length of an object as a whole number of length units by laying multiple copies of a shorter object (the length unit) end to end.

a. Understand that the length measurement of an object is the number of same-size length units that span the distance with no gaps or overlaps. *Return to* 2.DM.A.1

1.DM.B.3 Tell and write time in hours and half-hours using analog and digital clocks. *Return to* 2.DM.C.7

1.DM.C.4 Use tally marks, t-charts, and tables with up to three categories to:

a. Create bar graphs and picture graphs to represent data precisely with accurate scaling within a scale of 1 or 2; and

b. Interpret data represented in a chart or graph by asking and answering questions about:
    - the total number of data points;
    - how many in each category; and
    - how many more or less are in one category than in another. *Return to* 2.DM.D.10

1.GL.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size).

a. Build and draw shapes that possess defining attributes.

Verbally describe why a shape belongs to a given category. *Return to* 2.GL.A.1

1.GL.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves, fourths, and quarters*, and use the phrases *half of, fourth of, and quarter of*. Describe the whole as two of, or four of the shares.

a. Understand for these examples that decomposing into more equal shares creates smaller shares.
b. Identify examples and non-examples of halves and fourths.

Return to 2.GL.A.3

Table 1. Common addition and subtraction situations.[1]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3
	Total Unknown	**Addend Unknown**	**Both Addends Unknown[3]**
Put Together / Take Apart[2]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red, and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ?	Grandma has five flowers. How many can she put in her red vase, and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare[4]	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 – 3 = ?, ? + 3 = 5

[1]Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).
[2]These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in, but always does mean is the same number as.
[3]Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.
[4]For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.